The determination of fundamental physical constants (FPC) in Tsiganok gravitational theory (TGT)

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Abstract:

Fundamental physical constants (FPC) were discovered in Tsiganok gravitational theory (TGT). The definition of fundamental physical constant (FPC) in Tsiganok gravitational theory (TGT) was given. The gravitational formula (GF) was derived. There were given definitions to and determined

1. – the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$
2. – the constant of the gravitational field of the mass of the first body A_{1}^{M}
3. – the gravitational constant G,
4. – the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M_{1.0}^{A}$
5. – the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$
6. – the constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$
7. – the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$
8. – the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^{A}$

9. – the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g^{R}_{1.0}$

10. – the gravitational acceleration of the first body (standard acceleration of gravity) g_1

11. – the constant of the gravitational radius of the mass of 1.0 g of the body $R^{M}_{1.0}$

12. – the constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body $R^{g}_{1.0}$

13. – the speed of light in vacuum c

14. – the constant of the weight of the gravitational radius of 1.0 cm of the body $P^{R}_{1.0}$

15. – the constant of the density (specific gravity) of the gravitational radius of 1.0 cm of the body $\rho^{R}_{1.0}$

16.– the constant of the gravitational force of the mass of 1.0 cm of the body $F_{sta-sta}$

17. – the constant of the pressure of the gravitational force of 1.0 cm of the body $p^{M}_{1.0}$

The fundamental physical constants (FPC) in Tsiganok gravitational theory (TGT) were determined on the examples of the 1.0 g of the body ($M_{1.0g} = 1.0\ g$), 1.0 cm^3/s^2 of the body ($M_{1.0cm^3/s^2} = 9585.522\ g$), 1.0 cm/s^2 of the body ($M_{1.0cm/s^2} = 3.8994 \times 10^{21} g$), the Sun (star), the Earth (planet), the Moon (planetary satellite), (3671) Dionysus (asteroid), 67P/Churyumov–Gerasimenko (comet), Sagittarius A (black hole) and the Milky Way galaxy centre ( ). The indissoluble interconnection of all Fundamental physical constants (FPC) in Tsiganok gravitation theory (TGT) as well as with all the other parameters in physics was confirmed both theoretically and experimentally. The validity of the mechanism of the comparison of the gravitational field that are generated by the first body and the second body according to TGT was confirmed both theoretically and experimentally. The validity of the so–called Newton's second law wasn’t confirmed either theoretically and experimentally. Fundamental physical constants (FPC) in Tsiganok gravitational theory (TGT) the validity of was confirmed both theoretically and experimentally ?Tsiganok gravitational law (TGL), gravitational formula (GF) and Tsiganok gravitational theory (TGT) was confirmed both theoretically and experimentally. The validity of the known so–called fundamental physical constants (FPC) determined with the doubtful Newton?? theory of gravitational wasn't confirmed either theoretically and experimentally.

Keywords: fundamental physical constant (FPC), Tsiganok gravitational law (TGL), gravitational formula (GF), Tsiganok gravitational theory (TGT), Tsiganok unit system (TUS), gravitational constant, centrifugal force, mass, force, speed of light in vacuum, gravitational acceleration, distance, velocity, gravitational radius.

Contents

I. Introduction

The development of science and technology radically changed the human outlook. The usage of modern methods and devices for the investigation of the Universe made it possible to find the answers to a number of questions dealing with the structure and functions of the Solar system and the Universe on the whole.

Standard acceleration of gravity, speed of light in vacuum, were determined experimentally. With the help of accelerators, colliders, detectors, lasers, nuclear reactors, interferometers, etc. there were discovered the so–called elementary particles? (fundamental particles?), the products of their decay, the parameters of space navigation were made more exact, there were determined the time, pressure, temperature, velocity of liquids and gaseous flows, angular velocity (laser gyroscope), substance concentration, optical density, various optical parameters and characteristic, etc.

However, a number of other actual questions were not answered [1].

Now more than 300 so–called fundamental physical constants ("Universal constants", "Electromagnetic constants", "Atomic and nuclear constants", "Physico-chemical constants", "Adopted values", "Non–SI units", "X–ray values", "Frequently used constants", etc.) are known in physics [2]. However, more than 300 physical constants cannot be fundamental. By analogy with this, a great number of the so–called elementary particle (fundamental particle) cannot be elementary.

As a result, the attempts to solve different problems were not successful. There is no definition of the notion of FPC. There is no comprehension of the mechanism of gravitation. The interrelationship between the so–called Cavendish gravitational constant and the known so-called FPC determined according to the dubious Newton's? gravitational theory wasn't established. The known so–called four fundamental interactions or forces: (gravitation, electromagnetism, the weak interaction, and the strong interaction), etc. were not united with the help of the determination of the constant of unique ?(uniform) interaction [2].

The reason of these unsuccessful efforts was that the known physical constants were not properly grounded.

2. The analysis of publications

2.1. The results of the work done

The first efforts the determine the gravitational acceleration were undertaken by Galileo in 1590 [3]. He determined, on the basic of the law of the uniformly accelerated motion of a freely falling body, that the distance covered by this freely falling body during the first second is numerically equal to half of the gravitational acceleration ($s = g \times \frac{t^2}{2}$). The method of Galileo required the exact determination of the distance, time, air resistance, etc., which was problematic at that time.

More exactly the gravitational acceleration g was determined by Huygens in 1673 [4] with the help of pendulum (mathematics). Huygens determined the dependence between the period of pendulum (mathematics) oscillations T, its given ??length l and the gravitational acceleration g for infinitely small fluctuations Huygens ($T \approx 2 \times \pi\sqrt{\frac{l}{g}}$).

In different periods of time for the determination of the gravitational acceleration there were used: falling of bodies, pendulum oscillation, heavy gyroscope procession, the oscillation of a string? curvature of rotating liquid surface (the same as gyroscope)?, bodies deformation under the action of the constant mass, the hovering of a conductor with current in the field of constant mass, the increase of liquid in a capillary, etc.

The determination of the speed of light in vacuum was caused by the necessity to find a quick and reliable method to determine the longitude at sea and on the Earth surface under the condition that there were no exact chronometers that can endure storms and "keep" the time of the port of departure with them. Ole Christensen Rømer suggested replacing chronometer by a table containing the time by Jupiter satellite Io eclipse in 1676 [5]. Ole Christensen Rømer out found in the process observations that in Io eclipses? There? are some deviations from periodicity that are accounted for the finite velocity of light spreading.

It is considered that Cavendish determined the so–called gravitational constant from the doubtful Newtonian gravitational law with the help of John Michell torsion balance in 1798 [6]. It is considered that the physical sense of the so–called Cavendish gravitational constant is the force of gravitation between of the first ball ($M_1 = 1.0\ g$) and the mass of the second ball ($M_1 = 1.0\ g$) located at the distance of $R_{1-2} = 1.0\ cm$. However, it is problematic to determine such an insignificant force in the result of direct measurement, as for example, with the help of dynamometer. That's why in the so–called Cavendish experiment to determine the force necessary to decline the beam of torsion balance at a certain distance, this beam was set in motion and after that coming from the time of its oscillation and using the doubtful formula there was found the so–called force $6.754 \times 10^{-8}\ cm^3/gs^2$ (at present $6.67384(80) \times 10^{-8}\ cm^3/gs^2$) and the so–called average density of the Earth $5{,}448\ \pm\ 0{,}033\ g/cm^3$ (at present $5{,}5134\ \pm\ 0{,}0006\ g/cm^3$).

The dimension of the so–called Cavendish gravitational constant cm^3/gs^2 has no physical sense because it was adjusted for obtaining the force dimension in the doubtful Newtonian gravitational law. The dimensions of the so–called average density (specific gravity) the Earth g/cm^3 has no physical sense because mass isn't a virtual value.

The fact, that the increasing of average distance between the with first body larger mass ????M_1 and the one that rotates round the second with smaller mass of the body M_2 R_{1-2} that rotates round is compensated by decreasing the average orbital velocity in such a way, that the value of the product of the average distance between the first body and the second one V_2^2 by the squared average orbital velocity doesn't change in this case, $R_{1-2} \times V_2^2 = const$. However, the conclusions made from this fact were wrong.

Kepler couldn't draw the correct conclusion from his ?Kepler's third Law in 1619.

Newton tried to prove that the doubtful Newtonian gravitational law was derived from Kepler's third Law to make it more plausible [8].

Thus, for example, Clausius made a wrong conclusion about interconnection between the average value of summary (total) kinetic energy of the system of bodies moving in the bounded area of space and acting with forces there in the virial theorem [7] in 1870.

It is considered that the so–called Schwarzschild radius R_S is equal to the relation of the product of the doubled so–called Cavendish gravitational constant by the mass of the body M to the squared speed of light in vacuum c^2 ($R_S = 2 \times G \times \frac{M}{c^2}$) [8].

Many books, articles and dissertations were written about the known physical constants but there is still no complete clearness yet [9, 10, 11, 12, 13, 14, 15, 16]. Some so–called physical constant (FPC)?? were worked out according the doubtful Newtonian gravitation theory: Cavendish gravitational constant, Planck constant, Planck length, Planck mass, Planck time, Planck charge, Planck temperature, reduced Planck constant, Coulomb's constant, Bohr magneton, electron mass, Atomic mass constant, Loschmidt constant, Stefan–Boltzmann constant, cosmological constant, etc. [19 CODATA]. This pseudoscientific activity resulted in obtaining more than 300 so–called FPC.

2.2. The main advantages of the work done

The analysis of the known research made it possible to formulate the following main advantage of the works done:

– the discovery of the law of the uniformly accelerating motion of a freely falling body by Galileo in 1590 [3];

– the experimental determination of the gravitational acceleration of the Earth g_{ear};

– the discovery of Huygens equations of pendulum (mathematics) in 1673 [4];

– the experimental determination of Ole Christensen Rømer speed of light in vacuum in 1676 [5];

2.3. The main desadvantages of the work done

The analysis of the known researches made it possible to formulate the following main disadvantages of the work done:

– there is no definition of the FPC;

– there is no theoretical ground of Kepler's third Law;

– the definitions and the formulas of the determination of the known so-called FPC determined according to the doubtful Newtonian gravitational theory are grounded insufficiently;

– the methods of the determination of the known so–called FPC determined according to the doubtful Newtonian gravitational theory are grounded insufficiently with the exception of the determination of the speed of light in vacuum;

– the so–called Cavendish gravitational constant from the doubtful Newtonian gravitational law was determined from the dubious formula but not as a result of the so–called Cavendish experiment;

– the mechanism of the gravitational between the bodies wasn't determined either theoretically or experimentally;

– the validity of the formula of the so–called second law of motion wasn't confirmed either theoretically or experimentally;

– the interrelationship between the known so–called FPC that were determined according to the doubtful Newtonian gravitational theory as well us with all other parameters in physics wasn't confirmed theoretically or experimentally;

– the validity of the doubtful Newtonian gravitational law, doubtful Newtonian gravitational theory and its mathematical apparatus were not proved.

3. The problem

In connection with the foregoing, the researches are aimed at the following:

1. – to give the definition of FPC in TGT;

2. – to give the definition of gravitational field;

3. – to derive gravitational formula (GF);

4. – to give the definition and to determine the constant of the gravitational field of the mass of 1.0 g of the body $A^M_{1.0}$;

5. – to give the definition and to determine the constant of the gravitational field of the mass of the first body A^M_1;

6. – to give the definition and to determine the gravitational constant G;

7. – to give the definition and to determine the constant of the mass of the gravitational field of 1.0 $cm/s^2$of the body $M^A_{1.0}$;

8. – to give the definition and to determine the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M^g_{1.0}$;

9. – to give the definition and to determine the constant of the mass of the gravitational radius of 1.0 cm of the body $M^R_{1.0}$;

10. – to give the definition and to determine the constant of the gravitational acceleration of the mass of 1.0 g of the body $g^M_{1.0}$;

11. – to give the definition and to determine the constant of the gravitational acceleration of the gravitational field of the first body $g^A_{1.0}$;

12. – to give the definition and to determine the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g^R_{1.0}$;

13. – to give the definition and to determine standard acceleration of gravity g_{sta};

14. – to give the definition and to determine the constant of the gravitational radius of the mass of 1.0 g of the body $R^M_{1.0}$;

15. – to give the definition and to determine the constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body $R^g_{1.0}$;

16?. – to give the definition and to determine the speed of light in vacuum c;

17?. – to give the definition and to determine the constant of the weight of the gravitational radius of 1.0 cm of the body $P^R_{1.0}$;

18?. – to give the definition and to determine the constant of the density (specific gravity) of the gravitational radius of 1.0 cm of the body $\rho^R_{1.0}$;

19. – to give the definition and to determine the constant gravitational force of 1.0 g of the body $F_{sta-sta}$;

20. – to give the definition and to determine the constant of the pressure of the gravitation force of the mass of 1.0 g of the body $p^M_{1.0}$;

21. –

22. – to determine the force of gravitation in the so–called Cavendish experiment $F_{bal-bal}$;

23. – either to confirm or to refute both theoretically and experimentally the validity of the existence of more than 300 so–called FPC;

24. – either to confirm or to refute both theoretically and experimentally the indissoluble interrelation of all the FPC in TGT as well as with all the other parameters in physics;

25. – either to confirm or to refute both theoretically and experimentally the validity of the known average distances between different bodies (clusters of galaxies, galaxies, stars, black hole, planets, planetary satellites, dwarf planets, satellites of dwarf planets, asteroids, ?satellites of asteroids, comets, etc.);

26. – either to confirm or to refute both theoretically and experimentally the validity of the parameters obtained according to the doubtful Newtonian? gravitational theory (clusters of galaxies, galaxies, stars, black hole, planets, planetary satellites, dwarf planets, satellites of dwarf planets, asteroids, ?satellites of asteroids, comets, etc.);

27. – either to confirm or to refute both theoretically and experimentally the validity of the formula of the doubtful Newtonian gravitational law, doubtful Newton gravitational theory and its mathematical apparatus;

28. – either to confirm or to refute both theoretically and experimentally the validity of the statement that the dimensions of a physical parameter must characterize the physical sense of the phenomenon or the process being characterized;

29. – either to confirm or to refute both theoretically and experimentally the validity of the statement that the value of the FPC and parameters in physics must be the same in all the sections of physics;

30. – either to confirm or to refute both theoretically and experimentally the validity of the measurement of the so–called Cavendish gravitational constant from the doubtful Newtonian gravitation law in cm^3/gs^2;

31. – either to confirm or to refute both theoretically and experimentally of the existence of fundamental interactions (gravitational, electromagnetic, strong nuclear, and weak nuclear);

32. – either to confirm or to refute both theoretically and experimentally the validity of the mechanism of the comparison of the gravitational fields generated by the first? And the second bodies in FPC in TGT;

33. – either to confirm or to refute both theoretically and experimentally the validity of the so-called Newton's second law;

34. – either to confirm or to refute both theoretically and experimentally the possibility of determining FPC with the help of the doubtful Newtonian gravitational law and the doubtful Newtonian gravitation theory;

35. – either to confirm or to refute both theoretically and experimentally the validity of the formulas of the FPC in TGT;

36. – either to confirm or to refute both theoretically and experimentally the validity of TGT and its mathematical apparatus.

4. The determination of Tsiganok gravitational law (TGL) and fundamental physical constants (FPC) in Tsiganok gravitational theory (TGT)

4.1. The definition and the formulas of Tsiganok gravitational law (TGL)

TGT and its mathematical apparatus were worked out to solve the formulated problems. In the course of TGT elaboration there was found out that most of the notions and definitions of the known so–called FPC don't correspond to the facts. That's why the definition of the FPC in TGT and the formulas for their determination were elaborated for the first time.

TGT was based the formula of TGL (1) and its varieties (2) and (3) ??[18, 19, 20].

The gravitational force between the first body and the second body F_{1-2} – is the formation of the resulting with longer (smaller) amplitude equal to the sum of amplitudes of the gravitational wave generated by the mass of the first body M_1 and the mass of the second body M_2 in the process of interference of the gravitational waves located at the squared average distance between the first body and the second body R_{1-2}^2, expressed in gcm/s^2.

The gravitational force between the first body and the second body F_{1-2} – is the relation of the sum of products of the mass of the first body M_1 by the gravitational acceleration of the second body g_2 and the mass of the second body M_2 by gravitational acceleration of the first body g_1 to the squared of the average distance between the first body and the second body R_{1-2}^2, expressed in gcm/s^2

$$F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}, \tag{1}$$

where F_{1-2}– is the gravitational force between the first body and the second body, gcm/s^2;

G – is the gravitational constant, cm^2;

M_1– is the mass of the first body, g;

M_2– is the mass of the second body, g;

g_1– is the gravitational acceleration of the first body, cm/s^2;

g_2– is the gravitational acceleration of the second body, cm/s^2;

R_{1-2}– is the average distance between the first body and the second body, cm.

The gravitational force between the first body and the second body F_{1-2} – is the relation of the sum это the gravitational force of the mass of the first body M_1 to the mass of the second body M_2 and the gravitational force of the mass of the second body M_2 to the mass of the first body M_1 to the squared average distance between the first body and the second body R_{1-2}^2, expressed in gcm/s^2

$$F_{1-2} = \sqrt{G} \times \frac{\sqrt{G}\,\frac{M_1 \times g_2}{R_{1-2}} + \sqrt{G}\,\frac{M_2 \times g_1}{R_{1-2}}}{R_{1-2}}, \tag{2}$$

where F_{1-2}– is the gravitational force between the first body and the second body, gcm/s^2;

G– is the gravitational constant, cm^2;

M_1– is the mass of the first body, g;

M_2– is the mass of the second body, g;

g_1– is the gravitational acceleration of the first body, cm/s^2;

g_2– is the gravitational acceleration of the second body, cm/s^2;

R_{1-2}– is the average distance between the first body and the second body, cm.

The gravitational force between the first body and the second body F_{1-2} – is the sum of the gravitational force of the mass of the first body M_1 to the mass of the second body M_2 and the gravitational force of the mass of the second body M_2 to the mass of the first body M_1, located at the squared average distance between the first body and the second body R_{1-2}^2, expressed in gcm/s^2

$$F_{1-2} = G \times \frac{M_1 \times g_2}{R_{1-2}^2} + G \times \frac{M_2 \times g_1}{R_{1-2}^2}, \tag{3}$$

where F_{1-2}– is the gravitational force between the first body and the second body, gcm/s^2;

G– is the gravitational constant, cm^2;

M_1– is the mass of the first body, g;

M_2– is the mass of the second body, g;

g_1– is the gravitational acceleration of the first body, cm/s^2;

g_2– is the gravitational acceleration of the second body, cm/s^2;

R_{1-2}– is the average distance between the first body and the second body, cm.

Physical nature and the method of the determination of the parameters of that makes it possible to explain the existence of the Kirkwood gap; Jupiter trojans, Earth trojans, Mars trojans etc.; Lagrangian points; the reverse rotation of Venus, Uranus, Pluto, etc.; the spiral structure of galaxy, spiral structure of star-planet, spiral structure planet-planetary satellites, spiral structure of dwarf planet–dwarf planet satellites, spiral structure asteroid-asteroid satellites, spiral structure atomic nucleus–electrons, etc, the rapid rotation of the giant planets, etc, will be discussed later, in another work.

The first body – is the body with mass the larger mass of the first body M_1 (1tionof galaxies, 2is the centre galaxy (black hole), 3star, 4 a binary star, 5 a planet, 6 a dwarf planet, 7 an asteroid, 8an atomic nucleu, etc.) the gravitational field of which iran rotate around itself with smaller mass of second (third, fourth, fifth,…n–е) body M_2 (M_3, M_4, M_5,…M_n) (1 galaxies, 2 stars, 3binary star, 4planets, 5planetary satellites, 6 dwarf planet satellites, 7asteroid satellites, 8 electrons, etc., as well spacecraft with turned off engines) at the average distance the first body and the second (third, fourth, fifth,…n–м) body R_{1-2} (R_{1-3}, R_{1-4}, R_{1-5},…,R_{1-n}), at the squared average orbital velocity of the second (third, fourth, fifth,…,n–го) body V_2^2 (V_3^2, V_4^2, V_5^2,…V_n^2), expressed by figure 1.

The second body – is the mass of the smaller of the second (third, fourth, fifth,…n–го) of the body M_2 (M_3, M_4, M_5,…,M_n) (1galaxy, 2star, 3binary star, 4planet, 5planetary satellite, 6dwarf planet satellite, 7asteroid satellites, 8electron, etc., as well as a spacecraft with turned off engines), which in the result of the action the gravitational field of the long mass of the first body M_1 rotates around the first body (1concentration-tionof galaxies, 2the centre galaxy (black hole), 3star, 4binary star, 5planet, dwarf planet, 7asteroid, 8atomic nuclei, etc.) at the average distance between the first body and the second (third, fourth, fifth,…,n–м) of the body R_{1-2} (R_{1-3}, R_{1-4}, R_{1-5},…, R_{1-n}) at the squared average orbital velocity of the second (third, fourth, fifth,….n–го) of the body V_2^2 (V_3^2, V_4^2, V_5^2,…V_n^2), expressed by figure 2.

Physical nature and the method of determination of the gravitational force between the first and the second bodies F_{1-2} without using the so–called space time, gravitational lens, Higgs boson, etc will be discussed later, in another work.

4.2. The determination of fundamental physical constants (FPC) in Tsiganok gravitational theory (TGT)

The determination of the FPC in TGT became possible in the result of equating TGL with centrifugal force formula and the solution of this equation as to all the parameters included into it.

The fundamental physical constant (FPC in TGT) – is the value determined in the result of the solution of GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}$ ( ), the equation. $\frac{G \times M_1 \times g_2}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ () and the equation . $\frac{G \times M_2 \times g_1}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ) as to all the parameters included and which were obtained in the result of the solution of the equation $G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{R_{1-2}}$ ( ) the left side of which represent the formula of TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ ( ) while its right side is represent Huygens formula of centrifugal force $F_{1-2} = \frac{M_2 \times V_2^2}{R_{1-2}}$, the value of which doesn't change when it is determined with the help of the parameters of different bodies in the Universe (???clusters of galaxies, galaxies, black holes, stars, double stars, planets, planetary satellites, dwarf planets, dwarf planets satellites, asteroids, asteroids satellites, comets, molecules, atomic, atomic nuclei, electrons, protons, neutrons, etc. as well as spacecraft with turned off engine, etc.), other FPC in TGT that makes it possible the gravitational, electromagnetic, etc, interaction between the bodies expressed in 1.cm^3/gs^2, 2.cm^2, 3.cm/gs^2, 4.g^2s^2/cm, 5.gs^2/cm, 6.cm/s^2, 7.gs^2/cm^3, 8.cm/g, 9.cm/g^2, 10.cm/g, 11.g^2/cm, 12.g/cm, 13.s^2, 14.$1/s^2$, 15.${}^{cm}/_{s}$, 16.g/cms^2, 17.${}^{g}/_{cm^4s^2}$, 18.${}^{gcm}/_{s^2}$, etc.

5. The definitions and formulas of the fundamental physical constants (FPC) in Tsiganok gravitational theory (TGT)

The constant of the gravitational field of the mass of the first body A_1^M – is a value that shows how many times the product the gravitational force between of $1.0\ g$ of the body and the so–called standard–copy of the mass of $1.0\ kg$ in SI of the body $F_{1.0g-1.0kg}$ ($F_{1.0g-1.0kg}=\frac{M_{1.0kg}\times A_{1.0g}^M}{R_{1.0g-1.0kg}}=\frac{1.0197\times1.043\times10^{-4}}{1.0}=1.064\times10^{-4}\ gcm/s^2$ ( ), etc.) and the squared the average distance between of $1.0\ g$ of the body and the so–called standard–copy of the mass of $1.0\ kg$ in SI of the body $R_{1.0g-1.0kg}$ ($R_{1.0g-1.0kg}=\sqrt{\frac{M_{1.0kg}\times A_{1.0g}^M}{F_{1.0g-1.0kg}}}=\sqrt{\frac{1.0197\times1.043\times10^{-4}}{1.064\times10^{-4}}}=1.0\ cm$ ( ), etc.), more than the mass of the so–called standard–copy of the mass of $1.0\ kg$ in SI of the body M_{sta} ($M_{sta}=\frac{F_{1.0g-1.0kg}\times R_{1.0g-1.0kg}}{A_{1.0g}^M}=\frac{1.04324\times10^{-4}\times1.0}{V_2^2}=1.0197\ g$ ( ), etc.), expressed in cm^3/s^2.

The constant of the gravitational field of the mass of the first body A_1^M – is the relation of the product the gravitational force between the first body and the second body F_{1-2} and the average distance between the first body and the second body в квадрате R_{1-2} to the mass of the second body M_2, expressed in cm^3/s^2.

The constant of the gravitational field of the mass of the first body A_1^M was determined by the formula

$$A_1^M=\frac{F_{1-2}\times R_{1-2}^2}{M_2}, \qquad ()$$

where A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

F_{1-2}– is the gravitational force between the first body and the second body, gcm/s^2;

R_{1-2}– is the average distance between the first body and the second body, cm;

M_2– is the mass of the second body, g.

The constant of the gravitational field of the mass of the first body A_1^M – is the sum of the gravitational acceleration of $1.0\,g$ of the body $g_{1.0g}$ ($g_{1.0g} = \frac{A_{1.0g}^M}{R_{1.0g-1.0kg}^2} = \frac{1.04324\times10^{-4}}{2\times2.034\times10^{17}} = 2.5645 \times 10^{-22}\ cm/s^2$ ( ), etc.), the number of which is equal to the squared the average distance between of $1.0\,g$ of the body and the so–called standard–copy of the mass of $1.0\,kg$ in SI of the body $R_{1.0g-1.0kg}$ ($R_{1.0g-1.0kg}^2 = \frac{A_{1.0g}^M}{g_{1.0g}} = \frac{1.04324\times10^{-4}}{2.5645\times10^{-22}} = 2 \times 2.034 \times 10^{17} cm^2$ ( ), etc.), expressed in cm^3/s^2.

The constant of the gravitational field of the mass of the first body A_1^M – is the product of the gravitational acceleration of the first body g_1 and the squared the average distance between the first body and the second body R_{1-2}, expressed in cm^3/s^2.

The constant of the gravitational field of the mass of the first body A_1^M определили по формуле

$$A_1^M = g_1 \times R_{1-2}^2, \qquad ()$$

where A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

g_1– is the gravitational acceleration of the first body, cm/s^2;

R_{1-2}– is the average distance between the first body and the second body, cm.

The constant of the gravitational field of the mass of $1.0\,g$ of the body $A_{1.0}^M$ – is a value that shows how many times the constant of the gravitational field of the mass of $1.0\,g$ of the body $A_{1.0g}^M$ ($A_{1.0g}^M = R_{1.0g-2} \times V_2^2 = 1.04324 \times 10^{-4} \times 1.0^2 = 1.04324 \times 10^{-4}\,cm^3/s^2$ ( ), etc.), more than the mass of $1.0\,g$ of the body $M_{1.0g}$ ($M_{1.0g} = \frac{R_{1-2} \times V_2^2}{A_{1.0}^M} = \frac{1.04324 \times10^{-4}}{1.04324 \times10^{-4}} = 1.0\,g$ ( ), etc.), equal to $1.04324 \times 10^{-4}\,cm^3/gs^2$, expressed in cm^3/gs^2.

The constant of the gravitational field of the mass of $1.0\,g$ of the body $A_{1.0}^M$ – is the relation of product of the average distance between the first body with larger mass of the first body M_1 and the mass of the second body M_2 R_{1-2} to the squared average orbital velocity of the second body V_2^2 to the mass of the first body M_1, equal to $1.04324 \times 10^{-4}\ cm^3/gs^2$, expressed in cm^3/gs^2.

The constant of the gravitational field of the mass of $1.0\ g$ of the body $A_{1.0}^M$ was determined by the formula

$$A_{1.0}^M = \frac{R_{1-2} \times V_2^2}{M_1}, \tag{4}$$

where $A_{1.0}^M$– is the constant of the gravitational field of the mass of $1.0\ g$ of the body, cm^3/gs^2;

R_{1-2}– is the average distance between the first body and the second body, cm;

V_2 – is the average orbital velocity of the second body, cm/s;

M_1– is the mass of the first body, g.

It is reasonable to use the formula ( ) to determine the constant of the gravitational field of the mass of $1.0\ g$ of the body $A_{1.0}^M$ with the help of the parameters of the first body and the second body that different radii (gravitational radii and other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational field of the mass of the first body A_1^M – is a value characterizes the gravitational field, that is generated by the first body with larger mass M_1 (1clasters of galaxies, 2the centre of galaxy (black hole), 3star, 4a double star 5a planet, 6a draft planet 7an asteroid, 8an atomic nucleus, etc.), that can rotate the second body with smaller mass M_2 (1a galaxy, 2a star, 3a double star 4a planet, 5a planetary satellite, 6a dwarf planet satellite, 7an asteroid, 8an electron, etc., as well as spacecraft with turned off engines, etc.) around itself with the help of energy transmission by the gravitational waves at the average distance from the first body to the second body R_{1-2}, measured from the average distance between an atomic nucleus and an electron R_{1-2} to $R_{1-2} = A_1^M cm$, with the average orbital velocity of the second body V_2^2, that changes from the squared speed of light in vacuum c $c^2 = 8.988 \times 10^{20}\ cm^2/s^2$ to $V_2^2 = 1.0\ cm^2/s^2$, which, being found by the parameters of virtual bodies, grows to a certain maximum that is in the middle of the average distance from the first body to the second body R_{1-2}, and then decreases according to the normal (or Gaussian) distribution to A_1^M, which prevents the second body from approaching the first body or go away from it, expressed in, expressed in cm^3/s^2.

The constant of the gravitational field of the mass of the first body A_1^M – is the product of the average distance from the with larger mass of the first body M_1 to the second body with smaller mass M_2 R_{1-2} the average squared orbital velocity of the second of a body V_2^2, expressed in cm^3/s^2.

The constant of the gravitational field of the mass of the first body A_1^M was determined by the formula

$$A_1^M = R_{1-2} \times V_2^2, \tag{5}$$

where A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

R_{1-2}– is the average distance between the first body and the second body, cm;

V_2– is the average orbital velocity of the second body, cm/s.

It is reasonable to use the formula () to determine the constant of the gravitational field of the mass of the first body A_1^M with the help of the parameters of the first body and the second body rotates around the first body, which have different radii (gravitational radius) and other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational field of the mass of $1.0\,g$ of the body $A_{1.0}^M$ – is the sum of the gravitational constant G ($G = \frac{A_{1.0}^M}{2\times g_{1.0}^M} = \frac{1.04324\times10^{-4}}{2\times2.5645\times10^{-22}} = 2.034 \times 10^{17} cm^2$ ( ), etc.), the number of which is equal to the doubled of the constant of the gravitational acceleration of the mass of $1.0\,g$ of the body $g_{1.0}^M$ ($g_{1.0}^M = \frac{A_{1.0}^M}{2\times G} = \frac{1.04324\times10^{-4}}{2\times2.034\times10^{17}} = 2.5645 \times 10^{-22}\, cm/gs^2$ ( ), etc.), equal to $1.04324 \times 10^{-4}\, cm^3/gs^2$, expressed in cm^3/gs^2.

The constant of the gravitational field of the mass of $1.0\,g$ of the body $A_{1.0}^M$ – is the doubled product of the gravitational constant G and the constant of the gravitational acceleration of the mass of $1.0\,g$ of the body $g_{1.0}^M$, equal to $1.04324 \times 10^{-4}\, cm^3/gs^2$, expressed in cm^3/gs^2.

The constant of the gravitational field of the mass of $1.0\,g$ of the body $A^M_{1.0}$ was determined by the formula

$$A^M_{1.0} = 2 \times G \times g^M_{1.0}, \qquad (6)$$

where $A^M_{1.0}$– is the constant of the gravitational field of the mass of $1.0\,g$ of a body, cm^3/gs^2;

G – is the gravitational constant, cm^2;

$g^M_{1.0}$– is the constant of the gravitational acceleration of the mass of $1.0\,g$ of the body, cm/gs^2.

It is reasonable to use the formula ( ) to determine the constant of the gravitational field of the mass of $1.0\,g$ of the body $A^M_{1.0}$ with the help of other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational field of the mass of the first body A^M_1 – is the sum of the gravitational constant G ($G = \frac{A^M_{1.0cm^3/s^2}}{2\times M_{1.0cm^3/s^2}\times g^M_{1.0}} = \frac{1.0}{2\times 9585.522\times 2.5645\times 10^{-22}} = 2.034 \times 10^{17} cm^2$ ( ), etc.), the number of which is equal to the doubled product of the mass of $1.0\,cm^3/s^2$ of the body $M_{1.0cm^3/s^2}$ ($M_{1.0cm^3/s^2} = \frac{A^M_{1.0cm^3/s^2}}{2\times G\times g^M_{1.0}} = \frac{1.0}{2\times 2.034\times 10^{17}\times 2.5645\times 10^{-22}} = 9585.522\,g$ ( ), etc.), and the constant of the gravitational acceleration of the mass of $1.0\,g$ of the body $g^M_{1.0}$ ($g^M_{1.0} = \frac{A^M_{1.0cm^3/s^2}}{2\times G\times M_{1.0cm^3/s^2}} = \frac{1.0}{2\times 2.034\times 10^{17}\times 9585.522} = 2.5645 \times 10^{-22}\, cm/gs^2$ ( ), etc.), expressed in cm^3/s^2.

The constant of the gravitational field of the mass of the first body A^M_1 – is the doublet product of the gravitational constant G, the mass of the first body M_1 and the constant of the gravitational acceleration of the mass of the mass of $1.0\,g$ of the body $g^M_{1.0}$, expressed in cm^3/s^2.

The constant of the gravitational field of the first body A^M_1 was determined by the formula

$$A_1^M = 2 \times G \times M_1 \times g_{1.0}^M, \tag{7}$$

where A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

G– is the gravitational constant, cm^2;

M_1– is the mass of the first body, g;

$g_{1.0}^M$– is the constant of the gravitational acceleration of the mass of $1.0\ g$ of the body, cm/gs^2.

It is reasonable to use the formula ( ) to determine the constant of the gravitational field of the mass of the first body A_1^M with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, which have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational field of the mass of the first body A_1^M – is the sum of the gravitational constant G ($G = \frac{A^M_{1.0cm^3/s^2}}{2\times g_{1.0cm^3/s^2}} = \frac{1.0}{2\times 2.4582\times 10^{-18}} = 2.034 \times 10^{17} cm^2$ ( ), etc.), the number of which is equal to the doubled of the gravitational acceleration of $1.0\ cm^3/s^2$ of the body $g_{1.0cm^3/s^2}$ ($g_{1.0cm^3/s^2} = \frac{A^M_{1.0cm^3/s^2}}{2\times G} = \frac{1.0}{2\times 2.034\times 10^{17}} = 2.4582 \times 10^{-18}\ cm/s^2$ ( ), etc.), expressed in cm^3/s^2.

The constant of the gravitational field of the mass of the first body A_1^M – is the doubled product of the gravitational constant G and the gravitational acceleration of the first body g_1, expressed in cm^3/s^2.

The constant of the gravitational field of the first body A_1^M was determined by the formula

$$A_1^M = 2 \times G \times g_1, \tag{8}$$

where A_1^M– is the constant of the gravitational field of the first body, cm^3/s^2;

G – is the gravitational constant, cm^2;

g_1– is the gravitational acceleration of the first body, cm/s^2.

It is reasonable to use the formula ( ) to determine the constant of the gravitational field of the mass of the first body A_1^M both with the help of the parameters of the first body and the second body when the second body doesn't rotating around the first body, which have different radii (gravitational radius) and other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational field of the mass of $1.0\ g$ of the body $A_{1.0}^M$ – is a value that shows how many times the constant of the gravitational field of the mass of $1.0\ cm^3/s^2$ of the body $A_{1.0cm^3/s^2}^M$ ($A_{1.0cm^3/s^2}^M = M_{1.0cm^3/s^2} \times A_{1.0}^M = 9585.522 \times 1.04324 \times 10^{-4} = 1.0\ cm^3/s^2$ ( ), etc.), more than the mass of $1.0\ cm^3/s^2$ of the body $M_{1.0cm^3/s^2}$ ($M_{1.0cm^3/s^2} = \frac{A_{1.0cm^3/s^2}^M}{A_{1.0}^M} = \frac{1.0}{1.04324 \times 10^{-4}} = 9585.522\ g$ ( ), etc.), equal to $1.04324 \times 10^{-4}\ cm^3/gs^2$, expressed in cm^3/gs^2.

The constant of the gravitational field of the mass of $1.0\ g$ of the body $A_{1.0}^M$ – is the relation of the constant of the gravitational field of the mass of the first body A_1^M to the mass of the first body M_1, equal to $1.04324 \times 10^{-4}\ cm^3/gs^2$, expressed in cm^3/gs^2.

The constant of the gravitational field of the mass of $1.0\ g$ of the body $A_{1.0}^M$ was determined by the formula

$$A_{1.0}^M = \frac{A_1^M}{M_1}, \tag{9}$$

where $A_{1.0}^M$– is the constant of the gravitational field of the mass of $1.0\ g$ of a body, cm^3/gs^2;

A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

M_1 – is the mass of the first body, g.

It is reasonable to use the formula ( ) to determine the constant of the gravitational field of the mass of $1.0\ g$ of the body $A_{1.0}^M$ with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, which have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational field of the mass of the first body A_1^M – is the sum of the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^M$ ($A_{1.0}^M = \frac{A^M_{1.0cm^3/s^2}}{M_{1.0cm^3/s^2}} = \frac{1.0}{9585.522} = 1.04324 \times 10^{-4}\, cm^3/gs^2$ ( ), etc.), the number of which is equal to the mass of 1.0 cm^3/s^2 of the body $M_{1.0cm^3/s^2}$ ($M_{1.0cm^3/s^2} = \frac{A^M_{1.0cm^3/s^2}}{A^M_{1.0}} = \frac{1.0}{1.04324\times10^{-4}} = 9585.522\ g$ ( ), etc.), expressed in cm^3/s^2.

The constant of the gravitational field of the mass of the first body A_1^M – is the product of the mass of the first body M_1 by the constant of the gravitational field of the mass of the first body A_1^M, expressed in cm^3/s^2.

The constant of the gravitational field of the mass of the first body A_1^M was determined by the formula

$$A_1^M = M_1 \times A_{1.0}^M, \tag{10}$$

where A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

M_1– is the mass of the first body, g;

$A_{1.0}^M$– is the constant of the gravitational field of the mass of 1.0 g of the body, cm^3/gs^2.

It is reasonable to use the formula ( ) to determine the constant of the gravitational field of the mass of the first body A_1^M with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, which have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^M$ – is the value reverse to the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M_{1.0}^A$ ($M_{1.0}^A = \frac{1}{A_{1.0}^M} = \frac{1}{1.04324\times10^{-4}} = 9585.522\, gs^2/cm^3$ ( ), etc.), equal to $1.04324 \times 10^{-4}\, cm^3/gs^2$, expressed in cm^3/gs^2.

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ – is the value reverse to the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M_{1.0}^{A}$, equal to 1.04324×10^{-4} cm^3/gs^2, expressed in cm^3/gs^2.

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ was determined by the formula

$$A_{1.0}^{M} = \frac{1}{M_{1.0}^{A}}, \tag{11}$$

where $A_{1.0}^{M}$– is the constant of the gravitational field of the mass of 1.0 g of the body, cm^3/gs^2;

$M_{1.0}^{A}$– is the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body, gs^2/cm^3.

It is reasonable to use the formula ( ) to determine the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ with the help of the other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational field of the mass of the first body A_1^M – is a value that shows how many times the mass of 1.0 cm^3/s^2 of the body $M_{1.0cm^3/s^2}$ ($M_{1.0cm^3/s^2} = A_{1.0cm^3/s^2}^{M} \times M_{1.0}^{A} = 1.0 \times 9585.522 = 9585.522\ g$ ( ), etc.), more than the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M_{1.0}^{A}$ ($M_{1.0}^{A} = \frac{M_{1.0cm^3/s^2}}{A_{1.0cm^3/s^2}^{M}} = \frac{9585.522}{1.0} = 9585.522\ gs^2/cm^3$ ( ), etc.), expressed in cm^3/s^2.

The constant of the gravitational field of the mass of the first body A_1^M – is the relation of the mass of the first body M_1 to the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M_{1.0}^{A}$, expressed in cm^3/s^2.

The constant of the gravitational field of the first body A_1^M was determined by the formula

$$A_1^M = \frac{M_1}{M_{1.0}^{A}}, \tag{12}$$

where A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

M_1 – is the mass of the first body, g;

$M_{1.0}^{A}$– is the constant of the mass of the gravitational field of $1.0\, cm^3/s^2$ of the body, gs^2/cm^3.

It is reasonable to use the formula ( ) to determine the constant of the gravitational field of the mass of the first body A_1^M both with the help of the parameters of the first body and the second body when the second body doesn't rotating around the first body, which have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational field of the mass of $1.0\, g$ of the body $A_{1.0}^{M}$ – is a value that shows how many times the constant of the gravitational acceleration of the mass of $1.0\, g$ of the body $g_{1.0}^{M}$ ($g_{1.0}^{M} = A_{1.0}^{M} \times g_{1.0}^{A} = 1.04324 \times 10^{-4} \times 2.4582 \times 10^{-18} = 2.5645 \times 10^{-22}\, cm/gs^2$ ( ), etc.), more than the constant of the gravitational acceleration of the gravitational field of $1.0\, cm^3/s^2$ of the body $g_{1.0}^{A}$ ($g_{1.0}^{A} = \frac{g_{1.0}^{M}}{A_{1.0}^{M}} = \frac{2.5645 \times 10^{-22}}{1.04324 \times 10^{-4}} = 2.4582 \times 10^{-18}\, 1/cm^2$ ( ), etc.), equal to $1.04324 \times 10^{-4}\, cm^3/gs^2$, expressed in cm^3/gs^2.

The constant of the gravitational field of the mass of $1.0\, g$ of the body $A_{1.0}^{M}$ – is the relation of the constant of the gravitational acceleration of the mass of $1.0\, g$ of the body $g_{1.0}^{M}$ to the constant of the gravitational acceleration of the gravitational field of $1.0\, cm^3/s^2$ of the body $g_{1.0}^{A}$, equal to $1.04324 \times 10^{-4}\, cm^3/gs^2$, expressed in cm^3/gs^2.

The constant of the gravitational field of the mass of $1.0\, g$ of the body $A_{1.0}^{M}$ was determined by the formula

$$A_{1.0}^{M} = \frac{g_{1.0}^{M}}{g_{1.0}^{A}}, \tag{15}$$

where $A_{1.0}^{M}$– is the constant of the gravitational field of the mass of $1.0\, g$ of the body, cm^3/gs^2;

$g_{1.0}^{M}$– is the constant of the gravitational acceleration of the mass of $1.0\, g$ of the body, cm/gs^2;

$g_{1.0}^{A}$– is the constant of the gravitational acceleration of the gravitational field of $1.0\ cm^3/s^2$ of the body, $1/cm^2$.

It is reasonable to use the formula ( ) to determine the constant of the gravitational field of the mass of $1.0\ g$ of the body $A_{1.0}^{M}$ with the help of other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational field of the mass of the first body A_1^M – is a value that shows how many times the gravitational acceleration of $1.0\ cm^3/s^2$ of the body $g_{1.0cm^3/s^2}$ ($g_{1.0cm^3/s^2} = A_{1.0cm^3/s^2}^{M} \times g_{1.0}^{A} = 1.0 \times 2.4582 \times 10^{-18} = 2.4582 \times 10^{-18}\ cm/s^2$ ( ), etc.), more than the gravitational acceleration of the gravitational field of $1.0\ cm^3/s^2$ of the body $g_{1.0}^{A}$ ($g_{1.0}^{A} = \frac{g_{1.0}^{M}}{A_{1.0}^{M}} = \frac{2.5645 \times 10^{-22}}{1.04324 \times 10^{-4}} = 2.4582 \times 10^{-18}\ 1/cm^2$ ( ), etc.), expressed in cm^3/s^2.

The constant of the gravitational field of the mass of the first body A_1^M – is the relation of the gravitational acceleration of the first body g_1 to the constant of the gravitational acceleration of the gravitational field of $1.0\ cm^3/s^2$ of the body $g_{1.0}^{A}$ expressed in cm^3/s^2.

The constant of the gravitational field of the mass of the first body A_1^M was determined by the formula

$$A_1^M = \frac{g_1}{g_{1.0}^{A}}, \tag{16}$$

where A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

g_1– is the gravitational acceleration of the first body, cm/s^2;

$g_{1.0}^{A}$– is the constant of the gravity acceleration of the gravitational field of $1.0\ cm^3/s^2$ of the body, $1/cm^2$.

It is reasonable to use the formula ( ) to determine the constant of the gravitational field of the mass of the first body A_1^M with the help of the parameters of the first body and the second body when the second body doesn’t rotate around the first body, which have different radii (gravitational radius) and other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ – is the sum of the constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ ($R_{1.0}^{M} = \frac{A_{1.0}^{M}}{c^2} = \frac{1.04324\times10^{-4}}{\left(2.988\times10^{10}\right)^2} = 1.16070316 \times 10^{-25}\, cm/g$ ( ), etc.), the number of which is equal to the squared speed of light in vacuum c ($c^2 = \frac{A_{1.0}^{M}}{R_{1.0}^{M}} = \frac{1.04324\times10^{-4}}{1.16070316\times10^{-25}} = 8.988 \times 10^{20}\, cm^2/s^2$ ( ), etc.), equal to $1.04324 \times 10^{-4}\, cm^3/s^2$ expressed in cm^3/gs^2.

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ – is the product of the constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ by the speed of light in vacuum c, equal to $1.04324 \times 10^{-4}\, cm^3/s^2$ expressed in cm^3/gs^2.

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ was determined by the formula

$$A_{1.0}^{M} = R_{1.0}^{M} \times c^2, \tag{17}$$

where $A_{1.0}^{M}$– is the constant of the gravitational field of the mass of 1.0 g of the body, cm^3/gs^2;

$R_{1.0}^{M}$– is the constant of the gravitational radius of the mass of 1.0 g of the body, cm/g;

c– is speed of light in vacuum, cm/s.

It is reasonable to use the formula ( ) to determine the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ with the help and other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational field of the mass of the first body A_{1}^{M} – is the sum of the gravitational radius $1.0\, cm^3/s^2$ of the body $R_{1.0cm^3/s^2}^{c}$ ($R_{1.0cm^3/s^2}^{c} = \frac{A_{1.0cm^3/s^2}^{M}}{c^2} = \frac{1.0}{\left(2.988\times10^{10}\right)^2} = 1.11259 \times 10^{-21}\, cm$ ( ), etc.), the number of which is equal to the squared speed of light in vacuum c ($c^2 = \frac{A^M_{1.0 cm^3/s^2}}{R^c_{1.0 cm^3/s^2}} = \frac{1.0}{1.11259 \times 10^{-21}} = 8.988 \times 10^{20}\ cm^2/s^2$ ( ), etc.), expressed in cm^3/s^2.

The constant of the gravitational field of the mass of the first body A^M_1 – is the product of the gravitational radius of the first body R^c_1 to the squared the speed of light in vacuum c, expressed in cm^3/s^2.

The constant of the gravitational field of the mass of the first body A^M_1 was determined by the formula

$$A^M_1 = R^c_1 \times c^2, \tag{18}$$

where A^M_1– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

R^c_1– is the gravitational radius of the first body, cm;

c– is speed of light in vacuum, cm/s.

It is reasonable to use the formula ( ) to determine the constant of the gravitational field of the mass of the first body A^M_1 with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, which have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational field of the mass of 1.0 g of the body $A^M_{1.0}$ – is a value that shows how many times the squared speed of light in vacuum c ($c^2 = A^M_{1.0} \times M^R_{1.0} = 1.04324 \times 10^{-4} \times 8.615467 \times 10^{24} = 8.988 \times 10^{20}\ cm^2/s^2$ ( ), etc.) more than the constant of the mass of the gravitational radius of 1.0 cm of the body $M^R_{1.0}$ ($M^R_{1.0} = \frac{c^2}{A^M_{1.0}} = \frac{\left(2.988 \times 10^{10}\right)^2}{1.04324 \times 10^{-4}} = 8.615467 \times 10^{24}\ cm^3/gs^2$ ( ), etc.), equal to $1.04324 \times 10^{-4}\ cm^3/s^2$ expressed in cm^3/gs^2.

The constant of the gravitational field of the mass of 1.0 g of the body $A^M_{1.0}$ – is the relation of the squared speed of light in vacuum c to the constant of the mass of the gravitational radius of 1.0 cm of the body $M^R_{1.0}$, equal to $1.04324 \times 10^{-4}\ cm^3/s^2$ expressed in cm^3/gs^2.

The constant of the gravitational field of the mass of 1.0 g of the body $A^M_{1.0}$ was determined by the formula

$$A^M_{1.0} = \frac{c^2}{M^R_{1.0}}, \tag{19}$$

where $A^M_{1.0}$– is the constant of the gravitational field of the mass of 1.0 g of the body, cm^3/gs^2;

c – is the speed of light in vacuum, cm/s;

$M^R_{1.0}$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm.

The constant of the gravitational field of the mass of the first body A^M_1 – is a value that shows how many times the energy of $1.0\, cm^3/s^2$ of the body $E_{1.0cm^3/s^2}$ ($E_{1.0cm^3/s^2} = A^M_{1.0cm^3/s^2} \times M^R_{1.0} = 1.0 \times 8.615467 \times 10^{24} = 8.615467 \times 10^{24}\ gcm^2/s^2$ ( ), etc.), more than the constant of the mass of the gravitational radius of 1.0 cm of the body $M^R_{1.0}$ ($M^R_{1.0} = \frac{E_{1.0cm^3/s^2}}{A^M_{1.0cm^3/s^2}} = \frac{8.615467 \times 10^{24}}{1.0} = 8.615467 \times 10^{24}\ g/cm$ ( ), etc.), expressed in cm^3/s^2.

The constant of the gravitational field of the mass of the first body A^M_1 – is the relation of the energy of the first body E_1 to the constant of the mass of the gravitational radius of 1.0 cm of the body $M^R_{1.0}$, expressed in cm^3/s^2.

The constant of the gravitational field of the mass of the first body A^M_1 was determined by the formula

$$A^M_1 = \frac{E_1}{M^R_{1.0}}, \tag{19}$$

where A^M_1– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

E_1– is the energy of the first body, gcm^2/s^2;

$M^R_{1.0}$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm.

It is reasonable to use the formula ( ) to determine the constant of the gravitational field of the mass of the first body A_1^M with the help and other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational field of the mass of the first body A_1^M– is the sum of the energy of $1.0\,cm^3/s^2$ of the body $E_{1.0cm^3/s^2}$ ($E_{1.0cm^3/s^2} = \frac{A^M_{1.0cm^3/s^2}}{R^M_{1.0}} = \frac{1.0}{1.160761\times10^{-25}} = 8.615 \times 10^{24}\ gcm^2\big/s^2$ ( ), etc.), the number of which is equal to the constant of the gravitational radius of the mass of $1.0\ g$ of the body $R^M_{1.0}$ ($R^M_{1.0} = \frac{A^M_{1.0cm^3/s^2}}{E_{1.0cm^3/s^2}} = \frac{1.0}{8.615\times10^{24}} = 1.160761 \times 10^{-25}\ cm\big/g$ ( ), etc.), expressed in cm^3/s^2.

The constant of the gravitational field of the mass of the first body A_1^M – is the product of the energy of the first body E_1 to the constant of the gravitational radius of the mass of $1.0\ g$ of the body $R^M_{1.0}$, expressed in cm^3/s^2.

The constant of the gravitational field of the mass of the first body A_1^M was determined by the formula

$$A_1^M = E_1 \times R^M_{1.0}, \tag{20}$$

where A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

E_1– is the energy of the first body, gcm^2/s^2;

$R^M_{1.0}$– is the constant of the gravitational radius of the mass of $1.0\ g$ of the body, cm/g.

It is reasonable to use the formula ( ) to determine the constant of the gravitational field of the mass of the first body A_1^M with the help of FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational field of the mass of $1.0\ g$ of the body $A^M_{1.0}$ – is a value that shows how many times the doubled of the gravitational constant G ($G = \frac{A^M_{1.0}\times M^g_{1.0}}{2} = \frac{1.04324\times10^{-4}\times3.8994\times10^{21}}{2} = 2.034 \times 10^{17}\ cm^2$ ( ), etc.) more than the constant of the mass of the gravitational acceleration of $1.0\,cm/s^2$ of the body $M^g_{1.0}$ ($M^g_{1.0} = \frac{2\times G}{A^M_{1.0}} = \frac{2\times 2.034\times 10^{17}}{1.04324\times 10^{-4}} = 3.8994 \times 10^{21}\,gs^2/cm$ ( ), etc.), equal to $1.04324 \times 10^{-4}\,cm^3/gs^2$, expressed in cm^3/gs^2.

The constant of the gravitational field of the mass of 1.0 g of the body $A^M_{1.0}$ – is the relation of the doubled gravitational constant G to the constant of the mass of the gravitational acceleration of $1.0\,cm/s^2$ of the body $M^g_{1.0}$, equal to $1.04324 \times 10^{-4}\,cm^3/gs^2$, expressed in cm^3/gs^2.

The constant of the gravitational field of the mass of 1.0 g of the body $A^M_{1.0}$ was determined by the formula

$$A^M_{1.0} = \frac{2 \times G}{M^g_{1.0}}, \tag{13}$$

where $A^M_{1.0}$– is the constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body, cm^3/gs^2;

G – is the gravitational constant, cm^2;

$M^g_{1.0}$– is the constant of the mass of the gravitational acceleration of $1.0\,cm/s^2$ of the body, gs^2/cm.

It is reasonable to use the formula ( ) to determine the constant of the gravitational field of the mass of 1.0 g of the body $A^M_{1.0}$ with the help of other FPC in TGT in the Universe in accordance with FPC in TGT.

The gravitational constant G – is a value that shows how many times the constant of the gravitational field of the mass of 1.0 g of the body $A^M_{1.0}$ ($A^M_{1.0} = 2 \times G \times g^M_{1.0} = 2 \times 2.034 \times 10^{17} \times\ 2.5645 \times 10^{-22} = 1.04324 \times 10^{-4}\,cm^3/gs^2$ ( ), etc.) more than the doubled of the constant of the gravitational acceleration of the mass of 1.0 g of the body $g^M_{1.0}$ ($g^M_{1.0} = \frac{A^M_{1.0g}}{2\times G} = \frac{1.04324\times 10^{-4}}{2\times 2.034\times 10^{17}} = 2.5645 \times 10^{-22}\,cm/gs^2$ ( ), etc.), the constant of the gravitational field of the mass of 1.0 g of the body $A^M_{1.0}$ ($A^M_{1.0g} = M_{1.0g} \times A^M_{1.0} = 1.0 \times 1.04324 \times 10^{-4} = 1.04324 \times 10^{-4}\,cm^3/s^2$ ( ), etc.), the mass of 1.0 g of the body ($M_{1.0g} = \frac{A^M_{1.0g}}{A^M_{1.0}} = \frac{1.04324\times10^{-4}}{1.04324\times10^{-4}} = 1.0\,g$ ( ), etc.), c the constant of the gravitational field of the mass of 1.0 g of the body $A^M_{1.0}$ ($A^M_{1.0g} = M_{1.0g} \times A^M_{1.0} = 1.0 \times 1.04324 \times 10^{-4} = 1.04324 \times 10^{-4}\,cm^3/s^2$ ( ), etc.), the mass of 1.0 g of the body ($M_{1.0g} = \frac{A^M_{1.0g}}{A^M_{1.0}} = \frac{1.04324\times10^{-4}}{1.04324\times10^{-4}} = 1.0\,g$ ( ), etc.), equal to $2.034 \times 10^{17}\,cm^2$, expressed in cm^2.

The gravitational constant G – is the relation of the constant of the gravitational field of the mass of 1.0 g of the body $A^M_{1.0}$ to the doubled constant of the gravitational acceleration of the mass of 1.0 g of the body $g^M_{1.0}$, equal to $2.034\ \times 10^{17}\,cm^2$, expressed in cm^2.

The gravitational constant G was determined by the formula

$$G = \frac{A^M_{1.0}}{2 \times g^M_{1.0}}, \tag{19}$$

where G– is the gravitational constant, cm^2;

$A^M_{1.0}$– is the constant of the gravitational field of the mass of 1.0 g of the body, cm^3/gs^2;

$g^M_{1.0}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2.

It is reasonable to use the formula ( ) to determine the gravitational constant G with the help of other FPC in TGT in the Universe in accordance with FPC in TGT.

The gravitational constant G – is a value that shows how many times the constant of the gravitational field of the mass of 1.0 cm^3/s^2 of the body $A^M_{1.0cm^3/s^2}$ ($A^M_{1.0cm^3/s^2} = 2 \times G \times g_{1.0cm^3/s^2} = 2 \times 2.034 \times 10^{17} \times 2.4582 \times 10^{-18} = 1.0\,cm^3/s^2$ ( ), etc.), more than the doubled of the gravitational acceleration of 1.0 cm^3/s^2 of the body $g_{1.0\,cm^3/s^2}$ ($g_{1.0cm^3/s^2} = \frac{A^M_{1.0cm^3/s^2}}{2\times G} = \frac{1.0}{2\times2.034\times10^{17}} = 2.4582 \times 10^{-18}\,cm/s^2$ ( ), etc.), equal to $2.034 \times 10^{17}\,cm^2$, expressed in cm^2.

The gravitational constant G – is the relation of the constant of the gravitational field of the mass of the first body A_1^M to the doubled gravitational acceleration of the first body g_1, equal to $2.034\ \times 10^{17} cm^2$, expressed in cm^2.

The gravitational constant G was determined by the formula

$$G = \frac{A_1^M}{2 \times g_1}, \tag{21}$$

where G– is the gravitational constant, cm^2;

A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

g_1– is the gravitational acceleration of the first body, cm/s^2.

It is reasonable to use the formula ( ) to determine the gravitational constant G with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, which have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT.

The gravitational constant G – is the value reverse to the doubled the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^A$ ($g_{1.0}^A = \frac{1}{2 \times G} = \frac{1}{2 \times 2.034 \times 10^{17}} = 2.4582 \times 10^{-18}\, 1/cm^2$ ( ), etc.), equal to $2.034 \times 10^{17}\ cm^2$, expressed in cm^2.

The gravitational constant G – is the value reverse to the doubled the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^A$, equal to $2.034 \times 10^{17}\ cm^2$, expressed in cm^2.

The gravitational constant G was determined by the formula

$$G = \frac{1}{2 \times g_{1.0}^A}, \tag{24}$$

where G– is the gravitational constant, cm^2;

$g_{1.0}^A$– is the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body, $1/cm^2$.

The gravitational constant G – it is half of the amount the constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body $R_{1.0}^g$

$(R^g_{1.0} = \frac{2\times G}{c^2} = \frac{2\times 2.034\times 10^{17}}{\left(2.988\times 10^{10}\right)^2} = 4.52604 \times 10^{-4}\ s^2$ ( ), etc.), the number of which is equal to the squared speed of light in vacuum c $(c^2 = \frac{2\times G}{R^g_{1.0}} = \frac{2\times 2.034\times 10^{17}}{4.52604\times 10^{-4}} = (2.988 \times 10^{10})^2\ cm^2/s^2$ ( ), etc.), equal to $2.034 \times 10^{17}\ cm^2$, expressed in cm^2.

The gravitational constant G – is a half of the product of the constant of the gravitational radius of the gravitational acceleration of $1.0\ cm/s^2$ of the body $R^g_{1.0}$ and the squared speed of light in vacuum c, equal to $2.034 \times 10^{17}\ cm^2$, expressed in cm^2.

The gravitational constant G was determined by the formula

$$G = \frac{R^g_{1.0} \times c^2}{2}, \tag{24}$$

where G– is the gravitational constant, cm^2;

$R^g_{1.0}$– is the constant of the gravitational radius of the gravitational acceleration of $1.0\ cm/s^2$ of the body, s^2;

c– is the speed of light in vacuum, cm/s.

The gravitational constant G – is a value that shows how many times the squared speed of light in vacuum c $(c^2 = 2 \times G \times g^R_{1.0} = 2 \times 2.034 \times 10^{17} \times 2209.43656 = 8.988 \times 10^{20}\ cm^2/s^2$ ( ), etc.), more than the doubled of the constant of the gravitational acceleration of the gravitational radius of $1.0\ cm$ of the body $g^R_{1.0}$ $(g^R_{1.0} = \frac{c^2}{2\times G} = \frac{\left(2.988\times 10^{10}\right)^2}{2\times 2.034\times 10^{17}} = 2.4582 \times 10^{-18}\ cm/s^2$ ( ), etc.), equal to $2.034 \times 10^{17}\ cm^2$, expressed in cm^2.

The gravitational constant G – is the relation of the squared speed of light in vacuum c to the doubled of the constant of the gravitational acceleration of the gravitational radius of $1.0\ cm$ of the body $g^R_{1.0}$, equal to $2.034 \times 10^{17}\ cm^2$, expressed in cm^2.

The gravitational constant G was determined by the formula

$$G = \frac{c^2}{2 \times g^R_{1.0}}, \tag{24}$$

where G– is the gravitational constant, cm^2;

c– is the speed of light in vacuum, cm/s;

$g_{1.0}^R$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$.

The gravitational constant G – is a value that shows how many times the constant of the gravitational force of the mass of 1.0 cm of the body $F_{sta-sta}$ ($F_{sta-sta} = 2 \times G \times p_{1.0}^M = 2 \times 2.034 \times 10^{17} \times 2.5645 \times 10^{-22} = 1.04324 \times 10^{-4}\, gcm/s^2$ ( ), etc.), more than the doubled of the constant of the pressure of the gravitational force of 1.0 cm of the body $p_{1.0}^M$ ($p_{1.0}^M = \frac{F_{sta-sta}}{2 \times G} = \frac{1.04324 \times 10^{-4}}{2 \times 2.034 \times 10^{17}} = 2.5645 \times 10^{-22}\, g/cms^2$ ( ), etc.), equal to $2.034 \times 10^{17}\, cm^2$, expressed in cm^2.

The gravitational constant G – is the relation of the constant of the gravitational force of the mass of 1.0 cm of the body $F_{sta-sta}$ to the doubled of the constant of the pressure of the gravitational force of 1.0 cm of the body $p_{1.0}^M$, equal to $2.034 \times 10^{17}\, cm^2$, expressed in cm^2.

The gravitational constant G was determined by the formula

$$G = \frac{F_{sta-sta}}{2 \times p_{1.0}^M}, \qquad ( )$$

where G – is the gravitational constant, cm^2;

$F_{sta-sta}$– is the constant of the gravitational force of the mass of 1.0 cm of the body, gcm/s^2;

$p_{1.0}^M$ – is the constant of the pressure of the gravitational force of 1.0 cm of the body, g/cms^2.

It is reasonable to use the formula ( ) to determine the gravitational constant G with the help of the parameters of the first body and the second body when the second body doesn’t rotate around the first body, and which have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT.

The gravitational constant G – it is half of the amount the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^M$ ($A_{1.0}^M = \frac{2 \times G}{M_{1.0}^g} = \frac{2 \times 2.034 \times 10^{17}}{3.8994 \times 10^{21}} =$

$1.04324 \times 10^{-4}\ gs^2/cm^3$ ( ), etc.), the number of which is equal to the constant of the mass of the gravitational acceleration of $1.0\ cm/s^2$ of the body $M_{1.0}^{g}$ ($M_{1.0}^{g} = \frac{2\times G}{A_{1.0}^{M}} = \frac{2\times 2.034\times 10^{17}}{1.04324\times 10^{-4}} = 3.8994 \times 10^{21}\ gs^2/cm$ ( ), etc.), equal to $2.034 \times 10^{17}\ cm^2$, expressed in cm^2.

The gravitational constant G – is a half of the product of the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ and the constant of the mass of the gravitational acceleration of $1.0\ cm/s^2$ of the body $M_{1.0}^{g}$, equal to $2.034 \times 10^{17}\ cm^2$, expressed in cm^2.

The gravitational constant G was determined by the formula

$$G = \frac{A_{1.0}^{M} \times M_{1.0}^{g}}{2}, \qquad ( )$$

where G– is the gravitational constant, cm^2;

$A_{1.0}^{M}$– is the constant of the gravitational field of the mass of 1.0 g of the body, cm^3/gs^2;

$M_{1.0}^{g}$– is the constant of the mass of the gravitational acceleration of $1.0\ cm/s^2$ of the body, gs^2/cm.

It is reasonable to use the formula ( ) to determine the gravitational constant G with the help of other FPC in TGT in the Universe in accordance with FPC in TGT.

The gravitational constant G – is a value that shows how many times the constant of the mass of the gravitational acceleration of $1.0\ cm/s^2$ of the body $M_{1.0}^{g}$ ($M_{1.0}^{g} = 2 \times G \times M_{1.0}^{A} = 2 \times 2.034 \times 10^{17} \times 9585.522 = 3.8994 \times 10^{21}\ gs^2/cm$ ( ), etc.), more than the doubled of the constant of the mass of the gravitational field of $1.0\ cm/s^2$ of the body $M_{1.0}^{A}$ ($M_{1.0}^{A} = \frac{M_{1.0}^{g}}{2\times G} = \frac{3.8994\times 10^{21}}{2\times 2.034\times 10^{17}} = 9585.522\ gs^2/cm^3$ ( ), etc.), equal to $2.034 \times 10^{17}\ cm^2$, expressed in cm^3/gs^2.

The gravitational constant G – is the relation of the constant of the mass of the gravitational acceleration of $1.0\ cm/s^2$ of the body $M_{1.0}^{g}$ to the doubled constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M^A_{1.0}$, equal to 2.034×10^{17} cm^2, expressed in cm^2.

The gravitational constant G was determined by the formula

$$G = \frac{M^g_{1.0}}{2 \times M^A_{1.0}}, \qquad ( )$$

where G– is the gravitational constant, cm^2;

$M^g_{1.0}$– is the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body, gs^2/cm;

$M^A_{1.0}$– is the constant of the mass of the gravitational field of 1.0 cm/s^2 of the body, gs^2/cm^3.

It is reasonable to use the formula () to determine the gravitational constant G with the help of other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M^A_{1.0}$ – is the value reverse to the constant of the gravitational field of the mass of 1.0 g of the body $A^M_{1.0}$ ($A^M_{1.0} = \frac{1}{M^A_{1.0}} = \frac{1}{9585.522} = 1.04324 \times 10^{-4}\, gs^2/cm^3$ ( ), etc.), equal to 9585.522 gs^2/cm^3, expressed in gs^2/cm^3.

The constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M^A_{1.0}$ – the value that is inversely proportional to the constant of the gravitational field of the mass of 1.0 g of the body $A^M_{1.0}$, equal to 9585.522 gs^2/cm^3, expressed in gs^2/cm^3.

The constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M^A_{1.0}$ was determined by the formula

$$M^A_{1.0} = \frac{1}{A^M_{1.0}}, \qquad ( )$$

where $M^A_{1.0}$– is the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body, gs^2/cm^3;

$A^M_{1.0}$– is the constant of the gravitational field of the mass of 1.0 g of the body, cm^3/gs^2.

It is reasonable to use the formula ( ) to determine the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M_{1.0}^A$ with the help of other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M_{1.0}^A$ – is a value that shows how many times the mass of 1.0 cm^3/s^2 of the body $M_{1.0cm^3/s^2}$ ($M_{1.0cm^3/s^2} = A_{1.0cm^3/s^2}^M \times M_{1.0}^A = 1.0 \times 9585.522 = 9585.522\ g$ ( ), etc.), more than the constant of the gravitational field of the mass of 1.0 cm^3/s^2 of the body $A_{1.0cm^3/s^2}^M$ ($A_{1.0cm^3/s^2}^M = \dfrac{M_{1.0cm^3/s^2}}{M_{1.0}^A} = \dfrac{9585.522}{9585.522} = 1.0\ cm^3/s^2$ ( ), etc.), equal to $9585.522\ gs^2/cm^3$, expressed in gs^2/cm^3.

The constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M_{1.0}^A$ – is the relation of the mass of the first body M_1 to the constant of the gravitational field of first body A_1^M, equal to $9585.522\ gs^2/cm^3$, expressed in gs^2/cm^3.

The constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M_{1.0}^A$ was determined by the formula

$$M_{1.0}^A = \frac{M_1}{A_1^M}, \qquad ( )$$

where $M_{1.0}^A$– is the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body, gs^2/cm^3;

M_1– is the mass of the first body, g;

A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2.

It is reasonable to use the formula ( ) to determine the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M_{1.0}^A$ with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, which have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M_{1.0}^A$ – is a value that shows how many times the constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^R$ ($M_{1.0}^R = M_{1.0}^A \times c^2 = 9585.522 \times (2.998 \times 10^{10})^2 =$

$8.615 \times 10^{24}\ g/cm$ ( ), etc.), more than the squared speed of light in vacuum c ($c^2 = \frac{M_{1.0}^R}{M_{1.0}^A} = \frac{8.615 \times 10^{24}}{9585.522} = 8.988 \times 10^{20}\ cm^2/s^2$ ( ), etc.), equal to $9585.522\ gs^2/cm^3$, expressed in gs^2/cm^3.

The constant of the mass of the gravitational field of $1.0\ cm^3/s^2$ of the body $M_{1.0}^A$ – is the relation of the constant of the mass of the gravitational radius of $1.0\ cm$ of the body $M_{1.0}^R$ to the squared speed of light in vacuum c, equal to $9585.522\ gs^2/cm^3$, expressed in gs^2/cm^3.

The constant of the mass of the gravitational field of $1.0\ cm^3/s^2$ of the body $M_{1.0}^A$ was determined by the formula

$$M_{1.0}^A = \frac{M_{1.0}^R}{c^2}, \qquad ( )$$

where $M_{1.0}^A$– is the constant of the mass of the gravitational field of $1.0\ cm^3/s^2$ of the body, gs^2/cm^3;

$M_{1.0}^R$– is the constant of the mass of the gravitational radius of $1.0\ cm$ of the body, g/cm;

c– is the speed of light in vacuum, cm/s.

The constant of the mass of the gravitational field of $1.0\ cm^3/s^2$ of the body $M_{1.0}^A$ – is a value that shows how many times the constant of the gravitational acceleration of the gravitational field of $1.0\ cm^3/s^2$ of the body $g_{1.0}^A$ ($g_{1.0}^A = M_{1.0}^A \times g_{1.0}^M = 9585.522 \times 2.5645 \times 10^{-22} = 2.4582 \times 10^{-18}\ 1/cm^2$ ( ), etc.), more than the constant of the gravitational acceleration of the mass of $1.0\ g$ of the body $g_{1.0}^M$ ($g_{1.0}^M = \frac{g_{1.0}^A}{M_{1.0}^A} = \frac{2.4582 \times 10^{-18}}{9585.522} = 2.5645 \times 10^{-22}\ cm/gs^2$ ( ), etc.), equal to $9585.522\ gs^2/cm^3$, expressed in gs^2/cm^3.

The constant of the mass of the gravitational field of $1.0\ cm^3/s^2$ of the body $M_{1.0}^A$ – is the relation of the constant of the gravitational acceleration of the gravitational field of $1.0\ cm^3/s^2$ of the body $g_{1.0}^A$ to the constant of the gravitational acceleration of the mass of $1.0\ g$ of the body $g_{1.0}^M$, equal to $9585.522\ gs^2/cm^3$, expressed in gs^2/cm^3.

The constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body $M_{1.0}^{A}$ was determined by the formula

$$M_{1.0}^{A} = \frac{g_{1.0}^{A}}{g_{1.0}^{M}}, \qquad ( )$$

where $M_{1.0}^{A}$– is the constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body, gs^2/cm^3;

$g_{1.0}^{A}$– is the constant of the gravitational acceleration of the gravitational field of $1.0\ cm^3/s^2$ of the body, $1/cm^2$;

$g_{1.0}^{M}$– is the constant of the gravitational acceleration of the mass of $1.0\ g$ of the body, cm/gs^2.

The constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body $M_{1.0}^{A}$ – is the value reverse to the product of the constant of the gravitational radius of the mass of $1.0\ g$ of the body $R_{1.0}^{M}$ ($R_{1.0}^{M} = \frac{1}{M_{1.0}^{A} \times c^2} = \frac{1}{9585.522} = 1.04324 \times 10^{-4}\,gs^2/cm^3$ ( ), etc.), the number of which is equal to the squared speed of light in vacuum c ($c^2 = \frac{1}{M_{1.0}^{A} \times R_{1.0}^{M}} = \frac{1}{9585.522 \times 1.16070316 \times 10^{-25}} = 8.988 \times 10^{20}\,cm^2/s^2$ ( ), etc.), equal to $9585.522\,gs^2/cm^3$, expressed in gs^2/cm^3.

The constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body $M_{1.0}^{A}$ – is the value reverse to the product of the constant of the gravitational radius of the mass of $1.0\,g$ of the body $R_{1.0}^{M}$ and the squared speed of light in vacuum c, equal to $9585.522\,gs^2/cm^3$, expressed in gs^2/cm^3.

The constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body $M_{1.0}^{A}$ was determined by the formula

$$M_{1.0}^{A} = \frac{1}{R_{1.0}^{M} \times c^2}, \qquad ( )$$

where $M_{1.0}^{A}$– is the constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body, gs^2/cm^3;

$R_{1.0}^{M}$– is the constant of the gravitational radius of the mass of $1.0\ g$ of the body, cm/g;

c – is the speed of light in vacuum, cm/s.

The constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M_{1.0}^A$ – is a value that shows how many times the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^g$ ($M_{1.0}^g = 2 \times G \times M_{1.0}^A = 2 \times 2.034 \times 10^{17} \times 9585.522 = 3.8994 \times 10^{21}\ gs^2/cm$ ( ), etc.), more than the doubled of the gravitational constant G ($G = \frac{M_{1.0}^g}{2 \times M_{1.0}^A} = \frac{3.8994 \times 10^{21}}{2 \times 9585.522} = 2.034 \times 10^{17}\ cm^2$ ( ), etc.), equal to $9585.522\ gs^2/cm^3$, expressed in gs^2/cm^3.

The constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M_{1.0}^A$ – is the relation of the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^g$ to the doubled of the gravitational constant G, equal to $9585.522\ gs^2/cm^3$, expressed in gs^2/cm^3.

The constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M_{1.0}^A$ was determined by the formula

$$M_{1.0}^A = \frac{M_{1.0}^g}{2 \times G}, \qquad ( )$$

where $M_{1.0}^A$– is the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body, gs^2/cm^3;

$M_{1.0}^g$– is the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body, gs^2/cm;

G– is the gravitational constant, cm^2.

It is reasonable to use the formula ( ) to determine the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M_{1.0}^A$ with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, which have different radii (gravitational radius) and other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^g$ – is a value that shows how many times the mass of 1.0 cm/s^2 of the body $M_{1.0cm/s^2}$ ($M_{1.0cm/s^2} = g_{1.0cm/s^2} \times M_{1.0}^g = 1.0 \times 3.8994 \times 10^{21} = 3.8994 \times 10^{21}\ g$

(), etc.), more than the gravitational acceleration of $1.0\,cm/s^2$ of the body $g_{1.0cm/s^2}$ ($g_{1.0cm/s^2} = \frac{M_{1.0cm/s^2}}{M_{1.0}^{g}} = \frac{3.8994\times10^{21}}{3.8994\times10^{21}} = 1.0\,cm/s^2$ ( ), etc.), equal to $3.8994 \times 10^{21}\,gs^2/cm$, expressed in gs^2/cm.

The constant of the mass of the gravitational acceleration of $1.0\,cm/s^2$ of the body $M_{1.0}^{g}$ – is the relation of the mass of the first body M_1 to the gravitational acceleration of the first body g_1, equal to $3.8994 \times 10^{21}\,gs^2/cm$, expressed in gs^2/cm.

The constant of the mass of the gravitational acceleration of $1.0\,cm/s^2$ of the body $M_{1.0}^{g}$ was determined by the formula

$$M_{1.0}^{g} = \frac{M_1}{g_1}, \qquad ( )$$

where $M_{1.0}^{g}$– is the constant of the mass of the gravitational acceleration of $1.0\,cm/s^2$ of the body, gs^2/cm;

M_1– is the mass of the first body, g;

g_1– is the gravitational acceleration of the first body, cm/s^2.

It is reasonable to use the formula ( ) to determine the constant of the mass of the gravitational acceleration of $1.0\,cm/s^2$ of the body $M_{1.0}^{g}$ with the help of the parameters of the first body and the second body when the second body doesn’t rotating around the first body, which have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the mass of the gravitational acceleration of $1.0\,cm/s^2$ of the body $M_{1.0}^{g}$ – is a value that shows how many times the mass of $1.0\,cm/s^2$ of the body $M_{1.0cm/s^2}$ ($M_{1.0cm/s^2} = g_{1.0cm/s^2} \times M_{1.0}^{g} = 1.0 \times 3.8994 \times 10^{21} = 3.8994 \times 10^{21} g$ (), etc.), more than the gravitational acceleration of $1.0\,cm/s^2$ of the body $g_{1.0cm/s^2}$ ($g_{1.0cm/s^2} = \frac{M_{1.0cm/s^2}}{M_{1.0}^{g}} = \frac{3.8994\times10^{21}}{3.8994\times10^{21}} = 1.0\,cm/s^2$ ( ), etc.), equal to $3.8994 \times 10^{21}\,gs^2/cm$, expressed in gs^2/cm.

The constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ – is the relation of the mass of the first body M_1 to the gravitational acceleration of the first body g_1, equal to $3.8994 \times 10^{21}\ gs^2/cm$, expressed in gs^2/cm.

The constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ was determined by the formula

$$M_{1.0}^{g} = \frac{M_2}{g_2}, \qquad ( )$$

where $M_{1.0}^{g}$– is the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body, gs^2/cm;

M_2 – is the mass of the second body, g;

g_2– is the gravitational acceleration of the second body, cm/s^2.

It is reasonable to use the formula ( ) to determine the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body and which have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ – is a value that shows how many times the constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ ($M_{1.0}^{R} = M_{1.0}^{g} \times g_{1.0}^{R} = 3.8994 \times 10^{21} \times 2209.43656 = 8.615467 \times 10^{24}\ g/cm$ ( ), etc.), more than the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ ($g_{1.0}^{R} = \frac{M_{1.0}^{R}}{M_{1.0}^{g}} = \frac{8.615467 \times 10^{24}}{3.8994 \times 10^{21}} = 2209.43656\ 1/s^2$ ( ), etc.), equal to $3.8994 \times 10^{21}\ gs^2/cm$, expressed in gs^2/cm.

The constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ – is the relation of the constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ to the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$, equal to $3.8994 \times 10^{21}\ gs^2/cm$, expressed in gs^2/cm.

The constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ was determined by the formula

$$M_{1.0}^{g} = \frac{M_{1.0}^{R}}{g_{1.0}^{R}}, \qquad ()$$

where $M_{1.0}^{g}$– is the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body, gs^2/cm;

$M_{1.0}^{R}$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm;

$g_{1.0}^{R}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$.

The constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ – is the value reverse to the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ ($g_{1.0}^{M} = \frac{1}{M_{1.0}^{g}} = \frac{1}{3.8994 \times 10^{21}} = 2.5645 \times 10^{-22}\, cm/gs^2$ ( ), etc.), equal to $3.8994 \times 10^{21}\, gs^2/cm$, expressed in gs^2/cm.

The constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ – is the value reverse to the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$, equal to $3.8994 \times 10^{21}\, gs^2/cm$, expressed in gs^2/cm.

The constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ was determined by the formula

$$M_{1.0}^{g} = \frac{1}{g_{1.0}^{M}}, \qquad ()$$

where $M_{1.0}^{g}$– is the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body, gs^2/cm;

$g_{1.0}^{M}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2.

The constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ – is a value that shows how many times the doubled of the gravitational constant G ($G = \frac{A_{1.0}^{M} \times M_{1.0}^{g}}{2} = \frac{1.04324 \times 10^{-4} \times 3.8994 \times 10^{21}}{2} = 2.034 \times 10^{17}\, cm^2$ ( ), etc.) more than the constant of the gravitational field of the mass of $1.0\ g$ of the body $A_{1.0}^{M}$ ($A_{1.0}^{M} = \frac{2\times G}{M_{1.0}^{g}} = \frac{2\times 2.034\times 10^{17}}{3.8994\times 10^{21}} = 1.04324 \times 10^{-4}\ gs^2/cm^3$ ( ), etc.), equal to $3.8994 \times 10^{21}\ gs^2/cm$, expressed in gs^2/cm.

The constant of the mass of the gravitational acceleration of $1.0\ cm/s^2$ of the body $M_{1.0}^{g}$ – is the relation of the doubled gravitational constant G to the constant of the gravitational field of the mass of $1.0\ g$ of the body $A_{1.0}^{M}$, equal to $3.8994 \times 10^{21}\ gs^2/cm$, expressed in gs^2/cm.

The constant of the mass of the gravitational acceleration of $1.0\ cm/s^2$ of the body $M_{1.0}^{g}$ was determined by the formula

$$M_{1.0}^{g} = \frac{2 \times G}{A_{1.0}^{M}}, \qquad ( )$$

where $M_{1.0}^{g}$– is the constant of the mass of the gravitational acceleration of $1.0\ cm/s^2$ of the body, gs^2/cm;

G– is the gravitational constant, cm^2;

$A_{1.0}^{M}$– is the constant of the gravitational field of the mass of $1.0\ g$ of the body, cm^3/gs^2.

It is reasonable to use the formula ( ) to determine the constant of the mass of the gravitational acceleration of $1.0\ cm/s^2$ of the body $M_{1.0}^{g}$ with the help of other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the mass of the gravitational acceleration of $1.0\ cm/s^2$ of the body $M_{1.0}^{g}$ – is the sum of the constant of the mass of the gravitational field of $1.0\ cm^3/s^2$ of the body $M_{1.0}^{A}$ ($M_{1.0}^{A} = \frac{M_{1.0}^{g}}{2\times G} = \frac{3.8994\times 10^{21}}{2\times 2.034\times 10^{17}} = 9585.522\ gs^2/cm^3$ ( ), etc.), the number of which is equal to the doubled of the gravitational constant G ($G = \frac{M_{1.0}^{g}}{2\times M_{1.0}^{A}} = \frac{3.8994\times 10^{21}}{2\times 9585.522} = 2.034 \times 10^{17} cm^2$ ( ), etc.), equal to $3.8994 \times 10^{21}\ gs^2/cm$, expressed in gs^2/cm.

The constant of the mass of the gravitational acceleration of $1.0\ cm/s^2$ of the body $M_{1.0}^{g}$ – is the product of the doubled gravitational constant G and the constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body $M^A_{1.0}$, equal to $3.8994 \times 10^{21}\,gs^2/cm$, expressed in gs^2/cm.

The constant of the mass of the gravitational acceleration of $1.0\,cm/s^2$ of the body $M^g_{1.0}$ was determined by the formula

$$M^g_{1.0} = 2 \times G \times M^A_{1.0}\,, \qquad (\ )$$

where $M^g_{1.0}$– is the constant of the mass of the gravitational acceleration of $1.0\,cm/s^2$ of the body, gs^2/cm;

G – is the gravitational constant, cm^2;

$M^A_{1.0}$– is the constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body, gs^2/cm^3.

It is reasonable to use the formula ( ) to determine the constant of the mass of the gravitational acceleration of $1.0\,cm/s^2$ of the body $M^g_{1.0}$ with the help of other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the mass of the gravitational radius of $1.0\;cm$ of the body $M^R_{1.0}$ – is the sum of the constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body $M^A_{1.0}$ ($M^A_{1.0} = \frac{M^R_{1.0}}{c^2} = \frac{8.615\times10^{24}}{(2.998\times10^{10})^2} = 9585.522\,gs^2/cm^3$ ( ), etc.), the number of which is equal to the squared speed of light in vacuum c ($c^2 = \frac{M^R_{1.0}}{M^A_{1.0}} = \frac{8.615\times10^{24}}{9585.522} = 8.988 \times 10^{20}\,cm^2/s^2$ ( ), etc.), equal to $8.615467 \times 10^{24}\,g/cm$, expressed in g/cm.

The constant of the mass of the gravitational radius of $1.0\;cm$ of the body $M^R_{1.0}$ – is the product of the constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body $M^A_{1.0}$ and the squared speed of light in vacuum c, equal to $8.615467 \times 10^{24}\,g/cm$, expressed in g/cm.

The constant of the mass of the gravitational radius of $1.0\;cm$ of the body $M^R_{1.0}$ was determined by the formula

$$M^R_{1.0} = M^A_{1.0} \times c^2, \qquad (\ )$$

where $M^R_{1.0}$– is the constant of the mass of the gravitational radius of $1.0\;cm$ of the body, g/cm;

$M^A_{1.0}$– is the constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body, gs^2/cm^3.

c– is the speed of light in vacuum, cm/s.

The constant of the mass of the gravitational radius of 1.0 cm of the body $M^R_{1.0}$ – is the sum of the constant of the mass of the gravitational acceleration of $1.0\,cm/s^2$ of the body $M^g_{1.0}$ ($M^g_{1.0} = \frac{M^R_{1.0}}{g^R_{1.0}} = \frac{8.615467\times10^{24}}{2209.43656} = 3.8994 \times 10^{21}\,gs^2/cm$ ( ), etc.) the number of which is equal to the constant of the gravitational acceleration of the gravitational radius of $1.0\,cm$ of the body $g^R_{1.0}$ ($g^R_{1.0} = \frac{M^R_{1.0}}{M^g_{1.0}} = \frac{8.615467\times10^{24}}{3.8994\times10^{21}} = 2209.43656\,1/s^2$ ( ), etc.), equal to $8.615467 \times 10^{24}\,g/cm$, expressed in g/cm.

The constant of the mass of the gravitational radius of 1.0 cm of the body $M^R_{1.0}$ – is the product of the constant of the mass of the gravitational acceleration of $1.0\,cm/s^2$ of the body $M^g_{1.0}$ and the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g^R_{1.0}$, equal to $8.615467 \times 10^{24}\,g/cm$, expressed in g/cm.

The constant of the mass of the gravitational radius of 1.0 cm of the body $M^R_{1.0}$ was determined by the formula

$$M^R_{1.0} = M^g_{1.0} \times g^R_{1.0}, \qquad ( )$$

where $M^R_{1.0}$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm;

$M^g_{1.0}$– is the constant of the mass of the gravitational acceleration of $1.0\,cm/s^2$ of the body, gs^2/cm;

$g^R_{1.0}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$.

The constant of the mass of the gravitational radius of 1.0 cm of the body $M^R_{1.0}$ – is a value that shows how many times the constant of the gravitational acceleration of the gravitational radius of $1.0\,cm$ of the body $g^R_{1.0}$ ($g^R_{1.0} = M^R_{1.0} \times g^M_{1.0} = 8.615467 \times 10^{24} \times 2.5645 \times 10^{-22} = 2209.43656\,1/s^2$ ( ), etc.) more than the constant of the gravitational acceleration of the mass of $1.0\,g$ of the body $g^{M}_{1.0}$ ($g^{M}_{1.0} = \frac{g^{R}_{1.0}}{M^{R}_{1.0}} = \frac{2209.43656}{8.615467\times 10^{24}} = 2.5645 \times 10^{-22}\,cm/gs^{2}$ ( ), etc.), equal to $8.615467 \times 10^{24}\,g/cm$, expressed in g/cm.

The constant of the mass of the gravitational radius of $1.0\,cm$ of the body $M^{R}_{1.0}$ – is the relation of the constant of the gravitational acceleration of the gravitational radius of $1.0\,cm$ of the body $g^{R}_{1.0}$ to the constant of the gravitational acceleration of the mass of $1.0\,g$ of the body $g^{M}_{1.0}$, equal to $8.615467 \times 10^{24}\,g/cm$, expressed in g/cm.

The constant of the mass of the gravitational radius of $1.0\,cm$ of the body $M^{R}_{1.0}$ was determined by the formula

$$M^{R}_{1.0} = \frac{g^{R}_{1.0}}{g^{M}_{1.0}}, \qquad ( )$$

where $M^{R}_{1.0}$– is the constant of the mass of the gravitational radius of $1.0\,cm$ of the body, g/cm;

$g^{R}_{1.0}$– is the constant of the gravitational acceleration of the gravitational radius of $1.0\,cm$ of the body, $1/s^{2}$;

$g^{M}_{1.0}$– is the constant of the gravitational acceleration of the mass of $1.0\,g$ of the body, cm/gs^{2}.

The constant of the mass of the gravitational radius of $1.0\,cm$ of the body $M^{R}_{1.0}$ – is the value reverse to the constant of the gravitational radius of the mass of $1.0\,g$ of the body $R^{M}_{1.0}$ ($R^{M}_{1.0} = \frac{1}{M^{R}_{1.0}} = \frac{1}{8.615467\times 10^{24}} = 1.16070316 \times 10^{-25}\,cm/g$ ( ), etc.), equal to $8.615467 \times 10^{24}\,g/cm$, expressed in g/cm.

The constant of the mass of the gravitational radius of $1.0\,cm$ of the body $M^{R}_{1.0}$ – is the value reverse to the constant of the gravitational radius of the mass of $1.0\,g$ of the body $R^{M}_{1.0}$, equal to $8.615467 \times 10^{24}\,g/cm$, expressed in g/cm.

The constant of the mass of the gravitational radius of $1.0\,cm$ of the body $M^{R}_{1.0}$ was determined by the formula

$$M^R_{1.0} = \frac{1}{R^M_{1.0}}, \qquad ()$$

where $M^R_{1.0}$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm;

$R^M_{1.0}$– is the constant of the gravitational radius of the mass of 1.0 g of the body, cm/g.

The constant of the mass of the gravitational radius of 1.0 cm of the body $M^R_{1.0}$ – is a value that shows how many times the mass of 1.0 cm of the body $M_{1.0cm}$ ($M_{1.0cm} = R^c_{1.0cm} \times M^R_{1.0} = 1.0 \times 8.615467 \times 10^{24} = 8.615467 \times 10^{24} g$ ( ), etc.), more than the gravitational radius of 1.0 cm of the body $R^c_{1.0cm}$ ($R^c_{1.0cm} = \frac{M_{1.0cm}}{M^R_{1.0}} = \frac{8.615467 \times 10^{24}}{8.615467 \times 10^{24}} =$ 1.0 cm ( ), etc.), equal to 8.615467×10^{24} g/cm, expressed in g/cm.

The constant of the mass of the gravitational radius of 1.0 cm of the body $M^R_{1.0}$ – is the relation of the mass of the first body M_1 to the gravitational radius of the first body R^c_1, equal to 8.615467×10^{24} g/cm, expressed in g/cm.

The constant of the mass of the gravitational radius of 1.0 cm of the body $M^R_{1.0}$ was determined by the formula

$$M^R_{1.0} = \frac{M_1}{R^c_1}, \qquad ()$$

where $M^R_{1.0}$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm;

M_1– is the mass of the first body, g;

R^c_1– is the gravitational radius of the first body, cm.

It is reasonable to use the formula ( ) to determine the constant of the mass of the gravitational radius of 1.0 cm of the body $M^R_{1.0}$ with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body and which have different radii (gravitational radius) and other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the mass of the gravitational radius of 1.0 cm of the body $M^R_{1.0}$ – is a value that shows how many times the constant of the weight of the gravitational radius of $1.0\,cm$ of the body $P_{1.0}^{R}$ ($P_{1.0}^{R} = M_{1.0}^{R} \times g_{1.0}^{R} = 8.615 \times 10^{24} \times 2209.326 = 1.903 \times 10^{28}\ g/cms^2$ ( ), etc.), more than the constant of the gravitational acceleration of the gravitational radius of $1.0\,cm$ of the body $g_{1.0}^{R}$ ($g_{1.0}^{R} = \frac{P_{1.0}^{R}}{M_{1.0}^{R}} = \frac{1.903 \times 10^{28}}{8.615 \times 10^{24}} = 2209.326\ 1/s^2$ ( ), etc.), equal to $8.615467 \times 10^{24}\ g/cm$, expressed in g/cm.

The constant of the mass of the gravitational radius of $1.0\ cm$ of the body $M_{1.0}^{R}$ – is the relation of the constant of the weight of the gravitational radius of $1.0\ cm$ of the body $P_{1.0}^{R}$ to the constant of the gravitational acceleration of the gravitational radius of $1.0\ cm$ of the body $g_{1.0}^{R}$, equal to $8.61818 \times 10^{24}\ g/cm$, expressed in g/cm.

The constant of the mass of the gravitational radius of $1.0\ cm$ of the body $M_{1.0}^{R}$ was determined by the formula

$$M_{1.0}^{R} = \frac{P_{1.0}^{R}}{g_{1.0}^{R}}, \qquad (\ )$$

where $M_{1.0}^{R}$– is the constant of the mass of the gravitational radius of $1.0\,cm$ of the body, g/cm;

$P_{1.0}^{R}$– is the constant of the weight of the gravitational radius of $1.0\,cm$ of the body, g/cms^2;

$g_{1.0}^{R}$– is the constant of the gravitational acceleration of the gravitational radius of $1.0\ cm$ of the body, $1/s^2$.

It is reasonable to use the formula ( ) to determine the constant of the mass of the gravitational radius of $1.0\ cm$ of the body $M_{1.0}^{R}$ with the help of other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the mass of the gravitational radius of $1.0\ cm$ of the body $M_{1.0}^{R}$ – is a value that shows how many times the energy of $1.0\,g$ of the body $E_{1.0g}$ ($E_{1.0g} = A_{1.0g}^{M} \times M_{1.0}^{R} = 1.04324 \times 10^{-4} \times 8.615467 \times 10^{24} = 8.988 \times 10^{20}\ \ gcm^2/s^2$ ( ), etc.), more than the constant of the gravitational field of the mass of $1.0\,g$ of the body $A_{1.0g}^{M}$ ($A_{1.0g}^{M} = \frac{E_{1.0g}}{M_{1.0}^{R}} = \frac{8.988 \times 10^{20}}{8.615467 \times 10^{24}} = 1.04324 \times 10^{-4}\,cm^3/s^2$ ( ), etc.), equal to $8.615467 \times 10^{24}\,g/cm$, expressed in g/cm.

The constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ – is the relation of the energy of the first body E_1 to the constant of the gravitational field of the mass of the first body A_1^M, equal to $8.61818 \times 10^{24}\ g/cm$, expressed in g/cm.

The constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ was determined by the formula

$$M_{1.0}^{R} = \frac{E_1}{A_1^M}, \qquad ()$$

where $M_{1.0}^{R}$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm;

E_1– is the energy of the first body, gcm^2/s^2;

A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2.

It is reasonable to use the formula ( ) to determine the constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ with the help of other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ – is a value that shows how many times the gravitational acceleration of 1.0 g of the body $g_{1.0g}$ ($g_{1.0g} = M_{1.0g} \times g_{1.0}^{M} = 1.0 \times 2.5645 \times 10^{-22} = 2.5645 \times 10^{-22}\ cm/s^2$ ( ), etc.) more than the mass of 1.0 g of the body $M_{1.0g}$ ($M_{1.0g} = \frac{g_{1.0g}}{g_{1.0}^{M}} = \frac{2.5645 \times 10^{-22}}{2.5645 \times 10^{-22}} = 1.0\ g$ ( ), etc.), equal to $2.5645 \times 10^{-22}\ cm/s^2$, expressed in cm/gs^2.

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ – is the relation of the gravitational acceleration of the first body g_1 to the mass of the first body M_1, equal to $2.5645 \times 10^{-22}\ cm/gs^2$, expressed in cm/gs^2.

The constant of the gravity acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ was determined by the formula

$$g_{1.0}^{M} = \frac{g_1}{M_1}, \qquad ()$$

where $g_{1.0}^{M}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2;

g_1 – is the gravitational acceleration of the first body, cm/s^2;

M_1– is the mass of the first body, g.

It is reasonable to use the formula ( ) to determine the constant of the gravitational acceleration of the mass of $1.0\ g$ of the body $g_{1.0}^M$ with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, which have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational acceleration of the mass of $1.0\ g$ of the body $g_{1.0}^M$ – is a value that shows how many times the gravitational acceleration of $1.0\ g$ of the body $g_{1.0g}$ ($g_{1.0g} = M_{1.0g} \times g_{1.0}^M = 1.0 \times 2.5645 \times 10^{-22} = 2.5645 \times 10^{-22}\ cm/s^2$ ( ), etc.) more than the mass of $1.0\ g$ of the body $M_{1.0g}$ ($M_{1.0g} = \frac{g_{1.0g}}{g_{1.0}^M} = \frac{2.5645 \times 10^{-22}}{2.5645 \times 10^{-22}} = 1.0\ g$ ( ), etc.), equal to $2.5645 \times 10^{-22}\ cm/gs^2$, expressed in cm/gs^2.

The constant of the gravitational acceleration of the mass of $1.0\ g$ of the body $g_{1.0}^M$ – is the relation of the gravitational acceleration of the second body g_2 to the mass of the second body M_2, equal to $2.5645 \times 10^{-22}\ cm/gs^2$, expressed in cm/gs^2.

The constant of the gravitational acceleration of the mass of $1.0\ g$ of the body $g_{1.0}^M$ was determined by the formula

$$g_{1.0}^M = \frac{g_2}{M_2}, \qquad ( )$$

where $g_{1.0}^M$– is the constant of the gravitational acceleration of the mass of $1.0\ g$ of the body, cm/gs^2;

g_2– is the gravitational acceleration of the second body, cm/s^2;

M_2– is the mass of the second body, g.

It is reasonable to use the formula ( ) to determine the constant of the gravitational acceleration of the mass of $1.0\ g$ of the body $g_{1.0}^M$ with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, whey have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ – is a value that shows how many times the constant of the gravitational field of 1.0 g of the body $A_{1.0}^{M}$ ($A_{1.0}^{M} = 2 \times G \times g_{1.0}^{M} = 2 \times 2.034 \times 10^{17} \times 2.5645 \times 10^{-22} = 1.04324 \times 10^{-4}\, cm^3/gs^2$ ( ), etc.) more than the doubled the gravitational constant G ($G = \frac{A_{1.0}^{M}}{2 \times g_{1.0}^{M}} = \frac{1.04324 \times 10^{-4}}{2 \times 2.5645 \times 10^{-22}} = 2.034 \times 10^{17}\, cm^2$ ( ), etc.), equal to $2.5645 \times 10^{-22}\, cm/gs^2$, expressed in cm/gs^2.

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ – is the relation of the constant of the gravitational field of 1.0 g of the body $A_{1.0}^{M}$ to the doubled gravitational constant G, equal to $2.5645 \times 10^{-22}\, cm/gs^2$, expressed in cm/gs^2.

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ was determined by the formula:

$$g_{1.0}^{M} = \frac{A_{1.0}^{M}}{2 \times G}, \qquad ( )$$

where $g_{1.0}^{M}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2;

$A_{1.0}^{M}$ – is the constant of the gravitational field of 1.0 g of the body, cm^3/gs^2;

G– is the gravitational constant, cm^2.

It is reasonable to use the formula ( ) to determine the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ with the help of other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ – is the value reverse to the sum of the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M_{1.0}^{A}$ ($M_{1.0}^{A} = \frac{1}{2 \times G \times g_{1.0}^{M}} = \frac{1}{2 \times 2.034 \times 10^{17} \times 2.5645 \times 10^{-22}} = 9585.522\, gs^2/cm^3$ ( ), etc.) the number of which is equal to the doubled gravitational constant G ($G = \frac{1}{2 \times M_{1.0}^{A} \times g_{1.0}^{M}} = \frac{1}{2 \times 9585.522 \times 2.5645 \times 10^{-22}} = 2.034 \times 10^{17} cm^2$ ( ), etc.), equal to $2.5645 \times 10^{-22}\, cm/gs^2$, expressed in cm/gs^2.

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ – is the value reverse to the sum of the product of the doubled gravitational constant G to the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M_{1.0}^{A}$, equal to $2.5645 \times 10^{-22}\ cm/gs^2$, expressed in cm/gs^2.

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ was determined by the formula

$$g_{1.0}^{M} = \frac{1}{2 \times G \times M_{1.0}^{A}}, \qquad ( )$$

where $g_{1.0}^{M}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2;

G – is the gravitational constant, cm^2;

$M_{1.0}^{A}$– is the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body, gs^2/cm^3.

It is reasonable to use the formula ( ) to determine the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ with the help of other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ – is the sum of the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^{A}$ ($g_{1.0}^{A} = \frac{g_{1.0}^{M}}{A_{1.0}^{M}} = \frac{2.5645\times10^{-22}}{1.04324\times10^{-4}} = 2.4582 \times 10^{-18}\ 1/cm^2$ (), etc.) the number of which is equal to the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ ($A_{1.0}^{M} = \frac{g_{1.0}^{M}}{g_{1.0}^{A}} = \frac{2.5645\times10^{-22}}{2.4582\times10^{-18}} = 1.04324 \times 10^{-4}\ cm^3/gs^2$ ( ), etc.), equal to $2.5645 \times 10^{-22}\ cm/gs^2$, expressed in cm/gs^2.

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ – is the product of the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ and the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^{A}$, equal to $2.5645 \times 10^{-22}\ cm/gs^2$, expressed in cm/gs^2.

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ was determined by the formula

$$g_{1.0}^{M} = A_{1.0}^{M} \times g_{1.0}^{A}, \qquad ( )$$

where $g_{1.0}^{M}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2;

$A_{1.0}^{M}$– is the constant of the gravitational field of the mass of 1.0 g of the body, cm^3/gs^2;

$g_{1.0}^{A}$– is the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body, $1/cm^2$.

It is reasonable to use the formula ( ) to determine the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ with the help of other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ – is the value reverse to the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ ($M_{1.0}^{g} = \frac{1}{g_{1.0}^{M}} = \frac{1}{2.5645 \times 10^{-22}} = 3.8994 \times 10^{21}\, gs^2/cm$ (), etc.), equal to $2.5645 \times 10^{-22}\, cm/gs^2$, expressed in cm/gs^2.

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ – is the value reverse to the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$, equal to $2.5645 \times 10^{-22}\, cm/gs^2$, expressed in cm/gs^2.

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ was determined by the formula

$$g_{1.0}^{M} = \frac{1}{M_{1.0}^{g}}, \qquad ( )$$

where $g_{1.0}^{M}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2;

$M_{1.0}^{g}$– is the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body, gs^2/cm.

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ – is a value that shows how many times the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^{A}$ ($g_{1.0}^{A} = M_{1.0}^{A} \times g_{1.0}^{M} = 9585.522 \times 2.5645 \times 10^{-22} = 2.4582 \times 10^{-18}\, 1/cm^2$ ( ), etc.) more than the constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body $M_{1.0}^A$ ($M_{1.0}^A = \frac{g_{1.0}^A}{g_{1.0}^M} = \frac{2.4582\times10^{-18}}{2.5645\times10^{-22}} = 9585.522\,gs^2/cm^3$ ( ), etc.), equal to $2.5645 \times 10^{-22}\,cm/gs^2$, expressed in cm/gs^2.

The constant of the gravitational acceleration of the mass of $1.0\,g$ of the body $g_{1.0}^M$ – is the relation of the constant of the gravitational acceleration of the gravitational field of $1.0\,cm^3/s^2$ of the body $g_{1.0}^A$ to the constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body $M_{1.0}^A$, equal to $2.5645 \times 10^{-22}\,cm/gs^2$, expressed in cm/gs^2.

The constant of the gravitational acceleration of the mass of $1.0\,g$ of the body $g_{1.0}^M$ was determined by the formula

$$g_{1.0}^M = \frac{g_{1.0}^A}{M_{1.0}^A}, \qquad ( )$$

where $g_{1.0}^M$– is the constant of the gravitational acceleration of the mass of $1.0\,g$ of the body, cm/gs^2;

$g_{1.0}^A$– is the constant of the gravitational acceleration of the gravitational field of $1.0\,cm^3/s^2$ of the body, $1/cm^2$;

$M_{1.0}^A$– is the constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body, gs^2/cm^3.

The constant of the gravitational acceleration of the mass of $1.0\,g$ of the body $g_{1.0}^M$ – is a value that shows how many times the constant of the gravitational acceleration of the gravitational radius of $1.0\,cm$ of the body $g_{1.0}^R$ ($g_{1.0}^R = M_{1.0}^R \times g_{1.0}^M = 8.615467 \times 10^{24} \times 2.5645 \times 10^{-22} = 2209.43656\,1/cm^2$ ( ), etc.) more than the constant of the mass of the gravitational radius of $1.0\,cm$ of the body $M_{1.0}^R$ ($M_{1.0}^R = \frac{g_{1.0}^R}{g_{1.0}^M} = \frac{2209.43656}{2.5645\times10^{-22}} = 8.615467 \times 10^{24}\,g/cm$ ( ), etc.), equal to $2.5645 \times 10^{-22}\,cm/gs^2$, expressed in cm/gs^2.

The constant of the gravitational acceleration of the mass of $1.0\,g$ of the body $g_{1.0}^M$ – is the relation of the constant of the gravitational acceleration of the gravitational radius of $1.0\,cm$ of the body $g_{1.0}^R$ to the constant of the mass of the gravitational radius of $1.0\,cm$ of the body $M_{1.0}^R$, equal to $2.5645 \times 10^{-22}\,cm/gs^2$, expressed in cm/gs^2.

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ was determined by the formula

$$g_{1.0}^{M} = \frac{g_{1.0}^{R}}{M_{1.0}^{R}}, \qquad ()$$

where $g_{1.0}^{M}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2;

$g_{1.0}^{R}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$;

$M_{1.0}^{R}$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm.

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ – is the sum of the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ ($g_{1.0}^{R} = \frac{g_{1.0}^{M}}{R_{1.0}^{M}} = \frac{2.5645\times10^{-22}}{1.16070316\times10^{-25}} = 2209.43656\, 1/s^2$ ( ), etc.) the number of which is equal to the constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ ($R_{1.0}^{M} = \frac{g_{1.0}^{M}}{g_{1.0}^{R}} = \frac{2.5645\times10^{-22}}{2209.43656} = 1.16070316 \times 10^{-25}\, cm/g$ ( ), etc.), equal to $2.5645 \times 10^{-22}\, cm/gs^2$, expressed in cm/gs^2.

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ – is the product of the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ to the constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$, equal to $2.5645 \times 10^{-22}\, cm/gs^2$, expressed in cm/gs^2.

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ was determined by the formula

$$g_{1.0}^{M} = g_{1.0}^{R} \times R_{1.0}^{M}, \qquad ()$$

where $g_{1.0}^{M}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2;

$g_{1.0}^{R}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$;

$R_{1.0}^{M}$ – is the constant of the gravitational radius of the mass of 1.0 g of the body, cm/g.

It is reasonable to use the formula ( ) to determine the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ with the help and other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ – is a value that shows how many times the constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ ($R_{1.0}^{M} = g_{1.0}^{M} \times R_{1.0}^{g} = 2.5645 \times 10^{-22} \times 4.52604 \times 10^{-4} = 1.16070316 \times 10^{-25}\, cm/g$ ( ), etc.) more than the constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body $R_{1.0}^{g}$ ($R_{1.0}^{g} = \frac{R_{1.0}^{M}}{g_{1.0}^{M}} = \frac{1.16070316 \times 10^{-25}}{2.5645 \times 10^{-22}} = 4.52604 \times 10^{-4}\, s^2$ ( ), etc.), equal to $2.5645 \times 10^{-22}\, cm/gs^2$, expressed in cm/gs^2.

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ – is the relation of the constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ to the constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body $R_{1.0}^{g}$, equal to $2.5645 \times 10^{-22}\, cm/gs^2$, expressed in cm/gs^2.

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ was determined by the formula

$$g_{1.0}^{M} = \frac{R_{1.0}^{M}}{R_{1.0}^{g}}, \qquad ( )$$

where $g_{1.0}^{M}$ – is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2;

$R_{1.0}^{M}$ – is the constant of the gravitational radius of the mass of 1.0 g of the body, cm/g;

$R_{1.0}^{g}$ – is the constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body, s^2.

It is reasonable to use the formula ( ) to determine the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ with the help and other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational acceleration of the gravitational field of $1.0\, cm^3/s^2$ of the body $g_{1.0}^{A}$ – is the value reverse to the doubled of the gravitational constant G ($G = \frac{1}{2 \times g_{1.0}^{A}} = \frac{1}{2 \times 2.4582 \times 10^{-18}} = 2.034 \times 10^{17} cm^2$ ( ), etc.), equal to $2.4582 \times 10^{-18}\, 1/cm^2$, expressed in $1/cm^2$.

The constant of the gravitational acceleration of the gravitational field of $1.0\, cm^3/s^2$ of the body $g_{1.0}^{A}$ – is the value reverse to the doubled of the gravitational constant G, equal to $2.4582 \times 10^{-18}\, 1/cm^2$, expressed in $1/cm^2$.

The constant of the gravitational acceleration of the gravitational field of $1.0\, cm^3/s^2$ of the body $g_{1.0}^{A}$ was determined by the formula

$$g_{1.0}^{A} = \frac{1}{2 \times G}, \qquad ( )$$

where $g_{1.0}^{A}$– is the constant of the gravitational acceleration of the gravitational field of $1.0\, cm^3/s^2$ of the body, $1/cm^2$;

G– is the gravitational constant, cm^2.

The constant of the gravitational acceleration of the gravitational field of $1.0\, cm^3/s^2$ of the body $g_{1.0}^{A}$ – is the sum of the constant of the gravitational acceleration of the mass of $1.0\, g$ of the body $g_{1.0}^{M}$ ($g_{1.0}^{M} = \frac{g_{1.0}^{A}}{M_{1.0}^{A}} = \frac{2.4582 \times 10^{-18}}{9585.522} = 2.5645 \times 10^{-22}\, cm/gs^2$ ( ), etc.) the number of which is equal to the constant of the mass of the gravitational field of $1.0\, cm^3/s^2$ of the body $M_{1.0}^{A}$ ($M_{1.0}^{A} = \frac{g_{1.0}^{A}}{g_{1.0}^{M}} = \frac{2.4582 \times 10^{-18}}{2.5645 \times 10^{-22}} = 9585.522\, gs^2/cm^3$ ( ), etc.), equal to $2.4582 \times 10^{-18}\, 1/cm^2$, expressed in $1/cm^2$.

The constant of the gravitational acceleration of the gravitational field of $1.0\, cm^3/s^2$ of the body $g_{1.0}^{A}$ – is the product of the constant of the mass of the gravitational field of $1.0\, cm^3/s^2$ of the body $M_{1.0}^{A}$ and the constant of the gravitational acceleration of the mass of 1.0 g of the body $g^M_{1.0}$, equal to $2.4582 \times 10^{-18}\, 1/cm^2$, expressed in $1/cm^2$.

The constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g^A_{1.0}$ was determined by the formula

$$g^A_{1.0} = M^A_{1.0} \times g^M_{1.0}, \qquad ( )$$

where $g^A_{1.0}$– is the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body, $1/cm^2$;

$M^A_{1.0}$– is the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body, gs^2/cm^3;

$g^M_{1.0}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2;

The constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g^A_{1.0}$ – is a value that shows how many times the constant of the gravitational acceleration of the mass of 1.0 g of the body $g^M_{1.0}$ ($g^M_{1.0} = A^M_{1.0} \times g^A_{1.0} = 1.04324 \times 10^{-4} \times 2.4582 \times 10^{-18} = 2.5645 \times 10^{-22}\, cm/gs^2$ ( ), etc.) more than the constant of the gravitational field of the mass of 1.0 g of the body $A^M_{1.0}$ ($A^M_{1.0} = \frac{g^M_{1.0}}{g^A_{1.0}} = \frac{2.5645\times 10^{-22}}{2.4582\times 10^{-18}} = 1.04324 \times 10^{-4}\, cm^3/gs^2$ ( ), etc.), equal to $2.4582 \times 10^{-18}\, 1/cm^2$, expressed in $1/cm^2$.

The constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g^A_{1.0}$ – is the relation of the constant of the gravitational acceleration of the mass of 1.0 g of the body $g^M_{1.0}$ to the constant of the gravitational field of the mass of 1.0 g of the body $A^M_{1.0}$, equal to $2.4582 \times 10^{-18}\, 1/cm^2$, expressed in $1/cm^2$.

The constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g^A_{1.0}$ was determined by the formula

$$g^A_{1.0} = \frac{g^M_{1.0}}{A^M_{1.0}}, \qquad ( )$$

where $g_{1.0}^{A}$– is the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body, $1/cm^2$;

$g_{1.0}^{M}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2;

$A_{1.0}^{M}$– is the constant of the gravitational field of the mass of 1.0 g of the body, cm^3/gs^2.

It is reasonable to use the formula ( ) to determine the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^{A}$ with the help of other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^{A}$ – is a value that shows how many times the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ ($g_{1.0}^{R} = g_{1.0}^{A} \times c^2 = 2.4582 \times 10^{-18} \times (2.988 \times 10^{10})^2 = 2209.43656\, 1/s^2$ ( ), etc.) more than the squared speed of light in vacuum c ($c^2 = \frac{g_{1.0}^{R}}{g_{1.0}^{A}} = \frac{2209.43656}{2.4582 \times 10^{-18}} = 2.988 \times 10^{10} cm/s$ ( ), etc.), equal to $2.4582 \times 10^{-18}\, 1/cm^2$, expressed in $1/cm^2$.

The constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^{A}$ – is the relation of the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ to the squared speed of light in vacuum c, equal to $2.4582 \times 10^{-18}\, 1/cm^2$, expressed in $1/cm^2$.

The constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^{A}$ was determined by the formula

$$g_{1.0}^{A} = \frac{g_{1.0}^{R}}{c^2}, \qquad ( )$$

where $g_{1.0}^{A}$– is the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body, $1/cm^2$;

$g_{1.0}^{R}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$;

c – is the speed of light in vacuum, cm/s.

The constant of the gravitational acceleration of the gravitational field of $1.0\ cm^3/s^2$ of the body $g^A_{1.0}$ – is a value that shows how many times the gravitational acceleration of $1.0\ cm^3/s^2$ of the body $g_{1.0cm^3/s^2}$ ($g_{1.0cm^3/s^2} = A^M_{1.0cm^3/s^2} \times g^A_{1.0} = 1.0 \times 2.4582 \times 10^{-18} = 2.4582 \times 10^{-18}\ \ cm/s^2$ ( ), etc.) more than the constant of the gravitational field of the mass of $1.0\ cm^3/s^2$ of the body $A^M_{1.0cm^3/s^2}$ ($A^M_{1.0cm^3/s^2} = \frac{g_{1.0cm^3/s^2}}{g^A_{1.0}} = \frac{2.4582\times10^{-18}}{2.4582\times10^{-18}} = 1.0\ cm^3/s^2$ ( ), etc.), equal to $2.4582 \times 10^{-18}\ 1/cm^2$, expressed in $1/cm^2$.

The constant of the gravitational acceleration of the gravitational field of $1.0\ cm^3/s^2$ of the body $g^A_{1.0}$ – is the relation of the gravitational acceleration of the first body g_1 to the constant of the gravitational field of the mass of the first body A^M_1, equal to $2.4582 \times 10^{-18}\ 1/cm^2$, expressed in cm/gs^2.

The constant of the gravitational acceleration of the gravitational field of $1.0\ cm^3/s^2$ of the body $g^A_{1.0}$ was determined by the formula

$$g^A_{1.0} = \frac{g_1}{A^M_1}, \qquad ( )$$

where $g^A_{1.0}$– is the constant of the gravitational acceleration of the gravitational field of $1.0\ cm^3/s^2$ of the body, $1/cm^2$;

g_1– is the gravitational acceleration of the first body, cm/s^2;

A^M_1– is the constant of the gravitational field of the mass of the first body, cm^3/s^2.

It is reasonable to use the formula ( ) to determine the constant of the gravitational acceleration of the gravitational field of $1.0\ cm^3/s^2$ of the body $g^A_{1.0}$ with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, whey have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational acceleration of the gravitational radius of $1.0\ cm$ of the body $g^R_{1.0}$ – is a value that shows how many times the constant of the mass of the gravitational radius of $1.0\ cm$ of the body $M^R_{1.0}$ ($M^R_{1.0} = M^g_{1.0} \times g^R_{1.0} = 3.8994 \times 10^{21} \times 2209.43656 = 8.615467 \times 10^{24}\ g/cm$ ( ), etc.) more than the constant of the mass of the gravitational acceleration of $1.0\,cm/s^2$ of the body $M_{1.0}^g$ ($M_{1.0}^g = \frac{M_{1.0}^R}{g_{1.0}^R} = \frac{8.615467 \times 10^{24}}{2209.43656} = 3.8994 \times 10^{21}\,gs^2/cm$ ( ), etc.), equal to $2209.43656\,1/s^2$, expressed in $1/s^2$.

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^R$ – is the relation of the constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^R$ to the constant of the mass of the gravitational acceleration of $1.0\,cm/s^2$ of the body $M_{1.0}^g$, equal to $2209.43656\,1/s^2$, expressed in $1/s^2$.

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^R$ was determined by the formula

$$g_{1.0}^R = \frac{M_{1.0}^R}{M_{1.0}^g}, \qquad ( )$$

where $g_{1.0}^R$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$;

$M_{1.0}^R$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm;

$M_{1.0}^g$– is the constant of the mass of the gravitational acceleration of $1.0\,cm/s^2$ of the body, gs^2/cm.

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^R$ – is the sum of the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^M$ ($g_{1.0}^M = \frac{g_{1.0}^R}{M_{1.0}^R} = \frac{2209.43656}{8.615467 \times 10^{24}} = 2.5645 \times 10^{-22}\,cm/gs^2$ ( ), etc.) the number of which is equal to the constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^R$ ($M_{1.0}^R = \frac{g_{1.0}^R}{g_{1.0}^M} = \frac{2209.43656}{2.5645 \times 10^{-22}} = 8.615467 \times 10^{24}\,g/cm$ ( ), etc.), equal to $2209.43656\,1/s^2$, expressed in $1/s^2$.

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^R$ – is the product of the constant of the mass of the gravitational radius of

1.0 cm of the body $M_{1.0}^{R}$ and the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$, equal to $2209.43656\, 1/s^2$, expressed in $1/s^2$.

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ was determined by the formula

$$g_{1.0}^{R} = M_{1.0}^{R} \times g_{1.0}^{M}, \qquad ( )$$

where $g_{1.0}^{R}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$;

$M_{1.0}^{R}$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm;

$g_{1.0}^{M}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2.

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ – is a value that shows how many times the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ ($g_{1.0}^{M} = g_{1.0}^{R} \times R_{1.0}^{M} = 2209.43656 \times 1.16070316 \times 10^{-25} = 2.5645 \times 10^{-22}\, cm/gs^2$ ( ), etc.) more than the constant of the gravitational field of the gravitational radius of 1.0 g of the body $R_{1.0}^{M}$ ($R_{1.0}^{M} = \frac{g_{1.0}^{M}}{g_{1.0}^{R}} = \frac{2.5645 \times 10^{-22}}{2209.43656} = 1.16070316 \times 10^{-25}\, cm/g$ ( ), etc.), equal to $2209.43656\, 1/s^2$, expressed in $1/s^2$.

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ – is the relation of the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ to the constant of the gravitational field of the gravitational radius of 1.0 g of the body $R_{1.0}^{M}$, equal to $2209.43656\, 1/s^2$, expressed in $1/s^2$.

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ was determined by the formula

$$g_{1.0}^{R} = \frac{g_{1.0}^{M}}{R_{1.0}^{M}}, \qquad ( )$$

where $g^R_{1.0}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$;

$g^M_{1.0}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2;

$R^M_{1.0}$– is the constant of the gravitational field of the gravitational radius of 1.0 g of the body, cm/g.

It is reasonable to use the formula ( ) to determine the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g^R_{1.0}$ with the help of other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g^R_{1.0}$ – is the sum of the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g^A_{1.0}$ ($g^A_{1.0} = \frac{g^R_{1.0}}{c^2} = \frac{2209.43656}{(2.988\times10^{10})^2} = 2.4582 \times 10^{-18}\, 1/cm^2$ ( ), etc.) the number of which is equal to the squared speed of light in vacuum c ($c = \sqrt{\frac{g^R_{1.0}}{g^A_{1.0}}} = \sqrt{\frac{2209.43656}{g^A_{1.0}}} = 2.988 \times 10^{10}\ cm/s$ ( ), etc.), equal to $2209.43656\, 1/s^2$, expressed in $1/s^2$.

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g^R_{1.0}$ – is the product of the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g^A_{1.0}$ and the squared speed of light in vacuum c, equal to $2209.43656\, 1/s^2$, expressed in $1/s^2$.

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g^R_{1.0}$ was determined by the formula

$$g^R_{1.0} = g^A_{1.0} \times c^2, \qquad ( )$$

where $g^R_{1.0}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$;

$g^A_{1.0}$– is the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body, $1/cm^2$;

c– is the speed of light in vacuum, cm/s.

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g^R_{1.0}$ – is a value that shows how many times the gravitational acceleration of 1.0 cm of the body $g_{1.0cm}$ ($g_{1.0cm} = R^c_{1.0cm} \times g^R_{1.0} = 1.0 \times 2209.43656 = 2209.43656\, cm/s^2$ ( ), etc.) more than the gravitational radius of 1.0 cm of the body $R^c_{1.0cm}$ ($R^c_{1.0cm} = \frac{g_{1.0cm}}{g^R_{1.0}} = \frac{2209.43656}{2209.43656} = 1.0\ cm$ ( ), etc.), equal to $2209.43656\, 1/s^2$, expressed in $1/s^2$.

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g^R_{1.0}$ – is the relation of the gravitational acceleration of the first body g_1 to the gravitational radius of 1.0 cm of the body R^c_1, equal to $2209.43656\, 1/s^2$, expressed in $1/s^2$.

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g^R_{1.0}$ was determined by the formula

$$g^R_{1.0} = \frac{g_1}{R^c_1}, \qquad ( )$$

where $g^R_{1.0}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$;

g_1– is the gravitational acceleration of the first body, cm/s^2;

R^c_1– is the gravitational radius of the first body, cm.

It is reasonable to use the formula ( ) to determine the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g^R_{1.0}$ with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, whey have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g^R_{1.0}$ – is a value that shows how many times the squared speed of light in vacuum c ($c^2 = 2 \times G \times g^R_{1.0} = 2 \times 2.034 \times 10^{17} \times 2209.43656 = 8.988 \times 10^{20}\, cm^2/s^2$ ( ), etc.) more than the doubled of the gravitational constant G ($G =$

$\frac{c^2}{2\times g_{1.0}^R} = \frac{\left(2.988\times10^{10}\right)^2}{2\times2209.43656} = 2.034\times10^{17} cm^2$ ( ), etc.), equal to $2209.43656\ 1/s^2$, expressed in $1/s^2$.

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^R$ – is the relation of the squared speed of light in vacuum c to the doubled of the gravitational constant G, equal to $2209.43656\,1/s^2$, expressed in $1/s^2$.

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^R$ was determined by the formula

$$g_{1.0}^R = \frac{c^2}{2\times G}, \qquad ( )$$

where $g_{1.0}^R$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$;

c– is the speed of light in vacuum, cm/s;

G– is the gravitational constant, cm^2.

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^R$ – is a value that shows how many times the constant of the weight of the gravitational radius of 1.0 cm of the body $P_{1.0}^R$ ($P_{1.0}^R = M_{1.0}^R \times g_{1.0}^R = 8.615\times10^{24}\times 2209.326 = 1.903\times10^{28}\, g/cms^2$ ( ), etc.) more than the constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^R$ ($M_{1.0}^R = \frac{P_{1.0}^R}{g_{1.0}^R} = \frac{1.903\times10^{28}}{2209.326} = 8.615\times 10^{24}\ g/cm$ ( ), etc.), equal to $2209.43656\,1/s^2$, expressed in $1/s^2$.

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^R$ is the relation of the constant of the weight of the gravitational radius of 1.0 cm of the body $P_{1.0}^R$ to the constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^R$, equal to $2209.43656\,1/s^2$, expressed in $1/s^2$.

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^R$ was determined by the formula

$$g_{1.0}^R = \frac{P_{1.0}^R}{M_{1.0}^R}, \qquad ( )$$

where $g_{1.0}^{R}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$, $1/s^2$;

$P_{1.0}^{R}$– is the constant of the weight of the gravitational radius of 1.0 cm of the body, g/cms^2;

$M_{1.0}^{R}$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm.

It is reasonable to use the formula ( ) to determine the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ with the help of other FPC in TGT in the Universe in accordance with FPC in TGT.

The gravity acceleration of the first body (standard acceleration of gravity) g_1 – is a value that shows how many times the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0g}^{M}$ ($A_{1.0g}^{M} = g_{1.0g} \times R_{1.0g-2}^{2} = 2.5645 \times 10^{-22} \times 2 \times 2.034 \times 10^{17} = 1.04324 \times 10^{-4}\ cm^3/s^2$ ( ), etc.) more than the squared of the average distance from the of 1.0 g of the body to the second body $R_{1.0g-2}^{2}$ ($R_{1.0g-2}^{2} = \frac{A_{1.0g}^{M}}{g_{1.0g}} = \frac{1.04324\times10^{-4}}{2.5645\times10^{-22}} = 2 \times 2.034 \times 10^{17} cm^2$ ( ), etc.), expressed in cm/s^2.

The gravity acceleration of the first body (standard acceleration of gravity) g_1 – is the relation of the constant of the gravitational field of the mass of the first body A_1^M to the squared of the average distance from the first body to the second body R_{1-2}, expressed in cm/s^2.

The gravitational acceleration of the first body (standard acceleration of gravity) g_1 was determined by the formula

$$g_1 = \frac{A_1^M}{R_{1-2}^2}, \qquad ( )$$

where g_1– is the gravitational acceleration of the first body, cm/s^2.

A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

R_{1-2}– is the average distance from the first body to the second body, cm.

The gravity acceleration of the first body (standard acceleration of gravity) g_1 – is a value that shows how many times the gravitational force between the Earth and the so–

called standard–copy of the mass of 1.0 kg in SI of the body $F_{ear-1.0kg}$ ($F_{ear-1.0kg} = M_{1.0kg} \times g_{ear} = 1.0197 \times 980.665 = 1000.0\, gcm/s^2$ ( ), etc.) more than the so–called standard–copy of the mass of 1.0 kg in SI of the body M_{sta} ($M_{1.0kg} = \frac{F_{ear-1.0kg}}{g_{ear}} = \frac{1000.0}{980.665} = 1.0197\, g$ ( ), etc.), expressed in cm/s^2.

The gravity acceleration of the first body (standard acceleration of gravity) g_1 – is the relation of the gravitational force between the first body and the second body F_{1-2} to the mass of the second body M_2, expressed in cm/s^2.

The gravitational acceleration of the first body (standard acceleration of gravity) g_1 was determined by the formula

$$g_1 = \frac{F_{1-2}}{M_2}, \qquad ( )$$

where g_1– is the gravitational acceleration of the first body, cm/s^2;

F_{1-2}– is the gravitational force between the first body and the second body, gcm/s^2;

M_2– is the mass of the second body, g.

The gravity acceleration of the first body (standard acceleration of gravity) g_1 – is a value that shows how many times the product the mass of the Earth M_{ear} ($M_{ear} = \frac{M_{moo} \times g_{ear}}{g_{moo}} = \frac{7.483 \times 10^{22} \times 980.665}{19.190} = 3.856 \times 10^{24}\, g$ ( ), etc.) and the gravity acceleration of the Moon g_{moo} ($g_{moo} = \frac{M_{moo} \times g_{ear}}{M_{ear}} = \frac{7.483 \times 10^{22} \times 980.665}{3.856 \times 10^{24}} = 19.030\, cm/s^2$ (), etc.) more than the mass of the Moon M_{moo} ($M_{moo} = \frac{M_{ear} \times g_{moo}}{g_{ear}} = \frac{3.856 \times 10^{24} \times 19.190}{980.665} = 7.546 \times 10^{22}\, g$ ( ), etc.), expressed in cm/s^2.

The gravity acceleration of the first body (standard acceleration of gravity) g_1 – is the relation of the product of the mass of the first body M_1 and the gravitational acceleration of the second body g_2 to the mass of the second body M_2, expressed in cm/s^2.

The gravitational acceleration of the first body (standard acceleration of gravity) g_1 was determined by the formula

$$g_1 = \frac{M_1 \times g_2}{M_2}, \qquad ()$$

where g_1– is the gravitational acceleration of the first body, cm/s^2;

M_1– is the mass of the first body, g;

g_2– is the gravitational acceleration of the second body, cm/s^2;

M_2– is the mass of the second body, g.

The gravity acceleration of the first body (standard acceleration of gravity) g_1 – is a value that shows how many times the product the mass of the Earth M_{ear} ($M_{ear} = \frac{M_{sun} \times g_{ear}}{g_{sun}} = \frac{1.273\times10^{30}\times980.665}{3.265\times10^{8}} = 3.824 \times 10^{24} g$ ( ), etc.) and the gravity acceleration of the Sun g_{moo} ($g_{sun} = \frac{M_{sun}\times g_{ear}}{M_{ear}} = \frac{1.273\times10^{30}\times980.665}{3.856\times10^{24}} = 3.2375 \times 10^{8}\, cm/s^2$ ( ), etc.) more than the mass of the Sun M_{sun} ($M_{sun} = \frac{M_{ear}\times g_{sun}}{g_{ear}} = \frac{3.856\times10^{24}\times3.265\times10^{8}}{980.665} = 1.2838 \times 10^{30}\ g$ ( ), etc.), expressed in cm/s^2.

The gravity acceleration of the first body (standard acceleration of gravity) g_1 – is the relation of the product of the mass of the second body M_2 and the gravitational acceleration of the first body g_1 to the mass of the first body M_1, expressed in cm/s^2.

The gravitational acceleration of the second body (standard acceleration of gravity) g_2 was determined by the formula

$$g_2 = \frac{M_2 \times g_1}{M_1}, \qquad ()$$

where g_2– is the gravitational acceleration of the second body, cm/s^2;

M_2– is the mass of the second body, g;

g_1– is the gravitational acceleration of the first body, cm/s^2;

M_1– is the mass of the first body, g.

The gravity acceleration of the first body (standard acceleration of gravity) g_1 – is a value that shows how many times the mass of 1.0 cm/s^2 of the body $M_{1.0cm/s^2}$

($M_{1.0cm/s^2} = g_{1.0cm/s^2} \times M_{1.0}^{g} = 1.0 \times 3.8994 \times 10^{21} = 3.8994 \times 10^{21} g$ ( ), etc.) more than the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ ($M_{1.0}^{g} = \frac{M_{1.0cm/s^2}}{g_{1.0cm/s^2}} = \frac{3.8994 \times 10^{21}}{1.0} = 3.8994 \times 10^{21}\, gs^2/cm$ ( ), etc.), expressed in cm/s^2.

The gravitational acceleration of the first body (standard acceleration of gravity) g_1 – is the relation of the mass of first body M_1 to the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$, expressed in cm/s^2.

The gravitational acceleration of the first body (standard acceleration of gravity) g_1 was determined by the formula

$$g_1 = \frac{M_1}{M_{1.0}^{g}}, \qquad ( )$$

where g_1– is the gravitational acceleration of the first body, cm/s^2;

M_1– is the mass of the first body, g;

$M_{1.0}^{g}$– is the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body, gs^2/cm.

It is reasonable to use the formula ( ) to determine the gravitational acceleration of the first body (standard acceleration of gravity) g_1 with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, whey have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT.

The gravity acceleration of the second body (standard acceleration of gravity) g_2 – is a value that shows how many times the mass of 1.0 cm/s^2 of the body $M_{1.0cm/s^2}$ ($M_{1.0cm/s^2} = g_{1.0cm/s^2} \times M_{1.0}^{g} = 1.0 \times 3.8994 \times 10^{21} = 3.8994 \times 10^{21} g$ ( ), etc.) more than the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ ($M_{1.0}^{g} = \frac{M_{1.0cm/s^2}}{g_{1.0cm/s^2}} = \frac{3.8994 \times 10^{21}}{1.0} = 3.8994 \times 10^{21}\, gs^2/cm$ ( ), etc.), expressed in cm/s^2.

The gravitational acceleration of the first body (standard acceleration of gravity) g_2 – is the relation of the mass of the second body M_2 to the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$, expressed in cm/s^2.

The gravitational acceleration of the first body (standard acceleration of gravity) g_1 was determined by the formula

$$g_2 = \frac{M_2}{M_{1.0}^{g}}, \qquad ( )$$

where g_2– is the gravitational acceleration of the second body, cm/s^2;

M_2– is the mass of the second body, g;

$M_{1.0}^{g}$– is the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body, gs^2/cm.

It is reasonable to use the formula ( ) to determine the gravitational acceleration of the second body (standard acceleration of gravity) g_2 with the help of the parameters of the first body and the second body when the second body doesn’t rotate around the first body, which have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT.

The gravity acceleration of the first body (standard acceleration of gravity) g_1 – is the sum of the constant of the gravity acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ ($g_{1.0}^{M} = \frac{g_{1.0g}}{M_{1.0g}} = \frac{2.5645\times10^{-22}}{1.0} = 2.5645 \times 10^{-22}\, cm/gs^2$ ( ), etc.) the number of which is equal to the mass of 1.0 g of the body $M_{1.0g}$ ($M_{1.0g} = \frac{g_{1.0g}}{g_{1.0}^{M}} = \frac{2.5645\times10^{-22}}{2.5645\times10^{-22}} = 1.0\, g$ ( ), etc.), expressed in cm/s^2.

The gravitational acceleration of the first body (standard acceleration of gravity) g_1 – is the product of the mass of the first body M_1 by the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$, expressed in cm/s^2.

The gravitational acceleration of the first body (standard acceleration of gravity) g_1 was determined by the formula

$$g_1 = M_1 \times g_{1.0}^{M}, \qquad ( )$$

where g_1– is the gravitational acceleration of the first body, cm/s^2;

M_1– is the mass of the first body, g;

$g_{1.0}^{M}$– is the constant of the gravity acceleration of the mass of 1.0 g of the body, cm/gs^2.

It is reasonable to use the formula ( ) to determine the gravitational acceleration of the first body (standard acceleration of gravity) g_1 with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, whey have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT.

The gravity acceleration of the second body (standard acceleration of gravity) g_2 – is the sum of the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ ($g_{1.0}^{M} = \frac{g_{1.0g}}{M_{1.0g}} = \frac{2.5645\times10^{-22}}{1.0} = 2.5645 \times 10^{-22}\, cm/gs^2$ ( ), etc.) the number of which is equal to the mass of 1.0 g of the body $M_{1.0g}$ ($M_{1.0g} = \frac{g_{1.0g}}{g_{1.0}^{M}} = \frac{2.5645\times10^{-22}}{2.5645\times10^{-22}} = 1.0\ g$ ( ), etc.), expressed in cm/s^2.

The gravitational acceleration of the second body (standard acceleration of gravity) g_2 – is the product of the mass of the second body M_2 to the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$, expressed in cm/s^2.

The gravitational acceleration of the first body (standard acceleration of gravity) g_2 was determined by the formula

$$g_2 = M_2 \times g_{1.0}^{M}, \qquad ( )$$

where g_2– is the gravitational acceleration of the second body, cm/s^2;

M_2– is the mass of the second body, g;

$g_{1.0}^{M}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2.

It is reasonable to use the formula ( ) to determine the gravitational acceleration of the second body (standard acceleration of gravity) g_2 with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, whey have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT.

The gravity acceleration of the first body (standard acceleration of gravity) g_1 – is a value that shows how many times the weight of the so–called standard–copy of the mass of 1.0 kg in SI of the body $P_{1.0kg}$ ($P_{1.0kg} = M_{1.0kg} \times g_{ear} = 1.0197 \times 980.665 = 1000.0\, gcm/s^2$ ( ), etc.) more than the mass of the so–called standard–copy of the mass of 1.0 kg in SI of the body $M_{1.0kg}$ ($M_{1.0kg} = \frac{P_{1.0kg}}{g_{ear}} = \frac{1000.0}{980.665} = 1.0\, g$ ( ), etc.), expressed in cm/s^2.

The gravity acceleration of the first body (standard acceleration of gravity) g_1 – is the relation of the weight of the second body P_{1-2} to the mass of the second body M_2, expressed in cm/s^2.

The gravitational acceleration of the first body (standard acceleration of gravity) g_1 was determined by the formula

$$g_1 = \frac{P_2}{M_2}, \qquad ( )$$

where g_1– is the gravitational acceleration of the first body, cm/s^2.

P_2– is the weight of the second body, g;

M_2– is the mass of the second body, g.

The gravity acceleration of the second body (standard acceleration of gravity) g_2 – is a value that shows how many times the weight of the so–called standard–copy of the mass of 1.0 kg in SI of the body $P_{1.0kg}$ ($P_{1.0kg} = M_{ear} \times g_{1.0kg} = 3.856 \times 10^{24} \times 2.615 \times 10^{-22} = 1000.0\, gcm/s^2$ ( ), etc.) more than the mass of the so–called standard–copy of the mass of 1.0 kg in SI of the body $M_{1.0kg}$ ($M_{1.0kg} = \frac{P_{1.0kg}}{g_{ear}} = \frac{1000.0}{980.665} = 1.0197\, g$ ( ), etc.), expressed in cm/s^2.

The gravity acceleration of the first body (standard acceleration of gravity) g_1 – is the relation of the weight of the second body P_2 to the mass of the first body M_1, expressed in cm/s^2.

The gravitational acceleration of the second body (standard acceleration of gravity) g_2 was determined by the formula

$$g_2 = \frac{P_2}{M_1}, \qquad ( )$$

where g_2– is the gravitational acceleration of the second body, cm/s^2;

P_2– is the weight of the second body, g;

M_1– is the mass of the first body, g.

The gravity acceleration of the second body (standard acceleration of gravity) g_2 – is a value that shows how many times the gravitational force between the Earth and the so–called standard–copy of the mass of 1.0 kg in SI of the body $F_{ear-1.0kg}$ ($F_{ear-1.0kg} = M_{1.0kg} \times g_{ear} = 1.0197 \times 980.665 = 1000.0\, gcm/s^2$ ( ), etc.) more than the mass of the so–called standard–copy of the mass of 1.0 kg in SI of the body $M_{1.0kg}$ ($M_{1.0kg} = \frac{F_{ear-1.0kg}}{g_{ear}} = \frac{1000.0}{980.665} = 1.0197\, g$ ( ), etc.), expressed in cm/s^2.

The gravity acceleration of the first body (standard acceleration of gravity) g_1 – is the relation of the gravitational force between the first body and the second body F_{1-2} to the mass of the second body M_2, expressed in cm/s^2.

The gravitational acceleration of the first body (standard acceleration of gravity) g_1 was determined by the formula

$$g_1 = \frac{F_{1-2}}{M_2}, \qquad ( )$$

where g_1– is the gravitational acceleration of the first body, cm/s^2.

F_{1-2}– is the gravitational force between the first body and the second body, gcm/s^2;

M_2– is the mass of the second body, g.

The gravity acceleration of the second body (standard acceleration of gravity) g_2 – is a value that shows how many times the gravitational force between the Earth and the so–called standard–copy of the mass of 1.0 kg in SI of the body $F_{ear-1.0kg}$ ($F_{ear-1.0kg} = M_{ear} \times g_{1.0kg} = 3.856 \times 10^{24} \times 2.615 \times 10^{-22} = 1000.0\, gcm/s^2$ ( ), etc.) more than the mass of the Earth M_{ear} ($M_{ear} = \frac{F_{ear-1.0kg}}{g_{sta}} = \frac{1000.0}{2.615 \times 10^{-22}} = 3.856 \times 10^{24}\ g$ ( ), etc.), expressed in cm/s^2.

The gravity acceleration of the first body (standard acceleration of gravity) g_1 – is the relation of the gravitational force between the first body and the second body F_{1-2} to the mass of the first body M_1, expressed in cm/s^2.

The gravitational acceleration of the second body (standard acceleration of gravity) g_2 was determined by the formula

$$g_2 = \frac{F_{1-2}}{M_1}, \qquad ( )$$

where g_2– is the gravitational acceleration of the second body, cm/s^2.

F_{1-2}– is the gravitational force between the first body and the second body, gcm/s^2;

M_1– is the mass of the first body, g.

The gravity acceleration of the first body (standard acceleration of gravity) g_1 – is a value that shows how many times the constant of the gravitational field of the mass of 1.0 cm^3/s^2 of the body $A^M_{1.0cm^3/s^2}$ ($A^M_{1.0cm^3/s^2} = 2 \times G \times g_{1.0cm^3/s^2} = 2 \times 2.034 \times 10^{17} \times 2.4582 \times 10^{-18} = 1.0\ cm^3/s^2$ ( ), etc.) more than the doubled of the gravitational constant G ($G = \frac{A^M_{1.0cm^3/s^2}}{2 \times g_{1.0cm^3/s^2}} = \frac{1.0}{2 \times 2.4582 \times 10^{-18}} = 2.034 \times 10^{17}\ cm^2$ (), etc.), expressed in cm/s^2.

The gravitational acceleration of the first body (standard acceleration of gravity) g_1 – is the relation of the constant of the gravitational field of the mass of the first body A^M_1 to the doubled of gravitational constant G, expressed in cm/s^2.

The gravitational acceleration of the first body (standard acceleration of gravity) g_1 was determined by the formula

$$g_1 = \frac{A^M_1}{2 \times G}, \qquad ( )$$

where g_1– is the gravitational acceleration of the first body (standard acceleration of gravity), cm/s^2;

A_1^M– is the constant of the gravitational field of the a first body, cm^3/s^2;

G– is gravitational constant, cm^2.

It is reasonable to use the formula ( ) to determine the gravitational acceleration of the first body (standard acceleration of gravity) g_1 with the help of other FPC in TGT in the Universe in accordance with FPC in TGT.

The gravity acceleration of the first body (standard acceleration of gravity) g_1 – is the sum of the constant of the gravitational acceleration of the gravitational field of $1.0\ cm^3/s^2$ of the body $g_{1.0}^A$ ($g_{1.0}^A = \frac{g_{1.0cm^3/s^2}}{A^M_{1.0cm^3/s^2}} = \frac{2.4582 \times 10^{-18}}{1.0} = 2.4582 \times 10^{-18}\ 1/cm^2$ ( ), etc.) the number of which is equal to the constant of the gravitational field of the mass of $1.0\ cm^3/s^2$ of the body $A^M_{1.0cm^3/s^2}$ ($A^M_{1.0cm^3/s^2} = \frac{g_{1.0cm^3/s^2}}{g_{1.0}^A} = \frac{2.4582 \times 10^{-18}}{2.4582 \times 10^{-18}} = 1.0\ cm^3/s^2$ ( ), expressed in cm/s^2.

The gravitational acceleration of the first body (standard acceleration of gravity) g_1 – is the product of the constant of the gravitational field of the mass of the first body A_1^M by the constant of the gravitational acceleration of the gravitational field of $1.0\ cm^3/s^2$ of the body $g_{1.0}^A$, expressed in cm/s^2.

The gravitational acceleration of the first body (standard acceleration of gravity) g_1 was determined by the formula

$$g_1 = A_1^M \times g_{1.0}^A, \qquad ( )$$

where g_1– is the gravitational acceleration of the first body, cm/s^2;

A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

$g_{1.0}^A$– is the constant of the gravitational acceleration of the gravitational field of $1.0\ cm^3/s^2$ of the body, $1/cm^2$.

It is reasonable to use the formula ( ) to determine the gravitational acceleration of the first body (standard acceleration of gravity) g_1 with the help of other FPC in TGT in the Universe in accordance with FPC in TGT.

The gravity acceleration of the first body (standard acceleration of gravity) g_1 – is the sum of the constant of the gravitational acceleration of the gravitational radius of

1.0 cm of the body $g^R_{1.0}$ ($g^R_{1.0} = \frac{g_{1.0cm}}{R^c_{1.0cm}} = \frac{2209.43656}{1.0} = 2209.43656\, 1/s^2$ ( ), etc.) the number of which is equal to the gravitational radius 1.0 cm of the body $R^c_{1.0cm}$ ($R^c_{1.0cm} = \frac{g_{1.0cm}}{g^R_{1.0}} = \frac{2209.43656}{2209.43656} = 1.0\ cm$ ( ), etc.), expressed in cm/s^2.

The gravitational acceleration of the first body (standard acceleration of gravity) g_1 – is the product of the gravitational radius of first body R^c_1 by the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g^R_{1.0}$, expressed in cm/s^2.

The gravitational acceleration of the first body (standard acceleration of gravity) g_1 was determined by the formula

$$g_1 = R^c_1 \times g^R_{1.0}, \qquad ( )$$

where g_1– is the gravitational acceleration of the first body, cm/s^2;

R^c_1– is the gravitational radius of the first body, cm;

$g^R_{1.0}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$.

It is reasonable to use the formula ( ) to determine the gravitational acceleration of the first body (standard acceleration of gravity) g_1 with the help of other FPC in TGT in the Universe in accordance with FPC in TGT.

The gravitational acceleration of the first body (standard acceleration of gravity) g_1 – is a value that shows how many times the gravitational radius of 1.0 cm/s^2 of the body $R^c_{1.0cm/s^2}$ ($R^c_{1.0cm/s^2} = g_{1.0cm/s^2} \times R^g_{1.0} = 1.0 \times 4.52604 \times 10^{-4} = 4.52604 \times 10^{-4} cm$ ( ), etc.) more (less) the constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body $R^g_{1.0}$ ($R^g_{1.0} = \frac{R^c_{1.0cm/s^2}}{g_{1.0cm/s^2}} = \frac{4.55645 \times 10^{-4}}{1.0} = 4.55645 \times 10^{-4}\ s^2$ ( ), etc.), expressed in cm/s^2.

The gravitational acceleration of the first body (standard acceleration of gravity) g_1 – is the relation of the gravitational radius of the first body R^c_1 to the constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body $R^g_{1.0}$, expressed in cm/s^2.

The gravitational acceleration of the first body (standard acceleration of gravity) g_1 was determined by the formula

$$g_1 = \frac{R_1^c}{R_{1.0}^g}, \qquad ( )$$

where g_1– is the gravitational acceleration of the first body, cm/s^2.

R_1^c – is the gravitational radius of first body, cm;

$R_{1.0}^g$– is the constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body, s^2.

It is reasonable to use the formula ( ) to determine the gravitational acceleration of the first body (standard acceleration of gravity) g_1 with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, which have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT.

The gravity acceleration of the first body (standard acceleration of gravity) g_1 – is a value that shows how many times the weight of the Earth P_{ear} ($P_{ear} = M_{ear} \times g_{ear} = 3.856 \times 10^{24} \times 980.665 = 3.781 \times 10^{27}\ gcm/s^2$ ( ), etc.) more than the mass of the Earth M_{ear} ($M_{ear} = \frac{P_{ear}}{g_{ear}} = \frac{3.781 \times 10^{27}}{980.665} = 3.856 \times 10^{24}\ g$ ( ), etc.), expressed in cm/s^2.

The gravity acceleration of the first body (standard acceleration of gravity) g_1 – is the relation of the weight of the first body P_1 to the mass of the first body M_1, expressed in cm/s^2.

The gravitational acceleration of the first body (standard acceleration of gravity) g_1 was determined by the formula

$$g_1 = \frac{P_1}{M_1}, \qquad ( )$$

where g_1– is the gravitational acceleration of the first body, cm/s^2.

P_1– is the weight of the first body, g;

M_1– is the mass of the first body, g.

The gravity acceleration of the first body (standard acceleration of gravity) g_1 – is a value that shows how many times the weight of the so–called standard–copy of the mass of 1.0 kg in SI of the body $P_{1.0kg}$ ($P_{1.0kg} = M_{1.0kg} \times g_{ear} = 1.0197 \times 980.665 = 1000.0\, gcm/s^2$ ( ), etc.) more than the mass of the so–called standard–copy of the mass of 1.0 kg in SI of the body $M_{1.0kg}$ ($M_{1.0kg} = \frac{P_{1.0kg}}{g_{ear}} = \frac{1000.0}{980.665} = 1.0197\, g$ ( ), etc.), expressed in cm/s^2.

The gravity acceleration of the first body (standard acceleration of gravity) g_1 – is the relation of the weight of the second body P_1 to the mass of the second body M_2, expressed in cm/s^2.

The gravitational acceleration of the first body (standard acceleration of gravity) g_1 was determined by the formula

$$g_1 = \frac{P_2}{M_2}, \qquad ( )$$

where g_1– is the gravitational acceleration of the first body, cm/s^2.

P_2– is the weight of the second body, g;

M_2– is the mass of the second body, g;

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ – is a value that shows how many times the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ ($A_{1.0}^{M} = R_{1.0}^{M} \times c^2 = 1.16070316 \times 10^{-25} \times (2.988 \times 10^{10})^2 = 1.04324 \times 10^{-4}\, cm^3/gs^2$ ( ), etc.) more than the squared speed of light in vacuum c ($c^2 = \frac{A_{1.0}^{M}}{R_{1.0}^{M}} = \frac{1.04324 \times 10^{-4}}{1.160761 \times 10^{-25}} = 8.988 \times 10^{20}\, cm^2/s^2$ ( ), etc.), equal to $1.16070316 \times 10^{-25}\, cm$, expressed in cm/g.

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ – is the relation of the constant of the gravitational field of 1.0 g of the body $A_{1.0}^{M}$ to the squared speed of light in vacuum c, equal to $1.16070316 \times 10^{-25}\, cm$, expressed in cm/g.

The constant of the gravitational field of the gravitational radius of 1.0 g of the body $R_{1.0}^{M}$ was determined by the formula

$$R_{1.0}^{M} = \frac{A_{1.0}^{M}}{c^2}, \qquad ( )$$

where $R_{1.0}^{M}$– is the constant of the gravitational radius of the mass of 1.0 g of the body, cm/g;

$A_{1.0}^{M}$– is the constant of the gravitational field of the mass of 1.0 g of the body, cm^3/gs^2;

c– is the speed of light in vacuum, cm/s.

It is reasonable to use the formula ( ) to determine the constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ with the help of other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ – is a value that shows how many times the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0g}^{M}$ ($A_{1.0g}^{M} = E_{1.0g} \times R_{1.0}^{M} = 1.160761 \times 10^{-25} \times 8.988 \times 10^{20} = 1.04324 \times 10^{-4}\, cm^3/gs^2$ ( ), etc.) more than the energy of 1.0 g of the body $E_{1.0g}$ ($E_{1.0g} = \frac{A_{1.0g}^{M}}{R_{1.0}^{M}} = \frac{1.04324\times10^{-4}}{1.160761\times10^{-25}} = 8.988 \times 10^{20}\, cm^2/s^2$ ( ), etc.), equal to $1.16070316 \times 10^{-25}\, cm/g$, expressed in cm/g.

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ – is the relation of the constant of the gravitational field of the mass of the first body A_1^{M} to the energy of the first body E_1, equal to $1.16070316 \times 10^{-25}\, cm/g$, expressed in cm/g.

The constant of the gravitational field of the gravitational radius of 1.0 g of the body $R_{1.0}^{M}$ was determined by the formula

$$R_{1.0}^{M} = \frac{A_1^{M}}{E_1}, \qquad ( )$$

where $R_{1.0}^{M}$– is the constant of the gravitational radius of the mass of 1.0 g of the body, cm/g;

A_1^{M}– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

E_1– is the energy of the first body, gcm^2/s^2.

It is reasonable to use the formula ( ) to determine the constant of the gravitational radius of the mass of $1.0\,g$ of the body $R_{1.0}^{M}$ with the help of other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational radius of the mass of $1.0\,g$ of the body $R_{1.0}^{M}$ – is the value reverse to the product of the constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body $M_{1.0}^{A}$ ($M_{1.0}^{A} = \frac{1}{R_{1.0}^{M} \times c^2} = \frac{1}{1.16070316 \times 10^{-25} \times \left(2.988 \times 10^{10}\right)^2} = 9585.522\,gs^2/cm^3$ ( ), etc.) and the squared speed of light in vacuum c ($c^2 = \frac{1}{M_{1.0}^{A} \times R_{1.0}^{M}} = \frac{1}{9585.522 \times 1.16070316 \times 10^{-25}} = 8.988 \times 10^{20}\,cm^2/s^2$ ( ), etc.), equal to $1.16070316 \times 10^{-25}\,cm/g$, expressed in cm/g.

The constant of the gravitational radius of the mass of $1.0\,g$ of the body $R_{1.0}^{M}$ – is the value reverse to the product of the constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body $M_{1.0}^{A}$ and the squared speed of light in vacuum c, equal to $1.16070316 \times 10^{-25}\,cm/g$, expressed in cm/g.

The constant of the gravitational field of the gravitational radius of $1.0\,g$ of the body $R_{1.0}^{M}$ was determined by the formula

$$R_{1.0}^{M} = \frac{1}{M_{1.0}^{A} \times c^2}, \qquad ( )$$

where $R_{1.0}^{M}$– is the constant of the gravitational radius of the mass of $1.0\,g$ of the body, cm/g;

$M_{1.0}^{A}$– is the constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body, gs^2/cm^3;

c– is the speed of light in vacuum, cm/s.

The constant of the gravitational radius of the mass of $1.0\,g$ of the body $R_{1.0}^{M}$ – is the value reverse to the constant of the mass of the gravitational radius of $1.0\,cm$ of the body $M_{1.0}^{R}$ ($M_{1.0}^{R} = \frac{1}{R_{1.0}^{M}} = \frac{1}{1.16070316 \times 10^{-25}} = 8.615467 \times 10^{24}\,g/cm$ ( ), etc.), equal to $1.16070316 \times 10^{-25}\,cm/g$, expressed in cm/g.

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ – is the value reverse to the constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$, equal to $1.16070316 \times 10^{-25}\, cm/g$, expressed in cm/g.

The constant of the gravitational field of the gravitational radius of 1.0 g of the body $R_{1.0}^{M}$ was determined by the formula

$$R_{1.0}^{M} = \frac{1}{M_{1.0}^{R}}, \qquad ( )$$

where $R_{1.0}^{M}$– is the constant of the gravitational radius of the mass of 1.0 g of the body, cm/g;

$M_{1.0}^{R}$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm.

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ – is a value that shows how many times the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ ($g_{1.0}^{M} = g_{1.0}^{R} \times R_{1.0}^{M} = 2209.43656 \times 1.16070316 \times 10^{-25} = 2.5645 \times 10^{-22}\ cm/gs^2$ ( ), etc.) more than the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ ($g_{1.0}^{R} = \frac{g_{1.0}^{M}}{R_{1.0}^{M}} = \frac{2.5645 \times 10^{-22}}{1.16070316 \times 10^{-25}} = 2209.43656\, 1/s^2$ ( ), etc.), equal to $1.16070316 \times 10^{-25}\, cm/g$, expressed in cm/g.

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ – is the relation of the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ to the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$, equal to $1.16070316 \times 10^{-25}\, cm/g$, expressed in cm/g.

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ was determined by the formula

$$R_{1.0}^{M} = \frac{g_{1.0}^{M}}{g_{1.0}^{R}}, \qquad ( )$$

where $R_{1.0}^{M}$– is the constant of the gravitational radius of the mass of 1.0 g of the body, cm/g;

$g^{M}_{1.0}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2;

$g^{R}_{1.0}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$.

It is reasonable to use the formula ( ) to determine the constant of the gravitational radius of the mass of 1.0 g of the body $R^{M}_{1.0}$ with the help of other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational radius of the mass of 1.0 g of the body $R^{M}_{1.0}$ – is the sum of the constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body $R^{g}_{1.0}$ ($R^{g}_{1.0} = \frac{R^{M}_{1.0}}{g^{M}_{1.0}} = \frac{1.16070316\times10^{-25}}{2.5645\times10^{-22}} = 4.52604 \times 10^{-4}\ s^2$ (), etc.) the number of which is equal to the constant of the gravitational acceleration of the mass of 1.0 g of the body $g^{M}_{1.0}$ ($g^{M}_{1.0} = \frac{R^{M}_{1.0}}{R^{g}_{1.0}} = \frac{1.16070316\times10^{-25}}{4.52604\times10^{-4}} = 2.5645 \times 10^{-22}\ cm/gs^2$ ( ), etc.), equal to $1.16070316 \times 10^{-25}\ cm/g$, expressed in cm/g.

The constant of the gravitational radius of the mass of 1.0 g of the body $R^{M}_{1.0}$ – is the product of the constant of the gravitational acceleration of the mass of 1.0 g of the body $g^{M}_{1.0}$ to the constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body $R^{g}_{1.0}$, equal to $1.16070316 \times 10^{-25}\ cm/g$, expressed in cm/g.

The constant of the gravitational radius of the mass of 1.0 g of the body $R^{M}_{1.0}$ was determined by the formula

$$R^{M}_{1.0} = g^{M}_{1.0} \times R^{g}_{1.0}, \qquad (\ )$$

where $R^{M}_{1.0}$– is the constant of the gravitational radius of the mass of 1.0 g of the body, cm/g;

$g^{M}_{1.0}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2;

$R^{g}_{1.0}$– is the constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body, s^2.

It is reasonable to use the formula ( ) to determine the constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ with the help of other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ – is a value that shows how many times the gravitational radius 1.0 g of the body $R_{1.0g}^{c}$ ($R_{1.0g}^{c} = M_{1.0g} \times R_{1.0}^{M} = 1.0 \times 1.16070316 \times 10^{-25} = 1.16070316 \times 10^{-25} cm$ ( ), etc.) more than the mass of 1.0 g of the body $M_{1.0g}$ ($M_{1.0g} = \frac{R_{1.0g}^{c}}{R_{1.0}^{M}} = \frac{1.16070316 \times 10^{-25}}{1.16070316 \times 10^{-25}} = 1.0\ g$ ( ), etc.), equal to $1.16070316 \times 10^{-25}\ cm/g$, expressed in cm/g.

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ – is the relation of the gravitational radius of the first body R_{1}^{c} to the mass of the first body M_{1}, equal to $1.16070316 \times 10^{-25}\ cm/g$, expressed in cm/g.

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ was determined by the formula

$$R_{1.0}^{M} = \frac{R_{1}^{c}}{M_{1}}, \qquad ( )$$

where $R_{1.0}^{M}$– is the constant of the gravitational radius of the mass of 1.0 g of the body, cm/g^{2};

R_{1}^{c}– is the gravitational radius of the first body, cm;

M_{1}– is the mass of the first body, g.

It is reasonable to use the formula ( ) to determine the constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ with the help of the parameters of the first body and the second body when the second body doesn’t rotate around the first body, whey have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^{2} of the body $R_{1.0}^{g}$ – is a value that shows how many times the doubled of the gravitational constant G ($G = \frac{R_{1.0}^{g} \times c^2}{2} = \frac{4.52604 \times 10^{-4} \times \left(2.988 \times 10^{10}\right)^2}{2} = 2.034 \times 10^{17}\ cm^2$ ( ), etc.) more than the squared speed of light in vacuum c ($c^2 = \frac{2 \times G}{R_{1.0}^{g}} = \frac{2 \times 2.034 \times 10^{17}}{4.52604 \times 10^{-4}} = (2.988 \times 10^{10})^2\ cm^2/s^2$ ( ), etc.), equal to $4.52604 \times 10^{-4}\ s^2$, expressed in s^2.

The constant of the gravitational radius of the gravitational acceleration of $1.0\ cm/s^2$ of the body $R_{1.0}^{g}$ – is the relation of the doubled of the gravitational constant G to the squared speed of light in vacuum c, equal to $4.52604 \times 10^{-4}\ s^2$, expressed in s^2.

The constant of the gravitational radius of the gravitational acceleration of $1.0\ cm/s^2$ of the body $R_{1.0}^{g}$ was determined by the formula

$$R_{1.0}^{g} = \frac{2 \times G}{c^2}, \quad ( )$$

where $R_{1.0}^{g}$– is the constant of the gravitational radius of the gravitational acceleration of $1.0\ cm/s^2$ of the body, s^2;

G– is the gravitational constant, cm^2;

c– is the speed of light in vacuum, cm/s.

The constant of the gravitational radius of the gravitational acceleration of $1.0\ cm/s^2$ of the body $R_{1.0}^{g}$ – is a value that shows how many times the constant of the gravitational radius of the mass $1.0\ g$ of the body $R_{1.0}^{M}$ ($R_{1.0}^{M} = g_{1.0}^{M} \times R_{1.0}^{g} = 2.5645 \times 10^{-22} \times 4.52604 \times 10^{-4} = 1.16070316 \times 10^{-25}\ cm/g$ ( ), etc.) more than the constant of the gravitational acceleration of the mass of $1.0\ g$ of the body $g_{1.0}^{M}$ ($g_{1.0}^{M} = \frac{R_{1.0}^{M}}{R_{1.0}^{g}} = \frac{1.16070316 \times 10^{-25}}{4.52604 \times 10^{-4}} = 2.5645 \times 10^{-22}\ cm/gs^2$ ( ), etc.), equal to $4.52604 \times 10^{-4}\ s^2$, expressed in s^2.

The constant of the gravitational radius of the gravitational acceleration of $1.0\ cm/s^2$ of the body $R_{1.0}^{g}$ – is the relation of the constant of the gravitational field of the gravitational radius of $1.0\ g$ of the body $R_{1.0}^{M}$ to the constant of the gravitational acceleration of the mass of $1.0\,g$ of the body $g_{1.0}^{M}$, equal to $4.52604 \times 10^{-4}\ s^2$, expressed in s^2.

The constant of the gravitational radius of the gravitational acceleration of $1.0\ cm/s^2$ of the body $R_{1.0}^{g}$ was determined by the formula

$$R_{1.0}^{g} = \frac{R_{1.0}^{M}}{g_{1.0}^{M}}, \qquad ()$$

where $R_{1.0}^{g}$– is the constant of the gravitational radius of the gravitational acceleration of $1.0\ cm/s^2$ of the body, s^2;

$R_{1.0}^{M}$– is the constant of the gravitational radius of the mass $1.0\ g$ of the body, cm;

$g_{1.0}^{M}$– is the constant of the gravitational acceleration of the mass of $1.0\,g$ of the body, cm/gs^2.

It is reasonable to use the formula ( ) to determine the constant of the gravitational radius of the gravitational acceleration of $1.0\ cm/s^2$ of the body $R_{1.0}^{g}$ with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, whey have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational radius of the gravitational acceleration of $1.0\ cm/s^2$ of the body $R_{1.0}^{g}$ – is a value that shows how many times the gravitational radius of the $1.0\,cm/s^2$ of the body $R_{1.0cm/s^2}^{c}$ ($R_{1.0cm/s^2}^{c} = g_{1.0cm/s^2} \times R_{1.0}^{g} = 1.0 \times 4.52604 \times 10^{-4} = 4.52604 \times 10^{-4}\ cm$ ( ), etc.) more than the gravitational acceleration of $1.0\,cm/s^2$ of the body $g_{1.0cm/s^2}$ ($g_{1.0cm/s^2} = \frac{R_{1.0cm/s^2}^{c}}{R_{1.0}^{g}} = \frac{4.52604\times10^{-4}}{4.52604\times10^{-4}} = 1.0\,cm/s^2$ ( ), etc.), equal to $4.52604 \times 10^{-4}\ s^2$, expressed in s^2.

The constant of the gravitational radius of the gravitational acceleration of $1.0\ cm/s^2$ of the body $R_{1.0}^{g}$ – is the relation of the gravitational radius of the first body R_1^c to the gravitational acceleration of the first body g_1, equal to $4.52604 \times 10^{-4}\ s^2$, expressed in s^2.

The constant of the gravitational radius of the gravitational acceleration of $1.0\ cm/s^2$ of the body $R_{1.0}^{g}$ was determined by the formula

$$R^g_{1.0} = \frac{R^c_1}{g_1}, \qquad ( )$$

where $R^g_{1.0}$– is the constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body, s^2;

R^c_1– is the gravitational radius of the first body, cm;

g_1– is the gravitational acceleration of the first body, cm/s^2.

It is reasonable to use the formula ( ) to determine the constant of the gravitational radius of the gravitation acceleration of 1.0 cm/s^2 of the body $R^g_{1.0}$ with the help of the parameters of the first body and the second body when the second body doesn't rotating around the first body, whey have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT.

The speed of light in vacuum c – as the square root of a value that shows how many times the constant of the gravitational field of the mass of $1.0\,g$ of the body $A^M_{1.0}$ ($A^M_{1.0} = R^M_{1.0} \times c^2 = 1.16070316 \times 10^{-25} \times (2.988 \times 10^{10})^2 = 1.04324 \times 10^{-4}\,cm^3/gs^2$ ( ), etc.) more than the constant of the gravitational radius of the mass of $1.0\,g$ of the body $R^M_{1.0}$ ($R^M_{1.0} = \frac{A^M_{1.0}}{c^2} = \frac{1.04324\times 10^{-4}}{\left(2.988\times 10^{10}\right)^2} = 1.16070316 \times 10^{-25}\,cm/g$ ( ), etc.), equal to $2.988 \times 10^{10}\,cm/s$, expressed in cm/s.

The speed of light in vacuum c – is the squared of the relation of the constant of the gravitational field of the mass of $1.0\,g$ of the body $A^M_{1.0}$ to the constant of the gravitational radius of the mass of $1.0\,g$ of the body $R^M_{1.0}$, equal to $2.988 \times 10^{10}\,cm/s$, expressed in cm/s.

The speed of light in vacuum c was determined by the formula

$$c = \sqrt{\frac{A^M_{1.0}}{R^M_{1.0}}}, \qquad ( )$$

where c – is the speed of light in vacuum, cm/s;

$A^M_{1.0}$– is the constant of the gravitational field of the mass of $1.0\,g$ of the body, cm^3/gs^2;

$R^M_{1.0}$– is the constant of the gravitational radius of the mass of 1.0 g of the body, cm/g.

It is reasonable to use the formula ( ) to determine the speed of light in vacuum c with the help of other FPC in TGT in the Universe in accordance with FPC in TGT.

Speed of light in vacuum c – as the square root of a value that shows how many times the constant of the gravitational field of the mass of 1.0 g of the body $A^M_{1.0g}$ ($A^M_{1.0g} = R^c_{1.0g} \times c^2 = 1.16070316 \times 10^{-25} \times (2.988 \times 10^{10})^2 = 1.04324 \times 10^{-4}\ cm^3/s^2$ ( ), etc.) more than the gravitational radius of 1.0 g of the body $R^c_{1.0g}$ ($R^c_{1.0g} = \frac{A^M_{1.0g}}{c^2} = \frac{1.04324 \times 10^{-4}}{\left(2.988 \times 10^{10}\right)^2} = 1.16070316 \times 10^{-25}\ cm$ ( ), etc.), equal to $2.988 \times 10^{10}\ cm/s$, expressed in cm/s.

The speed of light in vacuum c – as the square root of the relation of the constant of the gravitational field of the mass of the first body A^M_1 to the gravitational radius of the first body R^c_1, equal to $2.988 \times 10^{10}\ cm/s$, expressed in cm/s.

The speed of light in vacuum c was determined by the formula

$$c = \sqrt{\frac{A^M_1}{R^c_1}}, \qquad ( )$$

where c – is the speed of light in vacuum, cm/s;

A^M_1– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

R^c_1– is the gravitational radius of the first body, cm.

It is reasonable to use the formula ( ) to determine the speed of light in vacuum c with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, whey have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT.

Speed of light in vacuum c – as the square root of the sum of the constant of the gravitational field of the mass of 1.0 g of the body $A^M_{1.0g}$ ($A^M_{1.0g} = \frac{c^2}{M^R_{1.0}} = \frac{\left(2.988 \times 10^{10}\right)^2}{8.615467 \times 10^{24}} = 1.04324 \times 10^{-4}\ cm^3/s^2$ ( ), etc.) the number of which is equal to the constant of the mass of the gravitational radius of 1.0 cm of the body $M^R_{1.0}$ ($M^R_{1.0} = \frac{c^2}{A^M_{1.0g}} = \frac{\left(2.988\times10^{10}\right)^2}{1.04324\times10^{-4}} = 8.615467 \times 10^{24}\ g/cm$ ( ), etc.), equal to $2.988 \times 10^{10}\ cm/s$, expressed in cm/s.

Speed of light in vacuum c – as the square root of the product of the constant of the gravitational field of the mass of 1.0 g of the body $A^M_{1.0}$ and the constant of the mass of the gravitational radius of 1.0 cm of the body $M^R_{1.0}$, equal to $2.988 \times 10^{10}\ cm/s$, expressed in cm/s.

The speed of light in vacuum c was determined by the formula

$$c = \sqrt{A^M_{1.0} \times M^R_{1.0}}, \tag{}$$

where c – is the speed of light in vacuum, cm/s;

$A^M_{1.0}$– is the constant of the gravitational field of the mass of 1.0 g of the body, cm^3/gs^2;

$M^R_{1.0}$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm;

Speed of light in vacuum c – is the square root of the sum of the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g^R_{1.0}$ ($g^R_{1.0} = \frac{c^2}{2\times G} = \frac{\left(2.988\times10^{10}\right)^2}{2\times2.034\times10^{17}} = 2209.43656\ 1/s^2$ ( ), etc.) the number of which is equal to the doubled of the gravitational constant G ($G = \frac{c^2}{2\times g^R_{1.0}} = \frac{\left(2.988\times10^{10}\right)^2}{2\times2209.43656} = 2.034 \times 10^{17} cm^2$ ( ), etc.), equal to $2.988 \times 10^{10}\ cm/s$, expressed in cm/s.

Speed of light in vacuum c – is the square root of the product of the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g^R_{1.0}$ and the gravitational constant G, equal to $2.988 \times 10^{10}\ cm/s$, expressed in cm/s.

The speed of light in vacuum c was determined by the formula

$$c = \sqrt{2 \times G \times g^R_{1.0}}, \tag{}$$

where c – is the speed of light in vacuum, cm/s;

G – is the gravitational constant, cm^2;

$g^R_{1.0}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$.

Speed of light in vacuum c – as the square root of a value that shows how many times the doubled of the gravitational constant G ($G = \frac{R^g_{1.0}\times c^2}{2} = \frac{4.52604\times10^{-4}\times\left(2.988\times10^{10}\right)^2}{2} = 2.034 \times 10^{17}\ cm^2$ ( ), etc.) more than the constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body $R^g_{1.0}$ ($R^g_{1.0} = \frac{2\times G}{c^2} = \frac{2\times2.034\times10^{17}}{\left(2.988\times10^{10}\right)^2} = 4.52604 \times 10^{-4}\ s^2$ ( ), etc.), equal to $2.988 \times 10^{10}\ cm/s$, expressed in cm/s.

Speed of light in vacuum c – is the square root of the relation of the doubled of the gravitational constant G to the constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body $R^g_{1.0}$, equal to $2.988 \times 10^{10}\ cm/s$, expressed in cm/s.

The speed of light in vacuum c was determined by the formula

$$c = \sqrt{\frac{2 \times G}{R^g_{1.0}}}, \qquad ( )$$

where c – is the speed of light in vacuum, cm/s;

G – is the gravitational constant, cm^2;

$R^g_{1.0}$– is the constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body, s^2.

Speed of light in vacuum c – is the square root of the value of the product of the (total) the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M^A_{1.0}$ ($M^A_{1.0} = \frac{1}{R^M_{1.0}\times c^2} = \frac{1}{1.16070316\times10^{-25}\times\left(2.988\times10^{10}\right)^2} = 9585.522\ gs^2/cm^3$ ( ), etc.) the number of which is equal to the constant of the gravitational radius of the mass of

1.0 g of the body $R_{1.0}^{M}$ ($R_{1.0}^{M} = \frac{1}{M_{1.0}^{A} \times c^2} = \frac{1}{2209.43656 \times \left(2.988 \times 10^{10}\right)^2} = 1.16070316 \times 10^{-25}\ cm/g$ ( ), etc.), equal to $2.988 \times 10^{10}\ cm/s$, expressed in cm/s.

Speed of light in vacuum c – is the square root of the value of the product of the constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body $M_{1.0}^{A}$ and the constant of the gravitational radius of the mass of $1.0\ g$ of the body $R_{1.0}^{M}$, equal to $2.988 \times 10^{10}\ cm/s$, expressed in cm/s.

The speed of light in vacuum c was determined by the formula

$$c = \sqrt{\frac{1}{M_{1.0}^{A} \times R_{1.0}^{M}}}, \qquad ( )$$

where c – is the speed of light in vacuum, cm/s;

$M_{1.0}^{A}$– is the constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body, gs^2/cm^3;

$R_{1.0}^{M}$– is the constant of the gravitational radius of the mass of $1.0\ g$ of the body, cm/g.

Speed of light in vacuum c – is the square root of the is a value that shows how many times of the constant of the mass of the gravitational radius of $1.0\ cm$ of the body $M_{1.0}^{R}$ ($M_{1.0}^{R} = M_{1.0}^{A} \times c^2 = 9585.522 \times (2.998 \times 10^{10})^2 = 8.615 \times 10^{24}\ g/cm$ ( ), etc.) more than the constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body $M_{1.0}^{A}$ ($M_{1.0}^{A} = \frac{M_{1.0}^{R}}{c^2} = \frac{8.615 \times 10^{24}}{(2.998 \times 10^{10})^2} = 9585.522\,gs^2/cm^3$ ( ), etc.), equal to $2.988 \times 10^{10}\ cm/s$, expressed in cm/s.

Speed of light in vacuum c – is the square root of the relation the constant of the mass of the gravitational radius of $1.0\ cm$ of the body $M_{1.0}^{R}$ to the constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body $M_{1.0}^{A}$, equal to $2.988 \times 10^{10}\ cm/s$, expressed in cm/s.

The speed of light in vacuum c was determined by the formula

$$c = \sqrt{\frac{M_{1.0}^{R}}{M_{1.0}^{A}}}, \qquad ()$$

where c – is the speed of light in vacuum, cm/s;

$M_{1.0}^{R}$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm;

$M_{1.0}^{A}$– is the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body, gs^2/cm^3.

Speed of light in vacuum c – is the square root of the value that shows how many times the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ ($g_{1.0}^{R} = g_{1.0}^{A} \times c^2 = 2.4582 \times 10^{-18} \times (2.998 \times 10^{10})^2 = 2209.43656\ 1/s^2$ ( ), etc.) more than the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^{A}$ ($g_{1.0}^{A} = \frac{g_{1.0}^{R}}{c^2} = \frac{2209.43656}{(2.998\times10^{10})^2} = 2.4582 \times 10^{-18}\ 1/cm^2$ ( ), etc.), equal to $2.988 \times 10^{10}\ cm/s$, expressed in cm/s.

Speed of light in vacuum c – is the square root of the relation the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ to the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^{A}$, equal to $2.988 \times 10^{10}\ cm/s$, expressed in cm/s.

The speed of light in vacuum c was determined by the formula

$$c = \sqrt{\frac{g_{1.0}^{R}}{g_{1.0}^{A}}}, \qquad ()$$

where c – is the speed of light in vacuum, cm/s;

$g_{1.0}^{R}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$;

$g_{1.0}^{A}$– is the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body, $1/cm^2$.

Speed of light in vacuum c – is the square root of the value that shows how many times the energy of 1.0 g of the body $E_{1.0g}$ ($E_{1.0g} = M_{1.0g} \times c^2 = 1.0\ \times (2.988 \times$

$10^{10})^2 = 8.988 \times 10^{20} gcm^2/s^2$ ( ), etc.) more than the mass of 1.0 g of the body $M_{1.0g}$ ($M_{1.0g} = \frac{E_{1.0g}}{c^2} = \frac{8.988 \times 10^{20}}{(2.998 \times 10^{10})^2} = 1.0\ g$ ( ), etc.), equal to $2.988 \times 10^{10}\ cm/s$, expressed in cm/s.

Speed of light in vacuum c – is the square root of the relation of the energy of the first body E_1 to the mass of the first body M_1, equal to $2.988 \times 10^{10}\ cm/s$, expressed in cm/s.

The speed of light in vacuum c was determined by the formula

$$c = \sqrt{\frac{E_1}{M_1}}, \qquad ( )$$

where c – is the speed of light in vacuum, cm/s;

E_1– is the energy of the first body, cm^2/s^2;

M_1– is the mass of the first body, g.

It is reasonable to use the formula ( ) to determine speed of light in vacuum c both with the help of the parameters of the first body and the second body when the second body doesn't rotating around the first body, which have different radii (gravitational radius) and other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the weight of the gravitational radius of 1.0 cm of the body $P_{1.0}^R$ – is the constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^R$ ($M_{1.0}^R = \frac{P_{1.0}^R}{g_{1.0}^R} = \frac{1.903 \times 10^{28}}{2209.43656} = 8.615467 \times 10^{24}\ g/cm$ ( ), etc.) which has the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^R$ ($g_{1.0}^R = \frac{P_{1.0}^R}{M_{1.0}^R} = \frac{1.903 \times 10^{28}}{8.615 \times 10^{24}} = 2209.43656\ 1/s^2$ ( ), etc.), equal to $1.903 \times 10^{28}\ g/cms^2$, expressed in g/cms^2.

The constant of the weight of the gravitational radius of 1.0 cm of the body $P_{1.0}^R$ – is the product of the constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^R$ by the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^R$, equal to $1.903 \times 10^{28}\ g/cms^2$, expressed in g/cms^2.

The constant of the weight of the gravitational radius of 1.0 cm of the body $P_{1.0}^{R}$ was determined by the formula

$$P_{1.0}^{R} = M_{1.0}^{R} \times g_{1.0}^{R}, \qquad (\;)$$

where $P_{1.0}^{R}$– is the constant of the weight of the gravitational radius of 1.0 cm of the body, g/cms^2;

$M_{1.0}^{R}$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm;

$g_{1.0}^{R}$– is the constant of the gravity acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$.

It is reasonable to use the formula ( ) to determine the constant of the weight of the gravitational radius of 1.0 cm of the body $P_{1.0}^{R}$ with the help of other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the weight of the gravitational radius of 1.0 cm of the body $P_{1.0}^{R}$ – is the sum of the density (specific gravity) of 1.0 cm of the body $\rho_{1.0cm}$ ($\rho_{1.0cm} = \frac{P_{1.0cm}}{\mathrm{V}_{1.0cm}} = \frac{1.903\times10^{28}}{4.18879} = 4.543 \times 10^{27}\ g/cm^2s^2$ ( ), etc.) the number of which is equal to the volume of 1.0 cm of the body ($\mathrm{V}_{1.0cm} = \frac{4}{3}\pi R^3 = 4.18879\ cm^3$ ( ), etc.), equal to $1.903 \times 10^{28}\ g/cms^2$, expressed in g/cms^2.

The constant of the weight of the gravitational radius of 1.0 cm of the body $P_{1.0}^{R}$ – is the product of the constant of the density (specific gravity) of the gravitational radius of 1.0 cm of the body $\rho_{1.0}^{R}$ by the volume of 1.0 cm of the body $\mathrm{V}_{1.0cm}$, equal to $1.903 \times 10^{28}\ g/cms^2$, expressed in g/cms^2.

The constant of the weight of the gravitational radius of 1.0 cm of the body $P_{1.0}^{R}$ was determined by the formula

$$P_{1.0}^{R} = \rho_{1.0}^{R} \times \mathrm{V}_{1.0cm}, \qquad (\;)$$

where $P_{1.0}^{R}$– is the constant of the weight of the gravitational radius of 1.0 cm of the body, g/cms^2;

$\rho_{1.0}^{R}$ – is the constant of the density (specific gravity) of the gravitational radius of 1.0 cm of the body, g/cm^4s^2;

$V_{1.0cm}$– is the volume of 1.0 cm of the body, cm^3.

It is reasonable to use the formula () to determine the constant of the weight of the gravitational radius of 1.0 cm of the body $P_{1.0}^R$ with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, whey have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the density (specific gravity) of the gravitational radius of 1.0 cm of the body $\rho_{1.0}^R$ – is a value that shows how many times the constant of the weight of the gravitational radius of 1.0 cm of the body $P_{1.0}^R$ ($P_{1.0}^R = \rho_{1.0}^R \times V_{1.0cm} = 4.543 \times 10^{27} \times 4.18879 = 1.903 \times 10^{28}\ g/cms^2$ ( ), etc.) more than the volume of 1.0 cm of the body $V_{1.0cm}$ ($V_{1.0cm} = \frac{4}{3}\pi R^3 = 4.18879\ cm^3$ ( ), etc.) equal to $4.543 \times 10^{27}\ g/cm^4s^2$, expressed in g/cm^4s^2.

The constant of the density (specific gravity) of the gravitational radius of 1.0 cm of the body $\rho_{1.0}^R$ – is the relation of the constant of the weight of the gravitational radius of 1.0 cm of the body $P_{1.0}^R$ to the volume of 1.0 cm of the body $V_{1.0cm}$, equal to $4.543 \times 10^{27}\ g/cm^4s^2$, expressed in g/cm^4s^2.

The constant of the density (specific gravity) of the gravitational radius of 1.0 cm of the body $\rho_{1.0}^R$ was determined by the formula

$$\rho_{1.0}^R = \frac{P_{1.0}^R}{V_1}, \qquad ( )$$

where $\rho_{1.0}^R$– is the constant of the density (specific gravity) of the gravitational radius of 1.0 cm of the body, g/cm^4s^2;

$P_{1.0}^R$– is the constant of the weight of the gravitational radius of 1.0 cm of the body, g/cms^2;

$V_{1.0cm}$– is the volume of 1.0 cm of the body, cm^3.

It is reasonable to use the formula ( ) to determine the constant of the density (specific gravity) of the gravitational radius of 1.0 cm of the body $\rho_{1.0}^R$ with the help of other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational force of the mass of 1.0 g of the body $F_{sta-sta}$ – is the gravitational force of between of the mass of 1.0 g of the body $M_{1.0g} = 1.0\ g$ and of the mass of 1.0 g of the body $M_{1.0g} = 1.0\ g$, located at the squared of average distance between of the mass of 1.0 g of the body and 1.0 g of the body $R^2_{1.0g-1.0g} = 1.0\ cm^2$, equal to $1.04324 \times 10^{-4}\ gcm/s^2$, expressed in gcm/s^2.

The constant of the gravitational force of the mass of 1.0 g of the body $F_{sta-sta}$ was determined by the formulas (1), (2) and (3).

It is reasonable to use the formula ( ) to determine the constant of the gravitational force of the mass of 1.0 g of the body $F_{sta-sta}$ with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, whey have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the gravitational force of the mass of 1.0 g of the body $F_{sta-sta}$ – is the doubled product of the gravitational constant G by the constant of the pressure of the gravitational force of 1.0 cm of the body $p^M_{1.0}$, equal to $1.04324 \times 10^{-4}\ gcm/s^2$, expressed in gcm/s^2.

The constant of the gravitational force of the mass of 1.0 g of the body $F_{sta-sta}$ was determined by the formula

$$F_{sta-sta} = 2 \times G \times p^M_{1.0}, \qquad (\ )$$

where $F_{sta-sta}$– is the constant of the gravitational force of the mass of 1.0 g of the body, gcm/s^2;

G – is the gravitational constant, cm^2;

$p^M_{1.0}$– is the constant of the pressure of the gravitational force of 1.0 cm of the body, g/cms^2.

It is reasonable to use the formula () to determine the constant of the gravitational force of the mass of 1.0 g of the body $F_{sta-sta}$ with the help of other FPC in TGT in the Universe in accordance with FPC in TGT.

The constant of the pressure of the gravitational force of the mass of 1.0 g of the body $p^M_{1.0}$ – is the gravitational force of $F_{sta-sta} = 1.04324 \times 10^{-4}\ gcm/s^2$, which is applied perpendicular to the surface the doubled of the gravitational constant G, equal to $2.5645 \times 10^{-22}\ g/cms^2$, expressed in g/cms^2.

The constant of the pressure of the of gravitational force of the mass of 1.0 g of the body $p_{1.0}^M$ – is the relation of the constant of gravitational force of the mass of 1.0 g of the body $F_{sta-sta}$ to the doubled of the gravitational constant G, equal to $2.5645 \times 10^{-22}\ g/cms^2$, expressed in g/cms^2.

The constant of the pressure of the gravitational force of the mass of 1.0 g of the body $p_{1.0}^M$ was determined by the formula

$$p_{1.0}^M = \frac{F_{sta-sta}}{2 \times G}, \qquad ( )$$

where $p_{1.0}^M$ – is the constant of the pressure of the gravitational force of the mass of 1.0 g of the body, g/cms^2;

$F_{sta-sta}$– is the constant of gravitational force of the mass of 1.0 g of the body, gcm/s^2;

G – is the gravitational constant, cm^2.

It is reasonable to use the formula ( ) to determine the constant of the pressure of the gravitational force of the mass of 1.0 g of the body $p_{1.0}^M$ with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, whey have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT.

6. The equating Tsiganok gravitational law (TGL) of the formula of with Huygens formula of centrifugal force and the solution of this equation with regard to all the parameters included into it

The process of the elaboration of TGT was performed in the following way.

The first attempt of the practical usage of TGL (1) with the help of the so–called of the mass of 1.0 g in SI of the body $M_{1.0g} = 1.0\ g$ in SI, the so–called of the mass of 1.0 g in SI of the body $M_{1.0g} = 1.0\ g$ in SI, and the so–called of the gravitation constant from questionable law of gravitation of Newton, which is defined Cavendish $F_{1-2} = 6.67384 \times 10^{-8}\ cm^3/gs^2$, determined by gave absurd results.

The weight of the Earth P_{ear} was determined with the help of the assumed average density (specific gravity) of the Earth $\rho_{ear} = 3.45\ g/cm^2s^2$ by the formula (7) [23].

The mass of the Earth M_{ear} was determined with the help of the weight of the Earth P_{ear} and the gravitational acceleration of the Earth g_{ear} by the formula (8) [23].

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ was determined with the help the gravitational acceleration of the Earth g_{ear} and the mass of the Earth M_{ear} by the formula (9) [23]. At this moment we didn't know yet that this new unknown before value is FPC in TGT. It was necessary to use this value for the determination of the gravitational acceleration of the Sun g_{sun} and the gravitational acceleration of the Moon g_{moo}.

….the equating the TGL (1) formula with Huygens centrifugal force and the solution of this equation with regard to the parameters included with the help of the gravitational acceleration of the Earth g_{ear}, the mass of the Earth M_{ear}, the first cosmic velocity of the Earth $V_{ear-fcv}$, etc. by the formula ( ) [27].

$$G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{R_{1-2}}. \qquad (\ )$$

The determination of the weight of the Sun P_{sun} with the help of the assumed the average density (specific gravity) of the Sun ρ_{sun} by the formula ( ) turned out to be quite difficult due to the problems of the delivery of the samples of the Sun soil to the surface of the Earth.

The mass of the Sun M_{sun} was determined in the result of the equating of TGL (1) formula with Huygens formula of centrifugal force and the solution of this equation with regard to the parameters included into it with the help the gravitational constant G, the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$, the mass of the Earth M_{ear}, the gravitational acceleration of the Earth g_{ear}, etc. by the formula ( ) [23].

The gravitational acceleration of the Sun g_{sun} was determined with the help of the mass of the Sun M_{sun} and the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$.

It turned out to be very difficult determine the weight of (3671) Dionysus P_{dio} asteroid, 67P/Churyumov–Gerasimenko P_{67P} comet, Sagittarius A P_{sgra} black hole, the Milky Way galaxy centre P_{mwgc}, etc. with e help of the average density (specific gravity) (3671) Dionysus ρ_{dio} asteroid, 67P/Churyumov–Gerasimenko ρ_{67P} comet, Sagittarius A ρ_{sgra} black hole, the Milky Way galaxy centre ρ_{mwgc}, etc. by the formula () due to the problems of the delivery of the samples of the soil the these bodies to the surface of the Earth.

So while trying to make up (form) the equation ( ) with regard to (3671) Dionysus asteroid, 67P/Churyumov–Gerasimenko comet, Sagittarius A black hole, the Milky Way galaxy centre, etc. immediately obtained an identity with regard to the mass of (3671) Dionysus M_{dio} asteroid, 67P/Churyumov–Gerasimenko M_{67P} comet, Sagittarius A M_{sgra} black hole, the Milky Way galaxy centre M_{mwgc}, etc. it is known that no identitu has any solutions.

So, it is possible to determine only the gravitational constant G and the mass of the Sun M_{sun} with the help of the equation (19). In order to determine the parameters of (3671) Dionysus asteroid, 67P/Churyumov–Gerasimenko comet, Sagittarius A black hole, the Milky Way galaxy centre, etc. it was necessary to remove the identities that appeared.

After the determination of the gravitational constant G, the mass of the Sun M_{sun}, the mass of the Earth M_{ear} and the mass of the Moon M_{ear} and the solution of the equation ( ) with regard to the parameters included, there were determined new unknown before ??parameters.

The determination of these new unknown before parameters with the help of the mass of the Sun M_{sun}, the mass of the Earth M_{ear} and the mass of the Moon M_{moo} shoved that in each case their value didn't change. This fact made it possible to draw the conclusion that these new unknown before values are FPC in TGT. If FPC in TGT change when being determined with the help of the mass of the Sun M_{sun}, the mass of the Earth M_{ear} and the mass of the Moon M_{moo} then it means that they won't change either when the mass of (3671) Dionysus M_{dio} asteroid, the mass of 67P/Churyumov–Gerasimenko M_{67P} comet, the mass of Sagittarius A M_{sgra} black hole, the mass of the Milky Way galaxy centre M_{mwgc} , etc. FPC in TGT are characteristic for all the bodies in the Universe. It means that it is possible to determine the parameters of different bodies in the Universe when there are no data about the density (specific gravity) of these bodies.

The determination of these new unknown before values showed that the first FPC in TGT determined in process of the TGT elaboration is the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$, determined by the formula (). With the help of this FPC in TGT there were determined the gravitational acceleration of the Sun g_{sun}, the gravitational acceleration of the Moon g_{moo} and the gravitational acceleration of the Earth g_{ear}. The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ makes it possible to determine the gravitational acceleration of any body with the known mass.

The second found FPC in TGT is the gravitational constant G.

The calculations done later on shoved that using the parameters of the second body rotating around the first body it was possible to determine the constant of the gravitational field of the mass of the first body A_1^M. Using the constant of the gravitational field of the mass of the first body A_1^M helped to determine not only the parameters of the first body and the second body: mass, gravitational acceleration, etc. но и другие FPC in TGT. Our calculations showed that some FPC in TGT helped to determine other FPC in TGT.

It became possible to explain the physical essence of Kepler's third Law with the help of this FPC in TGT.

The first equation is part TGL of formula (1) and its varieties (2) and (3)

$$M_1 \times g_2 = M_2 \times g_1, \qquad ( )$$

where M_1– is the mass of the first body, g;

M_2– is the mass of the second body, g;

g_1– is the gravitational acceleration of the first body, cm/s^2;

g_2– is the gravitational acceleration of the second body, cm/s^2.

In the process of the consistent solution of the equation ( ) with respect to all the parameters included there were determined FPC in TGT (the constant of the mass of the gravitational acceleration of $1.0\,cm/s^2$ of the body $M_{1.0}^{g}$ ( ), ( ), the constant of the gravitational acceleration of the mass of $1.0\,g$ of the body $g_{1.0}^{M}$ ( ), etc.) and ? other parameter of bodies the mass of the first body M_1, the mass of the second body M_2, the gravitational acceleration of the first body g_1, the gravitational acceleration of the second body g_2, etc.).

Given that $g_1 = M_1 \times g_{1.0}^{M}$ ( ) and $g_2 = M_2 \times g_{1.0}^{M}$ ( ), and as has been shown in [ ] equation ( ) in the following form

$$G \times \frac{M_1 \times M_2 \times g_{1.0}^{M} + M_2 \times M_1 \times g_{1.0}^{M}}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{R_{1-2}}. \qquad ( )$$

The left and the right sides of the equation ( ) were presented as the product of two factors: $\frac{M_2}{R_{1-2}}$, and other elements of the equation (G, $g_{1.0}^{M}$, M_1, R_{1-2})

$$\frac{M_2}{R_{1-2}} \times \left(\frac{G \times M_1 \times g_{1.0}^{M} + G \times M_1 \times g_{1.0}^{M}}{R_{1-2}} \right) = \frac{M_2}{R_{1-2}} \times V_2^2 \qquad ( )$$

or

$$\frac{M_2}{R_{1-2}} \times \left(\frac{2 \times G \times M_1 \times g_{1.0}^{M}}{R_{1-2}} \right) = \frac{M_2}{R_{1-2}} \times V_2^2. \qquad ( )$$

The relations of $\frac{M_2}{R_{1-2}}$ in the left and the right sides of the equation ( ) having been reduced, the gravitational formula (GF) was obtained

$$V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}, \qquad ( )$$

where V_2– is the average orbital velocity of the second body, cm/s;

G– is the gravitational constant, cm^2;

M_1– is the mass of the first body, g;

$g_{1.0}^M$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2;

R_{1-2}– is the average distance between the first body and the second body, cm.

If the relation $\frac{M_2}{R_{1-2}}$ in the left and the right sides of the equation ( ) are equal, the other elements in the left and in the sides of the equation ( ) are also to be equal.

Taking into account that, as it was shown in the work [ ] $M_1 \times g_2 = M_2 \times g_1$, the left and the right sides of the equation ( ) were written as a sum of two summands

$$\frac{G \times M_1 \times g_2}{R_{1-2}^2} + \frac{G \times M_2 \times g_1}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}} + \frac{M_2 \times V_2^2}{2 \times R_{1-2}}. \qquad ( )$$

As the summands is the right side of the equality ( ) are equal, then the summands in the left side of the equality must be equal too.

The equation GF ( ) having been solved with respect to $R_{1-2} \times V_2^2$ it was obtained GF

$$R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M. \qquad ( )$$

In the process of the consistent solution of the equation ( ) with respect to all the parameters included there were determined FPC in TGT (the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^M$ ( ), ( ), ( ), the gravitational constant G ( ), the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^M$ ( ), etc.) and ? other parameter of bodies (the constant of the gravitational field of the mass of the first body A_1^M ( ), ( ), ( ), the mass of the first body M_1, the mass of the second body M_2, the gravitational acceleration of the first body g_1, the gravitational acceleration of the second body g_2, the average orbital velocity of the second body V_2, the average distance between the first body and the second body R_{1-2}, etc.).

In the process of solving the GF ( ) with regard to all the parameters included it was found out that the left and the right sides of the GF ( ) are the FPC in TGT (the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ and the constant of the gravitational field of the mass of the first body A_1^M). The right side of the GF ( ) also contains two other FPC (the gravitational constant G, the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$, etc.).

The first summand in the left side of the equality ( ) was equated with one of two identical summands from the right side of the equality ( )

$$\frac{G \times M_1 \times g_2}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}. \qquad ( )$$

In the process of consistent solution of the equation ( ) with respect to all the parameters included there were determined the FPC in TGT (the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ ( ), the gravitational constant G (), the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ ( ), etc.) and other parameters of bodies (the constant of the gravitational field of the mass of the first body A_1^M ( ), the mass of the first body M_1, the mass of the second body M_2, the gravitational acceleration of the first body g_1, the gravitational acceleration of the second body g_2, the average orbital velocity of the second body V_2, the average distance between the first body and the second body R_{1-2}, etc.).

The second summand in the left side of the equality ( ) was equated with one of two identical summands of the right side of the equality

$$\frac{G \times M_2 \times g_1}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}. \qquad ( )$$

In the process of consistent solution of the equation ( ) with regard to all the parameters included into it there were determined the FPC in TGT (the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ ( ), the gravitational constant G (), etc.) and other parameters of bodies (the constant of the gravitational field of the mass of the first body A_1^M ( ), the mass of the first body M_1, the mass of the second body M_2, the gravitational acceleration of the first body g_1, the gravitational acceleration of the second body g_2, the average orbital velocity of the second body V_2, the average distance between the first body and the second body R_{1-2}, etc.).

The determinations of the FPC in TGT with the help of centimetre–gram–second system (CGS) and the NASA data [24, 25]. The parameters of bodies (weight, mass, gravity acceleration, etc.) are given in the units of CGS according to TGT. At the reference to the parameters of bodies (weight, mass, gravity acceleration, etc.) there are given the other units of dimension in the International System of Units (SI), the foot–pound–second system (FPS), etc.

The determination of each FPC in TGT was carried out on the examples of various bodies in the Universe using the following parameters: $1.0\,g$ of the body ($M_{1.0g} = 1.0\,g$), $1.0\,cm^3/s^2$ of the body ($M_{1.0cm^3/s^2} = 9585.522\,g$), $1.0\,cm/s^2$ of the body ($M_{1.0cm/s^2} = 3.8994 \times 10^{21} g$), the Sun (star), the Earth (planet), the Moon (the planetary satellite), (3671) Dionysus (the asteroid), 67P/Churyumov–Gerasimenko (the comet), Sagittarius A (black hole) and the Milky Way galaxy centre. The determination of the FPC in TGT with the help of the parameters of $1.0\,g$ of the body ($M_{1.0g} = 1.0\,g$), $1.0\,cm^3/s^2$ of the body ($M_{1.0\,cm^3/s^2} = 9585.522\,g$) and of $1.0\,cm/s^2$ of the body ($M_{1.0cm/s^2} = 3.8994 \times 10^{21} g$) was carried out for better understanding of the essence of the gravitational constant G and for checking the validity of the so–called Newtonian second law.

7. The determination of the fundamental physical constants (FPC) in Tsiganok gravitational theory (TGT) and other parameters of bodies

7.1. The determination of the fundamental physical constants (FPC) in Tsiganok gravitational theory (TGT), characterizing the gravitational field of the body and other parameters of bodies

7.1.1. The determination of the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ and the constant of the gravitational field of the first body A_1^M

In order to determine FPC in TGT it is necessary to determine the notion of the gravitational field.

The gravitational field – is a special form of matter in the form of space that creates around itself the with larger mass of the first body M_1 (1the claster of galaxies, 2the centre of galaxies (black hole), 3a star, 4a planet, 5a draft planet, 6an asteroid, 7an atomic nucleus, etc.) that in the result of the transmission of energy with the help of the gravitational waves rotates (can rotate) around itself the second body with smaller mass M_2 (1a galaxy, 2a star, 3a planet, 4a planetary satellite, 5a satellite of a dwarf planet, 6an asteroid satellite, 7an electron, etc., a spacecraft with turned off engines, etc.) at the average distance between the first body and the second body R_{1-2}, that changes from $R_{1-1} = 1.0\,cm$ to $R_{1-2} = A_1^M cm$ co the squared of the average orbital velocity of the second body V_2^2, that changes from to $V_2^2 = A_1^M\,cm^2/s^2$ to $V_2^2 = 1.0\,cm^2/s^2$, that generates the gravitational waves in the in the cavities of which the force of gravitation is equal to the centrifugal force on the orbits of galaxies, stars, planets, planetary satellites, satellites of dwarf planets, asteroid satellites, electrons, etc., as well as spacecraft with turned off engines, etc.) but between the cavities of which the force gravitation isn’t equal to the centrifugal force (between the orbits of galaxies, stars, planets, planetary satellites, the satellites of dwarf planets, asteroid satellites, electrons, etc., as well as spacecraft with turned off engines, etc.), which doesn’t make is possible for these bodies to approach the first body with larger mass M_1 or go away from it, characterized by the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ and the constant of the gravitational field of the mass of the first body A_{1}^{M}.

The gravitational field – is the area of a curvilinear figure equal to the doubled area of a square equal to the doubled the gravitational constant G, is that generated the gravitational acceleration of 1.0 g of the body $g_{1.0g} = 2.5645 \times 10^{-22}\ cm/s^2$, the sum of which is equal to the gravitational acceleration of the first body a g_1, and the number of which is equal to the larger mass of the first body M_1, characterized by the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ and the constant of the gravitational field of the mass of the first body A_{1}^{M}, expressed in cm^3/gs^2 и cm^3/s^2.

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ and the constant of the gravitational field of the mass of the first body A_{1}^{M} was determined in the process of solution of TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ (1), the equation $M_1 \times g_2 + M_2 \times g_1$ ( ), GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^{M}}{R_{1-2}}$ ( ), the equation . $\frac{G \times M_1 \times g_2}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ) and the equation . $\frac{G \times M_2 \times g_1}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ).

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ and the constant of the gravitational field of the mass of the first body A_{1}^{M} was determined in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ (1).

Taking into account that $g_1 = M_1 \times g_{1.0}^{M}$ ( ), $g_2 = M_2 \times g_{1.0}^{M}$ ( ), $F_{1-2} = G \times \frac{M_1 \times M_2 \times g_{1.0}^{M} + M_2 \times M_1 \times g_{1.0}^{M}}{R_{1-2}^2}$ ( ), $F_{1-2} = \frac{G \times M_1 \times M_2 \times g_{1.0}^{M} + G \times M_2 \times M_1 \times g_{1.0}^{M}}{R_{1-2}^2}$ (), $F_{1-2} = \frac{2 \times G \times M_1 \times M_2 \times g_{1.0}^{M}}{R_{1-2}^2}$ ( ), $A_1^M = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ), $F_{1-2} = \frac{M_2 \times A_1^M}{R_{1-2}^2}$ ( ), TGL (1) was written in the following way

$$A_1^M = \frac{F_{1-2} \times R_{1-2}^2}{M_2}, \qquad (\ )$$

where A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

F_{1-2}– is the gravitational force between the first body and the second body, gcm/s^2;

R_{1-2}– is the average distance between the first body and the second body, cm;

M_2– is the mass of the second body, g.

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0g}^M$ was determined the relation of the product of the gravitational force between the 1.0 g of the body and the so–called standard–copy of the mass of 1.0 kg in SI of the body $F_{1.0g-1.0kg}$ and the squared the average distance between of 1.0 g of the body and the so–called standard–copy of the mass of 1.0 kg in SI of the body $R_{1.0g-1.0kg}$ to the mass of the so–called standard–copy of the mass of 1.0 kg in SI of the body $M_{1.0kg}$ by the formula ( )

$$A_{1.0g}^M = \frac{F_{1.0g-sta} \times R_{1.0g-sta}^2}{M_{sta}} = \frac{1.064 \times 10^{-4} \times 1.0^2}{1.0197}$$
$$= 1.043 \times 10^{-4}\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of $1.0\, cm^3/s^2$ of the body $A_{1.0cm^3/s^2}^M$ was determined the relation of the product of the gravitational force between of 1.0 cm^3/s^2 of the body and the so–called standard–copy of the mass of 1.0 kg in SI of the body $F_{1.0cm^3/s^2-1.0kg}$ and the squared the average distance between of 1.0 cm^3/s^2 of the body and the so–called standard–copy of the mass of 1.0 kg in SI of the body $R_{1.0cm^3/s^2-1.0kg}$ to the mass of the so–called standard–copy of the mass of 1.0 kg in SI of the body $M_{1.0kg}$ by the formula ( )

$$A_{1.0cm^3/s^2}^M = \frac{F_{1.0cm^3/s^2-sta} \times R_{1.0cm^3/s^2-sta}^2}{M_{sta}} = \frac{1.0197 \times 1.0^2}{1.0197}$$
$$= 1.0\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of $1.0\, cm/s^2$ of the body $A_{1.0cm/s^2}^M$ was determined the relation of the product of the gravitational force between of $1.0\, cm/s^2$ of the body and the so–called standard–copy of the mass of 1.0 kg in SI of the body $F_{1.0cm/s^2-1.0kg}$ and the squared the average distance between of $1.0\, cm/s^2$ of the body and the so–called standard–copy of the mass of $1.0\,kg$ in SI of the body $R_{1.0cm/s^2-1.0kg}$ to the mass of the so–called standard–copy of the mass of $1.0\,kg$ in SI of the body $M_{1.0kg}$ by the formula ( )

$$A^M_{1.0cm/s^2-sta} = \frac{F_{1.0cm/s^2-sta} \times R^2_{1.0cm/s^2-sta}}{M_{sta}} = \frac{4.148 \times 10^{17} \times 1.0^2}{1.0197}$$
$$= 4.068 \times 10^{17}\,cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of $1.0\,cm$ of the body $A^M_{1.0cm}$ was determined the relation of the product of the gravitational force between of $1.0\,cm$ of the body and the so–called standard–copy of the mass of $1.0\,kg$ in SI of the body $F_{1.0cm-1.0kg}$ and the squared the average distance between of $1.0\,cm$ of the body and the so–called standard–copy of the mass of $1.0\,kg$ in SI of the body $R_{1.0cm-1.0kg}$ to the mass of the so–called standard–copy of the mass of $1.0\,kg$ in SI of the body $M_{1.0kg}$ by the formula ( )

$$A^M_{1.0cm} = \frac{F_{1.0cm-1.0kg} \times R^2_{1.0cm-1.0kg}}{M_{sta}} = \frac{9.164 \times 10^{20} \times 1.0^2}{1.0197}$$
$$= 8.987 \times 10^{20}\,cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of the Sun A^M_{sun} was determined the relation of the product of the gravitational force between the Sun and the so–called standard–copy of the mass of $1.0\,kg$ in SI of the body $F_{sun-1.0kg}$ the squared radius of the Sun R_{sun} to the mass of the so–called standard–copy of the mass of $1.0\,kg$ in SI of the body $M_{1.0kg}$ by the formula ( )

$$A^M_{sun} = \frac{F_{sun-sta} \times R^2_{sun-sta}}{M_{sta}} = \frac{2.7957 \times 10^4 \times (6.9598 \times 10^{10})^2}{1.0197}$$
$$= 1.328 \times 10^{26}\,cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of the Earth A^M_{ear} was determined the relation of the product of the gravitational force between the Earth и the so–called standard–copy of the mass of $1.0\,kg$ in SI of the body $F_{ear-1.0kg}$ the squared radius of the Earth R_{ear} to the mass of the so–called standard–copy of the mass of $1.0\,kg$ in SI of the body $M_{1.0kg}$ by the formula ( )

$$A_{ear}^{M} = \frac{F_{ear-sta} \times R_{ear-sta}^{2}}{M_{sta}} = \frac{1000.0 \times (6.371 \times 10^{8})^{2}}{1.0197}$$
$$= 3.9806 \times 10^{20}\ cm^{3}/s^{2}. \qquad ( )$$

The constant of the gravitational field of the mass of the Moon A_{moo}^{M} was determined the relation of the product of the gravitational force between the Moon и the so–called standard–copy of the mass of 1.0 kg in SI of the body $F_{moo-1.0kg}$ the squared radius of the Moon R_{moo} to the mass of the so–called standard–copy of the mass of 1.0 kg in SI of the body $M_{1.0kg}$ by the formula ()

$$A_{moo}^{M} = \frac{F_{moo-sta} \times R_{moo-sta}^{2}}{M_{sta}} = \frac{263.681 \times (1.7375 \times 10^{8})^{2}}{1.0197}$$
$$= 7.806 \times 10^{18}\ cm^{3}/s^{2}. \qquad ( )$$

The constant of the gravitational field of the mass of (3671) Dionysus A_{dio}^{M} was determined the relation of the product of the gravitational force between (3671) Dionysus and the so–called standard–copy of the mass of 1.0 kg in SI of the body $F_{dio-1.0kg}$ the squared radius of (3671) Dionysus R_{dio} to the mass of the so–called standard–copy of the mass of 1.0 kg in SI of the body $M_{1.0kg}$ by the formula ( )

$$A_{dio}^{M} = \frac{F_{dio-sta} \times R_{dio-sta}^{2}}{M_{sta}} = \frac{3.1027 \times 10^{-2} \times (7.150 \times 10^{4})^{2}}{1.0197}$$
$$= 1.155 \times 10^{8}\ cm^{3}/s^{2}. \qquad ( )$$

The constant of the gravitational field of the mass of 67P/Churyumov–Gerasimenko V_{67P}^{M} was determined the relation of the product of the gravitational force between of 67P/Churyumov–Gerasimenko and the so–called standard–copy of the mass of 1.0 kg in SI of the body $F_{67P-1.0kg}$ the squared radius of 67P/Churyumov–Gerasimenko R_{67P} to the mass of the so–called standard–copy of the mass of 1.0 kg in SI of the body $M_{1.0kg}$ by the formula ( )

$$A_{67P}^{M} = \frac{F_{67P-sta} \times R_{67P-sta}^{2}}{M_{sta}} = \frac{3.7236 \times 10^{-2} \times (1.722 \times 10^{5})^{2}}{1.0197}$$
$$= 1.083 \times 10^{9}\ cm^{3}/s^{2}. \qquad ( )$$

The constant of the gravitational field of the mass of Sagittarius A A_{sgra}^{M} was determined the relation of the product of the gravitational force between of Sagittarius A и the so–called standard–copy of the mass of 1.0 kg in SI of the body $F_{sgra-1.0kg}$ the squared radius of Sagittarius A R_{sgra} to the mass of the so–called standard–copy of the mass of 1.0 kg in SI of the body $M_{1.0kg}$ by the formula ( )

$$A_{sgra}^{M} = \frac{F_{sgra-sta} \times R_{sgra-sta}^{2}}{M_{sta}} = \frac{8.584 \times 10^{11} \times (1.0607 \times 10^{9})^{2}}{1.0197}$$
$$= 9.470 \times 10^{29}\, cm^{3}/s^{2}. \qquad ( )$$

The constant of the gravitational field of the mass of the Milky Way galaxy centre A_{sgra}^{M} was determined the relation of the product of the gravitational force between the Milky Way galaxy centre и the so–called standard–copy of the mass of 1.0 kg in SI of the body $F_{mwgc-1.0kg}$ the squared radius of the Milky Way galaxy centre R_{mwgc} to the mass of the so–called standard–copy of the mass of 1.0 kg in SI of the body $M_{1.0kg}$ by the formula ( )

$$A_{mwgc}^{M} = \frac{F_{mwgc-sta} \times R_{mwgc-sta}^{2}}{M_{sta}} = \frac{1.458 \times 10^{-10} \times (3.0857 \times 10^{21})^{2}}{1.0197}$$
$$= 1.361 \times 10^{33}\, cm^{3}/s^{2}. \qquad ( )$$

Taking into account that $g_1 = M_1 \times g_{1.0}^{M}$ ( ), $g_2 = M_2 \times g_{1.0}^{M}$ ( ), $F_{1-2} = G \times \frac{M_1 \times M_2 \times g_{1.0}^{M} + M_2 \times M_1 \times g_{1.0}^{M}}{R_{1-2}^{2}}$ ( ), $F_{1-2} = \frac{G \times M_1 \times M_2 \times g_{1.0}^{M} + G \times M_2 \times M_1 \times g_{1.0}^{M}}{R_{1-2}^{2}}$ (), $F_{1-2} = \frac{2 \times G \times M_1 \times M_2 \times g_{1.0}^{M}}{R_{1-2}^{2}}$ ( ), $A_1^{M} = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ), $F_{1-2} = \frac{M_2 \times A_1^{M}}{R_{1-2}^{2}}$ ( ), $g_1 = \frac{A_1^{M}}{R_{1-2}^{2}}$ ( ) TGL (1) was written in the following way

$$A_1^{M} = g_1 \times R_{1-2}^{2}, \qquad ( )$$

where A_1^{M}– is the constant of the gravitational field of the mass of the first body, cm^{3}/s^{2};

g_1– is the gravitational acceleration of the first body, cm/s^{2};

R_{1-2}– is the average distance between the first body and the second body, cm.

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0g}^{M}$ was determined as the product of the gravitational acceleration of 1.0 g of the body $g_{1.0g}$ and the squared the average distance between of 1.0 cm/s^2 of the body and the so–called standard–copy of the mass of 1.0 kg in SI of the body $R_{1.0cm/s^2-1.0kg}$, equal to the doubled gravitational constant G, equal to the squared radius of the Earth R_{ear} $R^2_{1.0g-1.0kg} = 2 \times G = 2 \times 2.034 \times 10^{17}\ cm^2 = 4.068 \times 10^{17}\ cm^2 \approx R^2_{ear} =$ $(6.371 \times 10^8)^2\ cm^2$ by the formula ( )

$$A^M_{1.0g} = g_{1.0g} \times R^2_{1.0g-sta} = 2.5645 \times 10^{-22} \times 2 \times 2.034 \times 10^{17}$$
$$= 1.04324 \times 10^{-4}\ cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of 1.0 cm^3/s^2 of the body $A^M_{1.0cm^3/s^2}$ was determined as the product of the gravitational acceleration of 1.0 cm^3/s^2 of the body $g_{1.0cm^3/s^2}$ and the squared the average distance between of 1.0 cm^3/s^2 of the body and the so–called standard–copy of the mass of 1.0 kg in SI of the body $R_{1.0cm^3/s^2-1.0kg}$, equal to the doubled gravitational constant G, equal to the squared radius of the Earth R_{ear} $R^2_{1.0cm^3/s^2-1.0kg} = 2 \times G = 2 \times 2.034 \times 10^{17}\ cm^2 = 4.068 \times 10^{17}\ cm^2 \approx R^2_{ear} = (6.371 \times 10^8)^2\ cm^2$ by the formula ( )

$$A^M_{1.0cm^3/s^2-sta} = g_{1.0cm^3/s^2-sta} \times R^2_{1.0cm^3/s^2-sta}$$
$$= 2.4582 \times 10^{-18} \times 2 \times 2.034 \times 10^{17} = 1.0\ cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of 1.0 cm/s^2 of the body $A^M_{1.0cm/s^2}$ was determined as the product of the gravitational acceleration of 1.0 cm/s^2 of the body $g_{1.0cm/s^2}$ and the squared the average distance between of 1.0 cm/s^2 of the body and the so–called standard–copy of the mass of 1.0 kg in SI of the body $R_{1.0cm/s^2-1.0kg}$, equal to the doubled gravitational constant G, equal to the squared radius of the Earth R_{ear} $R^2_{1.0cm/s^2-1.0kg} = 2 \times G = 2 \times 2.034 \times 10^{17}\ cm^2 = 4.068 \times 10^{17}\ cm^2 \approx R^2_{ear} = (6.371 \times 10^8)^2\ cm^2$ by the formula ( )

$$A^M_{1.0cm/s^2-sta} = g_{1.0cm/s^2-sta} \times R^2_{1.0cm/s^2-sta} = 1.0 \times 2 \times 2.034 \times 10^{17}$$
$$= 4.068 \times 10^{17}\ cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of 1.0 cm of the body $A^M_{1.0cm}$ was determined as the product of the gravitational acceleration of 1.0 cm of the body $g_{1.0cm}$ and the squared the average distance between of 1.0 cm of the body and the so–

called standard–copy of the mass of 1.0 kg in SI of the body $R_{1.0cm-1.0kg}$, equal to the doubled gravitational constant G, equal to the squared radius of the Earth R_{ear} $R_{1.0cm-1.0kg}^2 = 2 \times G = 2 \times 2.034 \times 10^{17}\ cm^2 = 4.068 \times 10^{17}\ cm^2 \approx R_{ear}^2 = (6.371 \times 10^8)^2\ cm^2$ by the formula ( )

$$A_{1.0cm}^M = g_{1.0cm} \times R_{1.0cm-sta}^2 = 2209.43656 \times 2 \times 2.034 \times 10^{17}$$
$$= 8.988 \times 10^{20}\ cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of the Sun A_{sun}^M was determined as the product of the gravitational acceleration of the Sun g_{sun} and the squared the average distance between the Sun and the so–called standard–copy of the mass of 1.0 kg in SI of the body $R_{sun-1.0kg}$, equal to the doubled gravitational constant G, equal to the squared radius of the Earth R_{ear} $R_{sun-1.0kg}^2 = 2 \times G = 2 \times 2.034 \times 10^{17}\ cm^2 = 4.068 \times 10^{17}\ cm^2 \approx R_{ear}^2 = (6.371 \times 10^8)^2\ cm^2$ by the formula ( )

$$A_{sun}^M = g_{sun} \times 2 \times G = 3.265 \times 10^8 \times 2 \times 2.034 \times 10^{17}$$
$$= 1.328 \times 10^{26}\ cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of the Earth A_{ear}^M was determined as the product of the gravitational acceleration of the Earth g_{ear} and the squared the average distance between the Earth and the so–called standard–copy of the mass of 1.0 kg in SI of the body $R_{ear-1.0kg}$, equal to the doubled gravitational constant G, equal to the squared radius of the Earth R_{ear} $R_{ear-1.0kg}^2 = 2 \times G = 2 \times 2.034 \times 10^{17}\ cm^2 = 4.068 \times 10^{17}\ cm^2 \approx R_{ear}^2 = (6.371 \times 10^8)^2\ cm^2$ by the formula ( )

$$A_{ear}^M = g_{ear} \times 2 \times G = 980.665 \times 2 \times 2.034 \times 10^{17}$$
$$= 3.989 \times 10^{20}\ cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of the Moon A_{moo}^M was determined as the product of the gravitational acceleration of the Moon g_{moo} and the squared the average distance between the Earth and the so–called standard–copy of the mass of 1.0 kg in SI of the body $R_{moo-1.0kg}$, equal to the doubled gravitational constant G, equal to the squared radius of the Earth R_{ear} $R_{moo-1.0kg}^2 = 2 \times G = 2 \times 2.034 \times 10^{17}\ cm^2 = 4.068 \times 10^{17}\ cm^2 \approx R_{ear}^2 = (6.371 \times 10^8)^2\ cm^2$ by the formula ( )

$A_{moo}^{M} = g_{moo} \times 2 \times G = 19.19 \times 2 \times 2.034 \times 10^{17}$

$$= 7.806 \times 10^{18}\ cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of (3671) Dionysus A_{dio}^{M} was determined as the product of the gravitational acceleration of (3671) Dionysus g_{dio} and the squared the average distance between (3671) Dionysus and the so–called standard–copy of the mass of $1.0\ kg$ in SI of the body $R_{dio-1.0kg}$, equal to the doubled gravitational constant G, equal to the squared radius of the Earth R_{ear} $R_{dio-1.0kg}^{2} = 2 \times G = 2 \times 2.034 \times 10^{17}\ cm^2 = 4.068 \times 10^{17}\ cm^2 \approx R_{ear}^{2} = (6.371 \times 10^{8})^2\ cm^2$ by the formula ( )

$A_{dio}^{M} = g_{dio} \times 2 \times G = 3.824 \times 10^{-10} \times 2 \times 2.034 \times 10^{17}$

$$= 1.555 \times 10^{8}\ cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of 67P/Churyumov–Gerasimenko V_{67P}^{M} was determined as the product of the gravitational acceleration of 67P/Churyumov–Gerasimenko g_{67P} and the squared the average distance between 67P/Churyumov–Gerasimenko and the so–called standard–copy of the mass of $1.0\ kg$ in SI of the body $R_{dio-1.0kg}$, equal to the doubled gravitational constant G, equal to the squared radius of the Earth R_{ear} $R_{67P-1.0kg}^{2} = 2 \times G = 2 \times 2.034 \times 10^{17}\ cm^2 = 4.068 \times 10^{17}\ cm^2 \approx R_{ear}^{2} = (6.371 \times 10^{8})^2\ cm^2$ by the formula ( )

$A_{67P}^{M} = g_{67P} \times 2 \times G = 2.662 \times 10^{-9} \times 2 \times 2.034 \times 10^{17}$

$$= 1.083 \times 10^{9}\ cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of Sagittarius A A_{sgra}^{M} was determined as the product of the gravitational acceleration of Sagittarius A g_{sgra} and the squared the average distance between Sagittarius A and the so–called standard–copy of the mass of $1.0\ kg$ in SI of the body $R_{sgra-1.0kg}$, equal to the doubled gravitational constant G, equal to the squared radius of the Earth R_{ear} $R_{sgra-1.0kg}^{2} = 2 \times G = 2 \times 2.034 \times 10^{17}\ cm^2 = 4.068 \times 10^{17}\ cm^2 \approx R_{ear}^{2} = (6.371 \times 10^{8})^2\ cm^2$ by the formula ( )

$A_{sgra}^{M} = g_{sgra} \times 2 \times G = 2.328 \times 10^{12} \times 2 \times 2.034 \times 10^{17}$

$$= 9.47 \times 10^{29}\ cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of the Milky Way galaxy centre A_{sgra}^{M} was determined as the product of the gravitational acceleration of the Milky Way galaxy centre g_{mwgc} and the squared the average distance between 67P/Churyumov–Gerasimenko and the so–called standard–copy of the mass of $1.0\ kg$ in SI of the body $R_{dio-1.0kg}$, equal to the doubled gravitational constant G, equal to the squared radius of the Earth R_{ear} $R_{mwgc-1.0kg}^{2} = 2 \times G = 2 \times 2.034 \times 10^{17}\ cm^{2} = 4.068 \times 10^{17}\ cm^{2} \approx R_{ear}^{2} = (6.371 \times 10^{8})^{2}\ cm^{2}$ by the formula ( )

$$A_{mwgc}^{M} = g_{mwgc} \times 2 \times G = 3.347 \times 10^{15} \times 2 \times 2.034 \times 10^{17}$$
$$= 1.361 \times 10^{33}\ cm^{3}/s^{2}. \qquad ( )$$

Similarly, other FPC in TGT were determined in the process of solving the TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^{2}}$ (1).

Dividing the left and right of the GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) by M_1 there was receive

Taking into account that $A_{1.0}^{M} = 2 \times G \times g_{1.0}^{M}$ ( ) GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) was written in the following way

The constant of the gravitational field of the mass of $1.0\ g$ of the body $A_{1.0}^{M}$ was determined in the process of the solution of GF and the equation ( ), ( ).

The left and the right sides of GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) were divided by M_1 and that $A_{1.0}^{M} = 2 \times G \times g_{1.0}^{M}$ ( ) GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) was written in the following way

$$A_{1.0}^{M} = \frac{R_{1-2} \times V_2^2}{M_1}, \qquad ( )$$

where $A_{1.0}^{M}$– is the constant of the gravitational field of the mass of $1.0\ g$ of the body, cm^{3}/gs^{2};

R_{1-2}– is the average distance between the first body and the second body, cm;

V_2 – is the average orbital velocity of the second body, cm/s;

M_1– is the mass of the first body, g.

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ was determined the relation of the product of the average distance between of 1.0 g of the body and of 1.0 g of the body $R_{1.0g-2}$ to the squared average orbital velocity of the second body V_2^2 to 1.0 g of the body $M_{1.0g}$ by the formula ( )

$$A_{1.0}^{M} = \frac{R_{1.0g-2} \times V_2^2}{M_{1.0g}} = \frac{1.04324 \times 10^{-4} \times 1.0^2}{1.0} = 1.04324 \times 10^{-4}\, cm^3/gs^2. \; (\,)$$

Taking into account that $A_1^M = 2 \times G \times M_1 \times g_1^M$ ( ) GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) was written in the following way.

The constant of the gravitational field of the mass of the first body A_1^M was determined in the process of solving the GF and the equation ( ), and ( ).

The left side of GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) was denoted as A_1^M and written in the following way

$$A_1^M = R_{1-2} \times V_2^2, \qquad (\,)$$

where A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

R_{1-2}– is the average distance from the first body to the second body, cm;

V_2– is the average orbital velocity of the second body, cm/s.

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0g}^{M}$ was determined as the product of the average distance from of 1.0 g of the body to of 1.0 g of the body $R_{1.0g-2}$ by the average squared orbital velocity the second body V_2 by the formula ( )

$$A_{1.0g}^{M} = R_{1.0g-2} \times V_2^2 = 1.04324 \times 10^{-4} \times 1.0^2$$
$$= 1.04324 \times 10^{-4}\, cm^3/s^2. \qquad (\,)$$

The constant of the gravitational field of the mass of $1.0\, cm^3/s^2$ of the body $A_{1.0cm^3/s^2}^{M}$ was determined as the product of the average distance from the of 1.0 cm^3/s^2 of the body to the of 1.0 cm^3/s^2 of the body $R_{1.0\, cm^3/s^2-2}$ by the average squared orbital velocity of the second body V_2 by the formula ( )

$$A_{1.0cm^3/s^2}^{M} = R_{1.0\, cm^3/s^2-2} \times V_2^2 = 1.0 \times 1.0^2$$
$$= 1.0\, cm^3/s^2. \qquad (\,)$$

The constant of the gravitational field of the mass of 1.0 cm/s^2 of the body $A^M_{1.0cm/s^2}$ was determined as the product of the average distance from of 1.0 cm/s^2 of the body to of 1.0 cm/s^2 of the body $R_{1.0cm/s^2-2}$ by the average squared orbital velocity of the second body V_2 by the formula ( )

$$A^M_{1.0cm/s^2} = R_{1.0cm/s^2-2} \times V_2^2 = 4.068 \times 10^{17} \times 1.0^2$$
$$= 4.068 \times 10^{17}\, cm^3/s^2. \quad ( )$$

The constant of the gravitational field of the mass of 1.0 cm of the body $A^M_{1.0cm}$ was determined as the product of the average distance from of 1.0 cm of the body to of 1.0 cm of the body $R_{1.0cm-2}$ by the average squared orbital velocity of the second body V_2 (the squared speed of light in vacuum c) by the formula ( )

$$A^M_{1.0cm} = R_{1.0cm-2} \times V_2^2 = 1.0 \times 8.988 \times 10^{20}$$
$$= 8.988 \times 10^{20}\, cm^3/s^2. \quad ( )$$

The constant of the gravitational field of the mass of the Sun A^M_{sun} was determined as the product of the average distance between the Sun and the Earth $R_{sun-ear}$ by the average squared orbital velocity the Earth V_{ear} by the formula ( )

$$A^M_{sun} = R_{sun-ear} \times V_{ear}^2 = 1.496 \times 10^{13} \times (2.979 \times 10^6)^2 = 1.328 \times 10^{26}\, cm^3/s^2. \quad ( )$$

The constant of the gravitational field of the mass of the Earth A^M_{ear} was determined as the product of the average distance between the Earth and the Moon $R_{ear-moo}$ by the average squared orbital velocity the Moon V_{moo} by the formula ( )

$$A^M_{ear} = R_{ear-moo} \times V_{moo}^2 = 3.844 \times 10^{10} \times (1.023 \times 10^5)^2 = 4.023 \times 10^{20}\, cm^3/s^2. \quad ( )$$

The constant of the gravitational field of the mass of the Moon A^M_{moo} was determined with the help of FPC in TGT by the formulas ( ), ( ). [ ]

The constant of the gravitational field of the mass of (3671) Dionysus A^M_{dio} was determined as the product of the average distance between (3671) Dionysus and S/1997(3671)1 $R_{dio-3671}$ by the average squared orbital velocity S/1997(3671)1 V_{3671} by the formula ( )

$A_{dio}^{M} = R_{dio-3671} \times V_{3671}^{2} = 3.400 \times 10^{5} \times 21.389^{2} =$
$1.555 \times 10^{8}\, cm^{3}/s^{2}$. ( )

The constant of the gravitational field of the mass of 67P/Churyumov–Gerasimenko A_{67P}^{M} was determined as the product of the average distance between 67P/Churyumov–Gerasimenko and S/1997(3671)1 $R_{67P-ros}$ by the average squared orbital velocity Rosetta V_{ros} by the formula ( )

$A_{67P}^{M} = R_{67P-ros} \times V_{ros}^{2} = 3.0 \times 10^{6} \times 19.0^{2}$
$= 1.083 \times 10^{9}\, cm^{3}/s^{2}$. ( )

The constant of the gravitational field of the mass of Sagittarius A A_{sgra}^{M} was determined as the product of the average distance between Sagittarius A and star S2 $R_{sgra-s2}$ by the average squared orbital velocity of the star S2 V_{s2} by the formula ( )

$A_{sgra}^{M} = R_{sgra-s2} \times V_{s2}^{2} = 1.795 \times 10^{15} \times (2.297 \times 10^{7})^{2} =$
$9.470 \times 10^{29}\, cm^{3}/s^{2}$. ( )

The constant of the gravitational field of the mass of the Milky Way galaxy centre A_{mwgc}^{M} was determined as the product of the average distance between the Milky Way galaxy centre and the Sun $R_{mwgc-sun}$ by the average squared orbital velocity the Sun V_{sun} by the formula ( )

$A_{mwgc}^{M} = R_{mwgc-sun} \times V_{sun}^{2} = 2.573 \times 10^{22} \times (2.300 \times 10^{5})^{2} = 1.361 \times$
$10^{33}\, cm^{3}/s^{2}$. ( )

In the same way it is possible to determined the constant of the gravitational field of the mass of the first body A_{1}^{M} with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, whey have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT by the formula ( ).

Dividing the left and right of the GF $R_{1-2} \times V_{2}^{2} = 2 \times G \times M_{1} \times g_{1.0}^{M}$ ( ) by M_{1} there was receive ???

Taking into account that $A_{1.0}^{M} = \frac{R_{1-2} \times V_{2}^{2}}{M_{1}}$ ( ) GF $R_{1-2} \times V_{2}^{2} = 2 \times G \times M_{1} \times g_{1.0}^{M}$ ( ) was written in the following way

$$A^{M}_{1.0} = 2 \times G \times g^{M}_{1.0}, \qquad ( )$$

where A^{M}_{1}– is the constant of the gravitational field of the mass of 1.0 g of a body, cm^3/gs^2;

G – is the gravitational constant cm^2;

$g^{M}_{1.0}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2.

The constant of the gravitational field of the mass of 1.0 g of the body $A^{M}_{1.0}$ was determined as the doubled product of gravitational constant G by the constant of the gravitational acceleration of the mass of 1.0 g of the body $g^{M}_{1.0}$ by the formula ( )

$$A^{M}_{1.0} = 2 \times G \times g^{M}_{1.0} = 2 \times 2.034 \times 10^{17} \times \ 2.5645 \times 10^{-22}$$
$$= 1.04324 \times 10^{-4}\, cm^3/gs^2. \qquad ( )$$

Taking into account that $A^{M}_{1} = R_{1-2} \times V^{2}_{2}$ (5) GF $R_{1-2} \times V^{2}_{2} = 2 \times G \times M_1 \times g^{M}_{1.0}$ ( ) was written in the following way

$$A^{M}_{1} = 2 \times G \times M_1 \times g^{M}_{1.0}, \qquad ( )$$

where A^{M}_{1}– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

G – is the gravitational constant, cm^2;

M_1– is the mass of the first body, g;

$g^{M}_{1.0}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2.

The constant of the gravitational field of the mass of 1.0 g of the body $A^{M}_{1.0g}$ was determined as the doubled product of the gravitational constant G, of the mass of the 1.0 g of the body $M_{1.0g}$ by the constant of the gravitational acceleration of the mass of 1.0 g of the body $g^{M}_{1.0}$ by the formula ( )

$$A^{M}_{1.0g} = 2 \times G \times M_{1.0g} \times g^{M}_{1.0} = 2 \times 2.034 \times 10^{17} \times 1.0 \times 2.5645 \times 10^{-22}$$
$$= 1.04324 \times 10^{-4}\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of 1.0 cm^3/s^2 of the body $A^{M}_{1.0cm^3/s^2}$ was determined as the doubled product of the gravitational constant G, of the mass of the $1.0\, cm^3/s^2$ of the body $M_{1.0cm^3/s^2}$ by the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^M$ by the formula ( )

$$A_{1.0cm^3/s^2}^M = 2 \times G \times M_{1.0cm^3/s^2} \times g_{1.0}^M$$
$$= 2 \times 2.034 \times 10^{17} \times 9585.522 \times 2.5645 \times 10^{-22}$$
$$= 1.0\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of $1.0\, cm/s^2$ of the body $A_{1.0cm/s^2}^M$ was determined as the doubled product of the gravitational constant G, of the mass of the $1.0\, cm/s^2$ of the body $M_{1.0cm/s^2}$ by the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^M$ by the formula ( )

$$A_{1.0cm/s^2}^M = 2 \times G \times M_{1.0cm/s^2} \times g_{1.0}^M$$
$$= 2 \times 2.034 \times 10^{17} \times 3.8994 \times 10^{21} \times 2.5645 \times 10^{-22}$$
$$= 4.068 \times 10^{17}\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of 1.0 cm of the body $A_{1.0cm}^M$ was determined as the doubled product of the gravitational constant G, of the mass of the 1.0 cm of the body $M_{1.0cm}$ by the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^M$ by the formula ( )

$$A_{1.0cm}^M = 2 \times G \times M_{1.0cm} \times g_{1.0}^M$$
$$= 2 \times 2.034 \times 10^{17} \times 8.615 \times 10^{24} \times 2.5645 \times 10^{-22}$$
$$= 8.988 \times 10^{20}\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of the Sun A_{sun}^M was determined as the doubled product of the gravitational constant G, the mass of the Sun M_{sun} by the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^M$ by the formula ( )

$$A_{sun}^M = 2 \times G \times M_{sun} \times g_{1.0}^M = 2 \times 2.034 \times 10^{17} \times 1.273 \times 10^{30} \times 2.5645 \times 10^{-22}$$
$$= 1.328 \times 10^{26}\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of the Earth A_{ear}^M was determined as the doubled product of the gravitational constant G, the mass of the Earth M_{ear} by the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^M$ by the formula ( )

$A_{ear}^{M} = 2 \times G \times M_{ear} \times g_{1.0}^{M} = 2 \times 2.034 \times 10^{17} \times 3.856 \times 10^{24} \times 2.5645 \times 10^{-22}$
$= 4.023 \times 10^{20}\, cm^3/s^2.$ ( )

The constant of the gravitational field of the mass of the Moon A_{moo}^{M} was determined as the doubled product of the gravitational constant G, the mass of the Moon M_{moo} by the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ by the formula ( )

$A_{moo}^{M} = 2 \times G \times M_{moo} \times g_{1.0}^{M} = 2 \times 2.034 \times 10^{17} \times 7.483 \times 10^{22} \times 2.5645 \times 10^{-22}$
$= 7.807 \times 10^{18}\, cm^3/s^2.$ ( )

The constant of the gravitational field of the mass of (3671) Dionysus A_{dio}^{M} was determined as the doubled product of the gravitational constant G, the mass of (3671) Dionysus M_{dio} by the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ by the formula ( )

$A_{dio}^{M} = 2 \times G \times M_{dio} \times g_{1.0}^{M} = 2 \times 2.034 \times 10^{17} \times 1.491 \times 10^{12} \times 2.5645 \times 10^{-22}$
$= 1.85010^{8}\, cm^3/s^2.$ ( )

The constant of the gravitational field of the mass of 67P/Churyumov–Gerasimenko A_{67P}^{M} was determined as the doubled product of the gravitational constant G, the mass of 67P/Churyumov–Gerasimenko M_{67P} by the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ by the formula ( )

$A_{67P}^{M} = 2 \times G \times M_{67P} \times g_{1.0}^{M} = 2 \times 2.034 \times 10^{17} \times 1.038 \times 10^{13} \times 2.5645 \times 10^{-22}$
$= 1.083 \times 10^{9}\, cm^3/s^2.$ ( )

The constant of the gravitational field of the mass of Sagittarius A A_{sgra}^{M} was determined as the doubled product of the gravitational constant G, the mass of Sagittarius A M_{sgra} by the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ by the formula ( )

$A_{sgra}^{M} = 2 \times G \times M_{sgra} \times g_{1.0}^{M} = 2 \times 2.034 \times 10^{17} \times 9.077 \times 10^{33} \times 2.5645 \times 10^{-22}$
$= 9.470 \times 10^{29}\, cm^3/s^2.$ ( )

The constant of the gravitational field of the mass of the Milky Way galaxy centre V_{mwgc}^{M} was determined as the doubled product of the gravitational constant G, the mass of the Milky Way galaxy centre M_{mwgc} by the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ by the formula ( )

$$A_{mwgc}^{M} = 2 \times G \times M_{mwgc} \times g_{1.0}^{M}$$
$$= 2 \times 2.034 \times 10^{17} \times 1.361 \times 10^{37} \times 2.5645 \times 10^{-22}$$
$$= 1.361 \times 10^{33}\, cm^3/s^2. \qquad ( )$$

In the same way it is possible to determined the constant of the gravitational field of the mass of the first body A_1^M with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, whey have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT by the formula ( ).

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ) and $g_1 = M_1 \times g_{1.0}^M$ ( ) GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) was written in the following way

$$A_1^M = 2 \times G \times g_1, \qquad ( )$$

where A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

G– is the gravitational constant, cm^2;

g_1– is the gravitational acceleration of the first body, cm/s^2.

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0g}^M$ was determined as the doubled product of the gravitational constant G by the gravitational acceleration of 1.0 g of the body $g_{1.0}$ by the formula ( )

$$A_{1.0g}^M = 2 \times G \times g_{1.0g} = 2 \times 2.034 \times 10^{17} \times 2.5645 \times 10^{-22}$$
$$= 1.04324 \times 10^{-4}\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of 1.0 cm^3/s^2 of the body $A_{1.0cm^3/s^2}^M$ was determined as the doubled product of the gravitational constant G by the gravitational acceleration of 1.0 cm^3/s^2 of the body $g_{1.0\, cm^3/s^2}$ by the formula ( )

$$A_{1.0cm^3/s^2}^M = 2 \times G \times g_{1.0cm^3/s^2} = 2 \times 2.034 \times 10^{17} \times 2.4582 \times 10^{-18}$$
$$= 1.0\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of $1.0\,cm/s^2$ of the body $A^M_{1.0cm/s^2}$ was determined as the doubled product of the gravitational constant G by the gravitational acceleration of $1.0\,cm/s^2$ of the body $g_{1.0cm/s^2}$ by the formula ( )

$$A^M_{1.0cm/s^2} = 2 \times G \times g_{1.0cm/s^2} = 2 \times 2.034 \times 10^{17} \times 1.0$$
$$= 4.068 \times 10^{17}\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of $1.0\,cm$ of the body $A^M_{1.0cm}$ was determined as the doubled product of the gravitational constant G by the gravitational acceleration of $1.0\,cm$ of the body $g_{1.0cm}$ by the formula ( )

$$A^M_{1.0cm} = 2 \times G \times g_{1.0cm} = 2 \times 2.034 \times 10^{17} \times 2209.43656$$
$$= 8.988 \times 10^{20}\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of the Sun A^M_{sun} was determined as the doubled product of the gravitational constant G by the gravitational acceleration of the Sun g_{sun} by the formula ( )

$$A^M_{sun} = 2 \times G \times g_{sun} = 2 \times 2.034 \times 10^{17} \times 3.265 \times 10^8$$
$$= 1.328 \times 10^{26}\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of the Earth A^M_{ear} was determined as the doubled product of the gravitational constant G by the gravitational acceleration of the Earth g_{ear} by the formula ( )

$$A^M_{ear} = 2 \times G \times g_{ear} = 2 \times 2.034 \times 10^{17} \times 980.665 = 4.023 \times 10^{20}\, cm^3/s^2. \quad ( )$$

The constant of the gravitational field of the mass of the Moon A^M_{moo} was determined as the doubled product of the gravitational constant G by the gravitational acceleration of the Moon g_{sun} by the formula ( )

$$A^M_{moo} = 2 \times G \times g_{moo} = 2 \times 2.034 \times 10^{17} \times 19.190 = 7.807 \times 10^{18}\, cm^3/s^2. \quad ( )$$

The constant of the gravitational field of the mass of (3671) Dionysus A^M_{dio} was determined as the doubled product of the gravitational constant G by the gravitational acceleration of (3671) Dionysus g_{dio} by the formula ( )

$$A^M_{dio} = 2 \times G \times g_{dio} = 2 \times 2.034 \times 10^{17} \times 4.547 \times 10^{-10}$$
$$= 1.850 \times 10^8\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of 67P/Churyumov–Gerasimenko V_{67P}^{M} was determined as the doubled product of the gravitational constant G by the gravitational acceleration of 67P/Churyumov–Gerasimenko g_{67P} by the formula ()

$$A_{67P}^{M} = 2 \times G \times g_{67P} = 2 \times 2.034 \times 10^{17} \times 2.662 \times 10^{-9}$$
$$= 1.038 \times 10^{13}\, cm^3/s^2. \quad ( )$$

The constant of the gravitational field of the mass of Sagittarius A A_{sgra}^{M} was determined as the doubled product of the gravitational constant G by the gravitational acceleration of Sagittarius A g_{sgra} by the formula ( )

$$A_{sgra}^{M} = 2 \times G \times g_{sgra} = 2 \times 2.034 \times 10^{17} \times 2.328 \times 10^{12}$$
$$= 9.470 \times 10^{29}\, cm^3/s^2. \quad ( )$$

The constant of the gravitational field of the mass of the Milky Way galaxy centre A_{sgra}^{M} was determined as the doubled product of the gravitational constant G by the gravitational acceleration of the Milky Way galaxy centre g_{mwgc} by the formula ( )

$$A_{mwgc}^{M} = 2 \times G \times g_{mwgc} = 2 \times 2.034 \times 10^{17} \times 3.347 \times 10^{15}$$
$$= 1.361 \times 10^{33}\, cm^3/s^2. \quad ( )$$

In the same way it is possible to determined the constant of the gravitational field of the mass of the first body A_1^M with the help of the parameters of the first body and the second body when the second body doesn’t rotate around the first body, whey have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT by the formula ( ).

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ) $A_{1.0}^M = 2 \times G \times g_{1.0}^M$ ( ) and $A_1^M = M_1 \times A_{1.0}^M$ ( ) GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) was written in the following way

$$A_{1.0}^M = \frac{A_1^M}{M_1}, \quad ( )$$

where $A_{1.0}^M$– is the constant of the gravitational field of the mass of 1.0 g of the body, cm^3/gs^2;

A_1^M– is the constant of the gravitational field of the of the mass of the first body, cm^3/s^2;

M_1 – is the mass of the first body, g.

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ was determined as the relation of the constant of the gravitational field of the mass of 1.0 g of a body $A_{1.0g}^{M}$ to the mass of the 1.0 g of the body $M_{1.0g}$ by the formula ( )

$$A_{1.0}^{M}=\frac{A_{1.0g}^{M}}{M_{1.0g}}=\frac{1.04324\times10^{-4}}{1.0}=1.04324\times10^{-4}\,cm^{3}/gs^{2}. \qquad (\ )$$

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ was determined as the relation of the constant of the gravitational field of the mass of 1.0 cm^{3}/s^{2} of the body $A_{1.0cm^{3}/s^{2}}^{M}$ to the mass of the 1.0 cm^{3}/s^{2} of the body $M_{1.0cm^{3}/s^{2}}$ by the formula ( )

$$A_{1.0}^{M}=\frac{A_{1.0cm^{3}/s^{2}}^{M}}{M_{1.0cm^{3}/s^{2}}}=\frac{1.0}{9585.522}=1.04324\times10^{-4}\,cm^{3}/gs^{2}. \qquad (\ )$$

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ was determined as the relation of the constant of the gravitational field of the mass of 1.0 cm/s^{2} of the body $A_{1.0\,cm/s^{2}}^{M}$ to the mass of the 1.0 cm/s^{2} of the body $M_{1.0\,cm/s^{2}}$ by the formula ( )

$$A_{1.0}^{M}=\frac{A_{1.0cm/s^{2}}^{M}}{M_{1.0cm/s^{2}}}=\frac{4.068\times10^{17}}{3.8994\times10^{21}}=1.04324\times10^{-4}\,cm^{3}/gs^{2}\,. (\ )$$

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ was determined as the relation of the constant of the gravitational field of the mass of 1.0 cm of the body $A_{1.0cm}^{M}$ to the mass of the 1.0 cm of the body $M_{1.0cm}$ by the formula ( )

$$A_{1.0}^{M}=\frac{A_{1.0cm}^{M}}{M_{1.0cm}}=\frac{8.988\times10^{20}}{8.615\times10^{24}}=1.0433\times10^{-4}\,cm^{3}/gs^{2}. \qquad (\ )$$

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ was determined as the relation of the constant of the gravitational field of the mass of the Sun A_{sun}^{M} to the mass of the Sun M_{sun} by the formula ( )

$$A_{1.0}^{M}=\frac{A_{sun}^{M}}{M_{sun}}=\frac{1.328\times10^{26}}{1.273\ \times10^{30}}=1.04321\times10^{-4}\,cm^{3}/gs^{2}. \qquad (\ )$$

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ was determined as the relation of the constant of the gravitational field of the mass of the Earth A_{ear}^{M} to the mass of the Earth M_{ear} by the formula ( )

$$A_{1.0}^{M} = \frac{A_{ear}^{M}}{M_{ear}} = \frac{4.023 \times 10^{20}}{3.856 \times 10^{24}} = 1.04331 \times 10^{-4}\, cm^3/gs^2. \qquad (\ )$$

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ was determined as the relation of the constant of the gravitational field of the mass of the Moon A_{moo}^{M} to the mass of the Moon M_{moo} by the formula ( )

$$A_{1.0}^{M} = \frac{A_{moo}^{M}}{M_{moo}} = \frac{7.807 \times 10^{18}}{7.483 \times 10^{22}} = 1.043298 \times 10^{-4}\, cm^3/gs^2. \qquad (\ )$$

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ was determined as the relation of the constant of the gravitational field of the mass of (3671) Dionysus A_{dio}^{M} to the mass of (3671) Dionysus M_{dio} by the formula ( )

$$A_{1.0}^{M} = \frac{A_{dio}^{M}}{M_{dio}} = \frac{1.555 \times 10^{8}}{1.491 \times 10^{12}} = 1.04292 \times 10^{-4}\, cm^3/gs^2. \qquad (\ )$$

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ was determined as the relation of the constant of the gravitational field of the mass of 67P/Churyumov–Gerasimenko A_{67P}^{M} to the mass of 67P/Churyumov–Gerasimenko M_{67P} by the formula ( )

$$A_{1.0}^{M} = \frac{A_{67P}^{M}}{M_{67P}} = \frac{1.083 \times 10^{9}}{1.038 \times 10^{13}} = 1.04335 \times 10^{-4}\, cm^3/gs^2. \qquad (\ )$$

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ was determined as the relation of the constant of the gravitational field of the mass of Sagittarius A A_{sgra}^{M} to the mass of Sagittarius A M_{sgra} by the formula ( )

$$A_{1.0}^{M} = \frac{A_{sgra}^{M}}{M_{sgra}} = \frac{9.469 \times 10^{29}}{9.077 \times 10^{33}} = 1.043186 \times 10^{-4}\, cm^3/gs^2. \qquad (\ )$$

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ was determined as the relation of the constant of the gravitational field of the mass of the Milky Way galaxy centre A_{mwgc}^{M} to the mass of the Milky Way galaxy centre M_{mwgc} by the formula ( )

$$A_{1.0}^{M} = \frac{A_{mwgc}^{M}}{M_{mwgc}} = \frac{1.361 \times 10^{33}}{1.305 \times 10^{37}} = 1.0429 \times 10^{-4}\, cm^3/gs^2. \qquad ( )$$

In the same way it is possible to determined the constant of the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, whey have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT by the formula ( ).

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ) and $A_{1.0}^{M} = 2 \times G \times g_{1.0}^{M}$ ( ) GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) was written in the following way

$$A_1^M = M_1 \times A_{1.0}^{M}, \qquad ( )$$

where A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

M_1 – is the mass of the first body, g;

$A_{1.0}^{M}$– is the constant of the gravitational field of the mass of 1.0 g of the body, cm^3/gs^2.

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0g}^{M}$ was determined as the product of the mass of 1.0 g of the body $M_{1.0g}$ by the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ by the formula ( )

$$A_{1.0g}^{M} = M_{1.0g} \times A_{1.0}^{M} = 1.0 \times 1.04324 \times 10^{-4} = 1.04324 \times 10^{-4}\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of 1.0 cm^3/s^2 of the body $A_{1.0cm^3/s^2}^{M}$ was determined as the product of the mass of 1.0 cm^3/s^2 of the body $M_{1.0\,cm^3/s^2}$ by the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ by the formula ( )

$$A_{1.0cm^3/s^2}^{M} = M_{1.0cm^3/s^2} \times A_{1.0}^{M} = 9585.522 \times 1.04324 \times 10^{-4} = 1.0\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of 1.0 cm/s^2 of the body $A_{1.0cm/s^2}^{M}$ was determined as the product of the mass of 1.0 cm/s^2 of the body $M_{1.0cm/s^2}$

by the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ by the formula ( )

$$A_{1.0cm/s^2}^{M} = M_{1.0cm/s^2} \times A_{1.0}^{M} = 3.8994 \times 10^{21} \times 1.04324 \times 10^{-4}$$
$$= 4.068 \times 10^{17}\ cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of 1.0 cm of the body $A_{1.0cm}^{M}$ was determined as the product of the mass of 1.0 cm of the body $M_{1.0cm}$ by the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ by the formula ( )

$$A_{1.0cm}^{M} = M_{1.0cm} \times A_{1.0}^{M} = 8.615 \times 10^{24} \times 1.04324 \times 10^{-4}$$
$$= 8.988 \times 10^{20}\ cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of the Sun A_{sun}^{M} was determined as the product of the mass of the Sun M_{sun} by the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ by the formula ( )

$$A_{sun}^{M} = M_{sun} \times A_{1.0}^{M} = 1.273 \times 10^{30} \times 1.04324 \times 10^{-4}$$
$$= 1.328\ \times 10^{26}\ cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of the Earth A_{ear}^{M} was determined as the product of the mass of the mass of the Earth M_{ear} by the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ by the formula ( )

$$A_{ear}^{M} = M_{ear} \times A_{1.0}^{M} = 3.856 \times 10^{24} \times 1.04324 \times 10^{-4}$$
$$= 4.023$$
$$\times 10^{20}\ cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of the Moon A_{moo}^{M} was determined as the product of the mass of the Moon M_{moo} by the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ by the formula ( )

$$A_{moo}^{M} = M_{moo} \times A_{1.0}^{M} = 7.483 \times 10^{22} \times 1.04324 \times 10^{-4}$$
$$=\ 7.807 \times 10^{18}\ cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of (3671) Dionysus A_{dio}^{M} was determined as the product of the mass of (3671) Dionysus M_{dio} by the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ by the formula ( )

$$A_{dio}^{M} = M_{dio} \times A_{1.0}^{M} = 1.491 \times 10^{12} \times 1.04324 \times 10^{-4}$$
$$= 1.555 \times 10^{8}\, cm^{3}/s^{2}. \qquad ( )$$

The constant of the gravitational field of the mass of 67P/Churyumov–Gerasimenko A_{67P}^{M} was determined as the product of the mass of 67P/Churyumov–Gerasimenko M_{67P} by the constant of the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ by the formula ( )

$$A_{67P}^{M} = M_{67P} \times A_{1.0}^{M} = 1.038 \times 10^{13} \times 1.04324 \times 10^{-4}$$
$$= 1.083 \times 10^{9}\, cm^{3}/s^{2}. \qquad ( )$$

The constant of the gravitational field of the mass of Sagittarius A A_{sgra}^{M} was determined as the product of the mass of Sagittarius A M_{sgra} by the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ by the formula ( )

$$A_{sgra}^{M} = M_{sgra} \times A_{1.0}^{M} = 9.077 \times 10^{33} \times 1.04324 \times 10^{-4}$$
$$= 9.469 \times 10^{29}\, cm^{3}/s^{2}. \qquad ( )$$

The constant of the gravitational field of the mass of the Milky Way galaxy centre A_{mwgc}^{M} was determined as the product of the mass of the Milky Way galaxy centre M_{mwgc} by the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ by the formula ( )

$$A_{mwgc}^{M} = M_{mwgc} \times A_{1.0}^{M} = 1.361 \times 10^{37} \times 1.04324 \times 10^{-4}$$
$$= 1.420 \times 10^{33}\, cm^{3}/s^{2}. \qquad ( )$$

In the same way it is possible to determined the constant of the constant of the gravitational field of the mass of the first body A_{1}^{M} with the help of the parameters of the first body and the second body when the second body doesn’t rotate around the first body, whey have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT by the formula ( ).

Dividing the left and right of the GF $R_{1-2} \times V_{2}^{2} = 2 \times G \times M_{1} \times g_{1.0}^{M}$ ( ) by M_{1} there was receive

$$\frac{R_{1-2} \times V_{2}^{2}}{A_{1}^{M}} = \frac{2 \times G \times M_{1} \times g_{1.0}^{M}}{A_{1}^{M}}. \qquad ( )$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ), $M_{1.0}^A = \frac{M_1}{A_1^M}$ ( ) and $A_{1.0}^M = 2 \times G \times g_{1.0}^M$ ( ) GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) was written in the following way

$$A_{1.0}^M = \frac{1}{M_{1.0}^A}, \qquad ( )$$

where A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

M_1– is the mass of the first body, g;

$M_{1.0}^A$– is the constant of the mass of the gravitational field of the mass of 1.0 cm^3/s^2 of the body, gs^2/cm^3.

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^M$ was determined as the value reverse to the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M_{1.0}^A$ by the formula ( )

$$A_{1.0}^M = \frac{1}{M_{1.0}^A} = \frac{1}{9585.522} = 1.04324 \times 10^{-4}\, gs^2/cm^3. \qquad ( )$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ), $A_{1.0}^M = 2 \times G \times g_{1.0}^M$ ( ) and $M_{1.0}^A = \frac{1}{A_{1.0}^M}$ ( ) GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) was written in the following way

$$A_1^M = \frac{M_1}{M_{1.0}^A}, \qquad ( )$$

where A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

M_1 – is the mass of the first body, g;

$M_{1.0}^A$– is the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body, gs^2/cm^3.

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0g}^M$ was determined as the relation of the mass of 1.0 g of the body $M_{1.0g}$ to the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M_{1.0}^A$ by the formula ( )

$$A_{1.0g}^M = \frac{M_{1.0g}}{M_{1.0}^A} = \frac{1.0}{9585.522} = 1.04324 \times 10^{-4}\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of $1.0\, cm^3/s^2$ of the body $A^M_{1.0cm^3/s^2}$ was determined as the relation of the mass of $1.0\, cm^3/s^2$ of the body $M_{1.0cm^3/s^2}$ to the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M^A_{1.0}$ by the formula ( )

$$A^M_{1.0cm^3/s^2} = \frac{M_{1.0cm^3/s^2}}{M^A_{1.0}} = \frac{9585.522}{9585.522} = 1.0\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of $1.0\, cm/s^2$ of the body $A^M_{1.0\, cm/s^2}$ was determined as the relation of the mass of $1.0\, cm/s^2$ of the body $M_{1.0\, cm/s^2}$ to the constant of the mass of the gravitational field of $1.0\, cm^3/s^2$ of the body $M^A_{1.0}$ by the formula ( )

$$A^M_{1.0cm/s^2} = \frac{M_{1.0cm/s^2}}{M^A_{1.0}} = \frac{3.8994 \times 10^{21}}{9585.522} = 4.068 \times 10^{17}\, cm^3/s^2\, . ( )$$

The constant of the gravitational field of the mass of $1.0\, cm$ of the body $A^M_{1.0cm}$ was determined as the relation of the mass of $1.0\, cm$ of the body $M_{1.0cm}$ to the constant of the mass of the gravitational field of $1.0\, cm^3/s^2$ of the body $M^A_{1.0}$ by the formula ( )

$$A^M_{1.0cm} = \frac{M_{1.0cm}}{M^A_{1.0}} = \frac{8.615 \times 10^{24}}{9585.522} = 8.988 \times 10^{20}\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of the Sun A^M_{sun} was determined as the relation the mass of the Sun M_{sun} to the constant of the mass of the gravitational field of $1.0\, cm^3/s^2$ of the body $M^A_{1.0}$ by the formula ( )

$$A^M_{sun} = \frac{M_{sun}}{M^A_{1.0}} = \frac{1.273 \times 10^{30}}{9585.522} = 1.328 \times 10^{26}\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of the Earth A^M_{ear} was determined as the relation of the mass of the Earth M_{ear} to the constant of the mass of the gravitational field of $1.0\, cm^3/s^2$ of the body $M^A_{1.0}$ by the formula ( )

$$A^M_{ear} = \frac{M_{ear}}{M^A_{1.0}} = \frac{3.856 \times 10^{24}}{9585.522} = 4.023 \times 10^{20}\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of the Moon A_{moo}^{M} was determined as the relation of the mass of the Moon M_{moo} to the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M_{1.0}^{A}$ by the formula ( )

$$A_{moo}^{M} = \frac{M_{moo}}{M_{1.0}^{A}} = \frac{7.483 \times 10^{22}}{9585.522} = 7.807 \times 10^{18}\, cm^3/s^2. \qquad (\ )$$

The constant of the gravitational field of the mass of (3671) Dionysus A_{dio}^{M} was determined as the relation of the mass of (3671) Dionysus M_{dio} to the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M_{1.0}^{A}$ by the formula ( )

$$A_{dio}^{M} = \frac{M_{dio}}{M_{1.0}^{A}} = \frac{1.491 \times 10^{12}}{9585.522} = 1.555 \times 10^{8}\, cm^3/s^2. \qquad (\ )$$

The constant of the gravitational field of the mass of 67P/Churyumov–Gerasimenko A_{67P}^{M} was determined as the relation of the mass of 67P/Churyumov–Gerasimenko M_{67P} to the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M_{1.0}^{A}$ by the formula ( )

$$A_{67P}^{M} = \frac{M_{67P}}{M_{1.0}^{A}} = \frac{1.038 \times 10^{13}}{9585.522} = 1.083 \times 10^{9}\, cm^3/s^2. \qquad (\ )$$

The constant of the gravitational field of the mass of Sagittarius A A_{sgra}^{M} was determined as the relation the mass of Sagittarius A M_{sgra} to the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M_{1.0}^{A}$ by the formula ( )

$$A_{sgra}^{M} = \frac{M_{sgra}}{M_{1.0}^{A}} = \frac{9.077 \times 10^{33}}{9585.522} = 9.469 \times 10^{29}\, cm^3/s^2. \qquad (\ )$$

The constant of the gravitational field of the mass of the Milky Way galaxy centre A_{mwgc}^{M} was determined as the relation of the mass of the Milky Way galaxy centre M_{mwgc} to the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M_{1.0}^{A}$ by the formula ( )

$$A_{mwgc}^{M} = \frac{M_{mwgc}}{M_{1.0}^{A}} = \frac{1.305 \times 10^{37}}{9585.522} = 1.361 \times 10^{33}\, cm^3/s^2. \qquad (\ )$$

In the same way it is possible to determine the constant of the constant of the gravitational field of the mass of the first body A_{1}^{M} with the help of the parameters of the first body and the second body when the second body doesn’t rotate around the first body, whey have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT by the formula ( ).

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) having been solved with respect to G there was obtained

$$G = \frac{R_{1-2} \times V_2^2}{2 \times M_1 \times g_{1.0}^M}. \qquad ( )$$

Taking into account that?? $A_{1.0}^M = \frac{R_{1-2} \times V_2^2}{M_1}$ ( ), $G = \frac{A_{1.0}^M}{2 \times g_{1.0}^M}$ ( ), $A_{1.0}^M = \frac{1}{M_{1.0}^A}$ ( ), $G = \frac{1}{2 \times M_{1.0}^A \times g_{1.0}^M}$ ( ), $g_{1.0}^A = M_{1.0}^A \times g_{1.0}^M$ ( ), $g_{1.0}^M = \frac{g_{1.0}^A}{M_{1.0}^A}$ ( ), $M_{1.0}^A = \frac{1}{M_{1.0}^A}$ ( ) and $g_{1.0}^M = A_{1.0}^M \times g_{1.0}^A$ ( ) formula ( ) was written in following way

$$A_{1.0}^M = \frac{g_{1.0}^M}{g_{1.0}^A}, \qquad ( )$$

where $A_{1.0}^M$– is the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body, cm^3/gs^2;

$g_{1.0}^M$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2;

$g_{1.0}^A$– is the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body, $1/cm^2$.

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^M$ was determined as the relation of the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^M$ to the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^A$ by the formula ( )

$$A_{1.0}^M = \frac{g_{1.0}^M}{g_{1.0}^A} = \frac{2.5645 \times 10^{-22}}{2.4582 \times 10^{-18}} = 1.04324 \times 10^{-4}\, cm^3/gs^2. \qquad ( )$$

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) having been solved with respect to G there was obtained

$$G = \frac{R_{1-2} \times V_2^2}{2 \times M_1 \times g_{1.0}^M}. \qquad ( )$$

Taking into account that $A_{1.0}^{M}=\frac{R_{1-2}\times V_2^2}{M_1}$ ( ), $G=\frac{A_{1.0}^{M}}{2\times g_{1.0}^{M}}$ ( ), $A_{1.0}^{M}=\frac{1}{M_{1.0}^{A}}$ ( ), $G=\frac{1}{2\times M_{1.0}^{A}\times g_{1.0}^{M}}$ ( ), $g_{1.0}^{A}=M_{1.0}^{A}\times g_{1.0}^{M}$ ( ), $M_{1.0}^{A}=\frac{M_1}{A_1^M}$ ( ), $g_{1.0}^{M}=\frac{g_1}{M_1}$ ( ) and $g_{1.0}^{A}=\frac{g_1}{A_1^M}$ ( ) formula ( ) was written in following way

$$A_1^M=\frac{g_1}{g_{1.0}^{A}}, \quad ( )$$

where A_1^M- is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

g_1- is the gravitational acceleration of the first body, cm/s^2;

$g_{1.0}^{A}-$ is the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body, $1/cm^2$.

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0g}^{M}$ was determined as the relation of the gravitational acceleration of 1.0 g of the body $g_{1.0g}$ to the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^{A}$ by the formula ( )

$$A_{1.0g}^{M}=\frac{g_{1.0g}}{g_{1.0}^{A}}=\frac{2.5645\times10^{-22}}{2.4582\times10^{-18}}=1.04324\times10^{-4}\ cm^3/s^2. \quad ( )$$

The constant of the gravitational field of the mass of 1.0 cm^3/s^2 of the body $A_{1.0cm^3/s^2}^{M}$ was determined as the relation of the gravitational acceleration of 1.0 cm^3/s^2 of the body $g_{1.0cm^3/s^2}$ to the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^{A}$ by the formula ( )

$$A_{1.0cm^3/s^2}^{M}=\frac{g_{1.0cm^3/s^2}}{g_{1.0}^{A}}=\frac{2.4582\times10^{-18}}{2.4582\times10^{-18}}=1.0\ cm^3/s^2. \quad ( )$$

The constant of the gravitational field of the mass of 1.0 cm/s^2 of the body $A_{1.0cm/s^2}^{M}$ was determined as the relation of the gravitational acceleration of 1.0 cm/s^2 of the body $g_{1.0cm/s^2}$ to the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^{A}$ by the formula ( )

$$A_{1.0cm/s^2}^{M}=\frac{g_{1.0cm/s^2}}{g_{1.0}^{A}}=\frac{1.0}{2.4582\times10^{-18}}=4.068\times10^{17}\ cm^3/s^2. \quad ( )$$

The constant of the gravitational field of the mass of 1.0 cm of the body $A^M_{1.0cm}$ was determined as the relation of the gravitational acceleration of 1.0 cm of the body $g_{1.0cm}$ to the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g^A_{1.0}$ by the formula ( )

$$A^M_{1.0cm} = \frac{g_{1.0cm}}{g^A_{1.0}} = \frac{2209.43656}{2.4582 \times 10^{-18}} = 8.988 \times 10^{20}\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of the Sun A^M_{sun} was determined as the relation of the gravitational acceleration of the Sun g_{sun} to the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g^A_{1.0}$ by the formula ( )

$$A^M_{sun} = \frac{g_{sun}}{g^A_{1.0}} = \frac{3.265 \times 10^{8}}{2.4582 \times 10^{-18}} = 1.328 \times 10^{26}\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of the Earth A^M_{ear} was determined as the relation of the gravitational acceleration of the Earth g_{ear} to the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g^A_{1.0}$ by the formula ( )

$$A^M_{ear} = \frac{g_{ear}}{g^A_{1.0}} = \frac{980.665}{2.4582 \times 10^{-18}} = 4.023 \times 10^{20}\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of the Moon A^M_{moo} was determined as the relation of the gravitational acceleration of the Moon g_{moo} to the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g^A_{1.0}$ by the formula ( )

$$A^M_{moo} = \frac{g_{moo}}{g^A_{1.0}} = \frac{19.190}{2.4582 \times 10^{-18}} = 7.807 \times 10^{18}\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of (3671) Dionysus A^M_{dio} was determined as the relation of the gravitational acceleration of (3671) Dionysus g_{dio} to the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g^A_{1.0}$ by the formula ( )

$$A^M_{dio} = \frac{g_{dio}}{g^A_{1.0}} = \frac{4.547 \times 10^{-10}}{2.4582 \times 10^{-18}} = 1.850 \times 10^{8}\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of 67P/Churyumov–Gerasimenko A_{67P}^{M} was determined as the relation of the gravitational acceleration of 67P/Churyumov–Gerasimenko g_{67P} to the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^{A}$ by the formula ( )

$$A_{67P}^{M} = \frac{g_{67P}}{g_{1.0}^{A}} = \frac{2.662 \times 10^{-9}}{2.4582 \times 10^{-18}} = 1.083 \times 10^{9}\, cm^3/s^2. \qquad (\ )$$

The constant of the gravitational field of the mass of Sagittarius A A_{sgra}^{M} was determined as the relation of the gravitational acceleration of Sagittarius A g_{sgra} to the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^{A}$ by the formula ( )

$$A_{sgra}^{M} = \frac{g_{sgra}}{g_{1.0}^{A}} = \frac{2.328 \times 10^{12}}{2.4582 \times 10^{-18}} = 9.470 \times 10^{29}\, cm^3/s^2. \qquad (\ )$$

The constant of the gravitational field of the mass of the Milky Way galaxy centre A_{mwgc}^{M} was determined as the relation of the gravitational acceleration of the Milky Way galaxy centre g_{mwgc} to the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^{A}$ by the formula ( )

$$A_{mwgc}^{M} = \frac{g_{mwgc}}{g_{1.0}^{A}} = \frac{3.347 \times 10^{15}}{2.4582 \times 10^{-18}} = 1.361 \times 10^{33}\, cm^3/s^2. \qquad (\ )$$

In the same way it is possible to determine the constant of the constant of the gravitational field of the mass of the first body A_{1}^{M} with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, whey have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT by the formula ( ).

Dividing the left and right of the GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) by M_1 there was receive

$$\frac{R_{1-2} \times V_2^2}{M_1} = 2 \times G \times g_{1.0}^{M}. \qquad (\ )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $R_{1.0}^{M} = \frac{R_1^c}{M_1}$ ( ) and $A_{1.0}^{M} = 2 \times G \times g_{1.0}^{M}$ ( ) formula ( ) was written in following way

$$A_{1.0}^{M} = R_{1.0}^{M} \times c^2, \quad ( )$$

where $A_{1.0}^{M}$– is the constant of the gravitational field of the mass of 1.0 g of the body, cm^3/gs^2;

$R_{1.0}^{M}$– is the constant of the gravitational radius of the mass of 1.0 g of the body, cm/g;

c– is the speed of light in vacuum, cm/s.

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ was determined as the product of the constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ by the squared speed of light in vacuum c by the formula ( )

$$A_{1.0}^{M} = R_{1.0}^{M} \times c^2 = 1.160761 \times 10^{-25} \times (2.998 \times 10^{10})^2$$
$$= 1.04324 \times 10^{-4}\ cm^3/gs^2. \quad ( )$$

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) having been solved with respect to R_{1-2} there was obtained

$$R_{1-2} = \frac{2 \times G \times M_1 \times g_{1.0}^{M}}{V_2^2}. \quad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $A_1^M = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) and $R_{1-2} = \frac{A_1^M}{V_2^2}$ ( ) formula ( ) was written in following way

$$A_1^M = R_1^c \times c^2, \quad ( )$$

where A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

R_1^c– is the gravitational radius of first body, cm;

c– is the speed of light in vacuum, cm/s.

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0g}^{M}$ was determined as the product of the gravitational radius 1.0 g of the body $R_{1.0g}^{c}$ by the squared speed of light in vacuum c by the formula ( )

$$A_{1.0g}^{M} = R_{1.0g}^{c} \times c^2 = 1.16070316 \times 10^{-25} \times (2.988 \times 10^{10})^2$$
$$= 1.04324 \times 10^{-4}\ cm^3/s^2. \quad ( )$$

The constant of the gravitational field of the mass of $1.0\,cm^3/s^2$ of the body $A^{M}_{1.0cm^3/s^2}$ was determined as the product of the gravitational radius $1.0\,cm^3/s^2$ of the body $R^{c}_{1.0cm^3/s^2}$ by the squared speed of light in vacuum c by the formula ( )

$$A^{M}_{1.0cm^3/s^2} = R^{c}_{1.0cm^3/s^2} \times c^2 = 1.11259 \times 10^{-21} \times (2.988 \times 10^{10})^2$$
$$= 1.0\,cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of $1.0\,cm/s^2$ of the body $A^{M}_{1.0cm/s^2}$ was determined as the product of the gravitational radius $1.0\,cm/s^2$ of the body $R^{c}_{1.0cm/s^2}$ by the squared speed of light in vacuum c by the formula ( )

$$A^{M}_{1.0cm/s^2} = R^{c}_{1.0cm/s^2} \times c^2 = 4.55645 \times 10^{-4} \times (2.988 \times 10^{10})^2$$
$$= 4.068 \times 10^{17}\,cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of $1.0\,cm$ of the body $A^{M}_{1.0cm}$ was determined as the product of the gravitational radius $1.0\,cm$ of the body $R^{c}_{1.0cm}$ by the squared speed of light in vacuum c by the formula ( )

$$A^{M}_{1.0cm} = R^{c}_{1.0cm} \times c^2 = 1.0 \times (2.988 \times 10^{10})^2$$
$$= 8.988 \times 10^{20}\,cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of the Sun A^{M}_{sun} was determined as the product of the gravitational radius the Sun R^{c}_{sun} by the squared speed of light in vacuum c by the formula ( )

$$A^{M}_{sun} = R^{c}_{sun} \times c^2 = 147975.07788 \times (2.988 \times 10^{10})^2$$
$$= 1.330? \times 10^{26}\,cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of the Earth A^{M}_{ear} was determined as the product of the gravitational radius of the Earth R^{c}_{ear} by the squared speed of light in vacuum c by the formula ( )

$$A^{M}_{ear} = R^{c}_{ear} \times c^2 = 0.4475968 \times (2.988 \times 10^{10})^2$$
$$= 4.023 \times 10^{20}\,cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of the Moon A^{M}_{moo} was determined as the product of the gravitational radius of the Moon R^{c}_{moo} by the squared speed of light in vacuum c by the formula ( )

$$A_{moo}^{M} = R_{moo}^{c} \times c^2 = 0.0086860258 \times (2.988 \times 10^{10})^2$$
$$= 7.807 \times 10^{18}\ cm^3/s^2. \quad ( )$$

The constant of the gravitational field of the mass of (3671) Dionysus A_{dio}^{M} was determined as the product of the gravitational radius of (3671) Dionysus R_{dio}^{c} by the squared speed of light in vacuum c by the formula ( )

$$A_{dio}^{M} = R_{dio}^{c} \times c^2 = 1.7301 \times 10^{-13} \times (2.988 \times 10^{10})^2$$
$$= 1.555 \times 10^{8}\ cm^3/s^2. \quad ( )$$

The constant of the gravitational field of the mass of 67P/Churyumov–Gerasimenko A_{67P}^{M} was determined as the product of the gravitational radius of 67P/Churyumov–Gerasimenko R_{67P}^{c} by the squared speed of light in vacuum c by the formula ( )

$$A_{67P}^{M} = R_{67P}^{c} \times c^2 = 1.213 \times 10^{-12} \times (2.988 \times 10^{10})^2$$
$$= 1.083 \times 10^{9}\ cm^3/s^2. \quad ( )$$

The constant of the gravitational field of the mass of Sagittarius A A_{sgra}^{M} was determined as the product of the gravitational radius of Sagittarius A R_{sgra}^{c} by the squared speed of light in vacuum c by the formula ( )

$$A_{sgra}^{M} = R_{sgra}^{c} \times c^2 = 1060707885.304 \times (2.988 \times 10^{10})^2$$
$$= 9.470 \times 10^{29}\ cm^3/s^2. \quad ( )$$

The constant of the gravitational field of the mass of the Milky Way galaxy centre A_{mwgc}^{M} was determined as the product of the gravitational radius of the Milky Way galaxy centre R_{mwgc}^{c} by the squared speed of light in vacuum c by the formula ( )

$$A_{mwgc}^{M} = R_{mwgc}^{c} \times c^2 = 1.51424 \times 10^{12} \times (2.988 \times 10^{10})^2$$
$$= 1.361 \times 10^{33}\ cm^3/s^2. \quad ( )$$

In the same way it is possible to determine the constant of the constant of the gravitational field of the mass of the first body A_1^M with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, which have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT by the formula ( ).

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) having been solved with respect to V_2^2 there was obtained

$$V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}. \qquad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $A_{1.0}^M = 2 \times G \times g_{1.0}^M$ ( ), $A_1^M = M_1 \times A_{1.0}^M$ ( ), $M_{1.0}^R = \frac{M_1}{R_1^c}$ ( ), $A_1^M = M_1 \times A_{1.0}^M$ ( ) and $c^2 = A_{1.0}^M \times M_{1.0}^R$ ( ) formula ( ) was written in following way

$$A_{1.0}^M = \frac{c^2}{M_{1.0}^R}, \qquad ( )$$

where $A_{1.0}^M$– is the constant of the gravitational field of the mass of 1.0 g of the body, cm^3/gs^2;

c – is the speed of light in vacuum, cm/s;

$M_{1.0}^R$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm.

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^M$ was determined as the relation of the squared speed of light in vacuum c the constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^R$ by the formula ( )

$$A_{1.0}^M = \frac{c^2}{M_{1.0}^R} = \frac{(2.998 \times 10^{10})^2}{8.615467 \times 10^{24}} = 1.04324 \times 10^{-4}\, {cm^3}/{gs^2}. \qquad ( )$$

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) having been solved with respect to V_2^2 there was obtained

$$V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}. \qquad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $A_1^M = R_{1-2} \times V_2^2$ ( ), $A_{1.0}^M = 2 \times G \times g_{1.0}^M$ ( ), $M_1 = \frac{A_1^M}{A_{1.0}^M}$ ( ), $E_1 = M_1 \times c^2$ ( ), $M_1 = R_1^c \times M_{1.0}^R$ ( ), $c^2 = \frac{A_1^M}{R_1^c}$ ( ) and $E_1 = A_1^M \times M_{1.0}^R$ ( ) formula ( ) was written in following way

$$A_1^M = \frac{E_1}{M_{1.0}^R}, \qquad ( )$$

where A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

E_1– is the energy of the first body, cm^2/s^2;

$M_{1.0}^R$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm.

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0g}^M$ was determined as the relation of the energy of 1.0 g of the body $E_{1.0g}$ to the constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^R$ by the formula ( )

$$A_{1.0g}^M = \frac{E_{1.0g}}{M_{1.0}^R} = \frac{8.988 \times 10^{20}}{8.615467 \times 10^{24}} = 1.04324 \times 10^{-4}\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of $1.0\, cm^3/s^2$ of the body $A_{1.0cm^3/s^2}^M$ was determined as the relation of the energy of $1.0\, cm^3/s^2$ of the body $E_{1.0cm^3/s^2}$ to the constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^R$ by the formula ( )

$$A_{1.0cm^3/s^2}^M = \frac{E_{1.0cm^3/s^2}}{M_{1.0}^R} = \frac{8.615 \times 10^{24}}{8.615467 \times 10^{24}} = 1.0\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of $1.0\, cm/s^2$ of the body $A_{1.0cm/s^2}^M$ was determined as the relation of the energy of $1.0\, cm/s^2$ of the body $E_{1.0cm/s^2}$ to the constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^R$ by the formula ( )

$$A_{1.0cm/s^2}^M = \frac{E_{1.0cm/s^2}}{M_{1.0}^R} = \frac{3.505 \times 10^{42}}{8.615467 \times 10^{24}} = 4.068 \times 10^{17}\, cm^3/s^2. ( )$$

The constant of the gravitational field of the mass of 1.0 cm of the body $A_{1.0cm}^M$ was determined as the relation of the energy of 1.0 cm of the body $E_{1.0cm}$ to the constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^R$ by the formula ( )

$$A_{1.0cm}^M = \frac{E_{1.0cm}}{M_{1.0}^R} = \frac{7.743 \times 10^{45}}{8.615467 \times 10^{24}} = 8.988 \times 10^{20}\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of the Sun A^M_{sun} was determined as the relation of the energy of the Sun E_{sun} to the constant of the mass of the gravitational radius of 1.0 cm of the body $M^R_{1.0}$ by the formula ( )

$$A^M_{sun} = \frac{E_{sun}}{M^R_{1.0}} = \frac{1.143 \times 10^{51}}{8.615467 \times 10^{24}} = 1.328 \times 10^{26}\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of the Earth A^M_{ear} was determined as the relation of the energy of the Earth E_{ear} to the constant of the mass of the gravitational radius of 1.0 cm of the body $M^R_{1.0}$ by the formula ( )

$$A^M_{ear} = \frac{E_{ear}}{M^R_{1.0}} = \frac{3.466 \times 10^{45}}{8.615467 \times 10^{24}} = 4.023 \times 10^{20}\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of the Moon A^M_{moo} was determined as the relation of the energy of the Moon E_{moo} to the constant of the mass of the gravitational radius of 1.0 cm of the body $M^R_{1.0}$ by the formula ( )

$$A^M_{moo} = \frac{E_{moo}}{M^R_{1.0}} = \frac{6.7257 \times 10^{43}}{8.615467 \times 10^{24}} = 7.807 \times 10^{18}\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of (3671) Dionysus A^M_{dio} was determined as the relation of the energy of (3671) Dionysus E_{dio} to the constant of the mass of the gravitational radius of 1.0 cm of the body $M^R_{1.0}$ by the formula ( )

$$A^M_{dio} = \frac{E_{dio}}{M^R_{1.0}} = \frac{1.555 \times 10^{33}}{8.615467 \times 10^{24}} = 1.555 \times 10^{8}\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of 67P/Churyumov–Gerasimenko A^M_{67P} was determined as the relation of the energy of 67P/Churyumov–Gerasimenko E_{67P} to the constant of the mass of the gravitational radius of 1.0 cm of the body $M^R_{1.0}$ by the formula ( )

$$A^M_{67P} = \frac{E_{67P}}{M^R_{1.0}} = \frac{9.3295 \times 10^{33}}{8.615467 \times 10^{24}} = 1.083 \times 10^{9}\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of Sagittarius A A^M_{sgra} was determined as the relation of the energy of Sagittarius A E_{sgra} to the constant of the mass of the gravitational radius of 1.0 cm of the body $M^R_{1.0}$ by the formula ( )

$$A^M_{sgra} = \frac{E_{sgra}}{M^R_{1.0}} = \frac{8.158 \times 10^{54}}{8.615467 \times 10^{24}} = 9.470 \times 10^{29}\, cm^3/s^2. \qquad ( )$$

The constant of the gravitational field of the mass of the Milky Way galaxy centre V^M_{mwgc} was determined as the relation of the energy of the Milky Way galaxy centre E_{mwgc} to the constant of the mass of the gravitational radius of 1.0 cm of the body $M^R_{1.0}$ by the formula ( )

$$A^M_{mwgc} = \frac{E_{mwgc}}{M^R_{1.0}} = \frac{1.1729 \times 10^{58}}{8.615467 \times 10^{24}} = 1.361 \times 10^{33}\, cm^3/s^2. \qquad ( )$$

Multiplying both sides of GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g^M_{1.0}$ ( ) by c^2 there was received

$$R_{1-2} \times V_2^2 \times c^2 = 2 \times G \times M_1 \times g^M_{1.0} \times c^2. \qquad ( )$$

Taking into account that $R_{1-2} = R^c_1$, $V_2 = c$, $A^M_1 = R_{1-2} \times V_2^2$ ( ), $A^M_{1.0} = 2 \times G \times g^M_{1.0}$ ( ), $M_1 = \frac{A^M_1}{A^M_{1.0}}$ ( ), $E_1 = M_1 \times c^2$ ( ), $M_1 = \frac{R^c_1}{R^M_{1.0}}$ ( ), $c^2 = \frac{A^M_1}{R^c_1}$ ( ) and $E_1 = \frac{A^M_1}{R^M_{1.0}}$ ( ) formula ( ) was written in following way

$$A^M_1 = E_1 \times R^M_{1.0}, \qquad (20)$$

where A^M_1– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

E_1– is the energy of the first body, cm^2/s^2;

$R^M_{1.0}$– is the constant of the gravitational radius of the mass of 1.0 g of the body, cm/g.

The constant of the gravitational field of the mass of 1.0 g of the body $A^M_{1.0g}$ was determined as the product of the energy of 1.0 g of the body $E_{1.0g}$ and constant of the gravitational radius of the mass of 1.0 g of the body $R^M_{1.0}$ by the formula ( )

$$A^M_{1.0g} = E_{1.0g} \times R^M_{1.0} = 8.988 \times 10^{20} \times 1.160761 \times 10^{-25}$$
$$= 1.04324 \times 10^{-4}\, cm^3/gs^2. \qquad ( )$$

The constant of the gravitational field of the mass of 1.0 cm^3/s^2 of the body $A^M_{1.0cm^3/s^2}$ was determined as the product of the energy of 1.0 cm^3/s^2 of the body

$E_{1.0cm^3/s^2}$ and the constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^M$ by the formula ( )

$$A_{1.0cm^3/s^2}^M = E_{1.0cm^3/s^2} \times R_{1.0}^M = 8.615 \times 10^{24} \times 1.160761 \times 10^{-25}$$
$$= 1.0\, cm^3/gs^2. \quad ( )$$

The constant of the gravitational field of the mass of $1.0\, cm/s^2$ of the body $A_{1.0cm/s^2}^M$ was determined as the product of the energy of $1.0\, cm/s^2$ of the body $E_{1.0cm/s^2}$ and the constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^M$ by the formula ( )

$$A_{1.0cm/s^2}^M = E_{1.0cm/s^2} \times R_{1.0}^M = 3.505 \times 10^{42} \times 1.160761 \times 10^{-25}$$
$$= 4.068 \times 10^{17}\, cm^3/gs^2. \quad ( )$$

The constant of the gravitational field of the mass of 1.0 cm of the body $A_{1.0cm}^M$ was determined as the product of the energy of 1.0 cm of the body $E_{1.0cm}$ and the constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^M$ by the formula ()

$$A_{1.0cm}^M = E_{1.0cm} \times R_{1.0}^M = 7.743 \times 10^{45} \times 1.160761 \times 10^{-25}$$
$$= 8.988 \times 10^{20}\, cm^3/gs^2. \quad ( )$$

The constant of the gravitational field of the mass of the Sun A_{sun}^M was determined as the product of the energy of the Sun E_{sun} and the constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^M$ by the formula ( )

$$A_{sun}^M = E_{sun} \times R_{1.0}^M = 1.143 \times 10^{51} \times 1.160761 \times 10^{-25}$$
$$= 1.328 \times 10^{26}\ cm^3/gs^2. \quad ( )$$

The constant of the gravitational field of the mass of the Earth A_{ear}^M was determined as the product of the energy of the Earth E_{ear} and the constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^M$ by the formula ( )

$$A_{ear}^M = E_{ear} \times R_{1.0}^M = 3.466 \times 10^{45} \times 1.160761 \times 10^{-25}$$
$$= 4.023 \times 10^{20}\, cm^3/gs^2. \quad ( )$$

The constant of the gravitational field of the mass of the Moon A_{moo}^M was determined as the product of the energy of the Moon E_{moo} and the constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^M$ by the formula ( )

$A^{M}_{moo} = E_{moo} \times R^{M}_{1.0} = 6.7257 \times 10^{43} \times 1.160761 \times 10^{-25}$

$$= 7.807 \times 10^{18}\, cm^{3}/gs^{2}. \qquad (\,)$$

The constant of the gravitational field of the mass of (3671) Dionysus A^{M}_{dio} was determined as the product of the energy of (3671) Dionysus E_{dio} and the constant of the gravitational radius of the mass of 1.0 g of the body $R^{M}_{1.0}$ by the formula ()

$A^{M}_{dio} = E_{dio} \times R^{M}_{1.0} = 1.555 \times 10^{33} \times 1.160761 \times 10^{-25}$

$$= 1.555 \times 10^{8}\, cm^{3}/gs^{2}. \qquad (\,)$$

The constant of the gravitational field of the mass of 67P/Churyumov–Gerasimenko A^{M}_{67P} was determined as the product of the energy of 67P/Churyumov–Gerasimenko E_{67R} and the constant of the gravitational radius of the mass of 1.0 g of the body $R^{M}_{1.0}$ by the formula ( )

$A^{M}_{67R} = E_{67R} \times R^{M}_{1.0} = 9.3295 \times 10^{33} \times 1.160761 \times 10^{-25}$

$$= 1.083 \times 10^{9}\, cm^{3}/gs^{2}. \qquad (\,)$$

The constant of the gravitational field of the mass of Sagittarius A A^{M}_{sgra} was determined as the product of the energy of Sagittarius A E_{sgra} and the constant of the gravitational radius of the mass of 1.0 g of the body $R^{M}_{1.0}$ by the formula ( )

$A^{M}_{sgra} = E_{sgra} \times R^{M}_{1.0} = 8.158 \times 10^{54} \times 1.160761 \times 10^{-25}$

$$= 9.470 \times 10^{29}\ cm^{3}/gs^{2}. \qquad (\,)$$

The constant of the gravitational field of the mass of the Milky Way galaxy centre V^{M}_{mwgc} was determined as the product of the energy of the Milky Way galaxy centre E_{mwgc} and the constant of the gravitational radius of the mass of 1.0 g of the body $R^{M}_{1.0}$ by the formula ( )

$A^{M}_{mwgc} = E_{mwgc} \times R^{M}_{1.0} = 1.1729 \times 10^{58} \times 1.160761 \times 10^{-25}$

$$= 1.361 \times 10^{33}\, cm^{3}/gs^{2}. \qquad (\,)$$

Similarly, other FPC in TGT were determined in the process of solving the GF $V_2^2 = \frac{2 \times G \times M_1 \times g^{M}_{1.0}}{R_{1-2}}$ ( ).

The constant of the gravitational field of the mass of 1.0 g of the body $A^M_{1.0}$ and the constant of the gravitational field of the mass of the first body A^M_1 was determined in the process of solution . $\frac{G \times M_1 \times g_2}{R^2_{1-2}} = \frac{M_2 \times V^2_2}{2 \times R_{1-2}}$ ( ).

The equation ( ) having been solved with respect to G there was obtained

$$G = \frac{R_{1-2} \times V^2_2 \times M_2}{2 \times M_1 \times g_2}. \qquad ( )$$

Taking into account that $A^M_{1.0} = \frac{R_{1-2} \times V^2_2}{M_1}$ ( ), $M^g_{1.0} = \frac{M_2}{g_2}$ ( ) and $G = \frac{A^M_{1.0} \times M^g_{1.0}}{2}$ () the formula ( ) was written in the following way

$$A^M_{1.0} = \frac{2 \times G}{M^g_{1.0}}, \qquad ( )$$

where $A^M_{1.0}$– is the constant of the gravitational field of the mass of 1.0 g of the body, cm^3/gs^2;

G – is the gravitational constant, cm^2;

$M^g_{1.0}$– is the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body, gs^2/cm.

The constant of the gravitational field of the mass of 1.0 g of the body $A^M_{1.0}$ was determined as the relation of the doubled gravitational constant G to the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M^g_{1.0}$ by the formula ( )

$$A^M_{1.0} = \frac{2 \times G}{M^g_{1.0}} = \frac{2 \times 2.034 \times 10^{17}}{3.8994 \times 10^{21}} = 1.04324 \times 10^{-4}\, gs^2/cm^3. \qquad ( )$$

The equation ( ) having been solved with respect to $R_{1-2} \times V^2_2$ there was obtained

$$R_{1-2} \times V^2_2 = \frac{2 \times G \times M_1 \times g_2}{M_2}. \qquad ( )$$

Taking into account that $A^M_1 = R_{1-2} \times V^2_2$ ( ), $g^M_{1.0} = \frac{g_2}{M_2}$ ( ) and $A^M_{1.0} = 2 \times G \times g^M_{1.0}$ ( ) the formula ( ) was written in the following way

$$A^M_1 = M_1 \times A^M_{1.0}, \qquad ( )$$

where A^M_1– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

M_1– is the mass of the first body, g;

$A_{1.0}^{M}$– is the constant of the gravitational field of the mass of 1.0 g of a body, cm^3/gs^2.

The obtained formula turned out to be identical to the formula ( ), obtained while solving the solution ( ).

The equation ( ) having been solved with respect to M_1 there was obtained

$$M_1 = \frac{R_{1-2} \times V_2^2 \times M_2}{2 \times G \times g_2}. \qquad ( )$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ), $M_{1.0}^{g} = \frac{g_2}{M_2}$ ( ), $M_{1.0}^{g} = 2 \times G \times M_{1.0}^{A}$ ( ) and $M_1 = A_1^M \times M_{1.0}^{A}$ ( ) the formula ( ) was written in the following way

$$A_1^M = \frac{M_1}{M_{1.0}^{A}}, \qquad ( )$$

where A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

M_1– is the mass of the first body, g;

$M_{1.0}^{A}$– is the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body, gs^2/cm^3.

Similarly, other FPC in TGT were determined in the process of solving the equation . $\frac{G \times M_1 \times g_2}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ).

The constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ and the constant of the gravitational field of the mass of the first body A_1^M was determined in the process of solution the equation. $\frac{G \times M_2 \times g_1}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ).

The equation ( ) having been solved with respect to $R_{1-2} \times V_2^2$ there was obtained

$$R_{1-2} \times V_2^2 = 2 \times G \times g_1. \qquad ( )$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ) the formula ( ) was written in the following way

$$A_1^M = 2 \times G \times g_1, \qquad ( )$$

where A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

G – is the gravitational constant, cm^2;

g_1– is the gravitational acceleration of the first body, cm/s^2.

The obtained formula turned out to be identical to the formula ( ), obtained while solving the equation ( ).

The determination of the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^M$ and the constant of the gravitational field of the mass of the first body A_1^M according to FPC in TGT the formula ( ) made it possible to formulate some conclusions.

The coincidence of the values of the constant of the gravitational field of the mass of 1.0 g body $A_{1.0}^M$, that were determined by the parameters of various bodies in the Universe and also with the help of the FPC in TGT by the formulas ( ), ( ) shows their validity.

The coincidence of the values of the constant of the gravitational field of the mass of the first body A_1^M, that were determined by the parameters of various bodies in the Universe according to FPC in TGT of formulas ( ), ( ) shows their validity.

The determination of the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^M$ and the constant of the gravitational field of the mass of the first body A_1^M makes it possible to determine all the other FPC in TGT and the other parameters in physics.

The constant of the gravitational field of the mass of the first body A_1^M is a variety of the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^M$.

The constant of the gravitational field of the mass of the first body A_1^M won't change if it is determined by the parameters of the second (third, fourths, fifth, ..., n–th) body rotating around the first body. If they were not equal then these bodies would fall on the first body with larger mass M_1 or would flow away to the outer space.

For example, the constant of the gravitational field of the mass of the Sun A_{sun}^M characterizes the minimal (maximal) distance at which the Sun larger mass M_{sun} can in the result of the transmission energy of the gravitational waves make the second body with smaller mass M_2 rotate around itself at the average distance that changes from $R_{1-2} = 1.0\ cm$ to $R_{1-2} = 1.328 \times 10^{26}\ cm$ at the average squared orbital velocity the second body, that changes from $V_2^2 = 1.328 \times 10^{26}\ cm^2/s^2$ to $V_n^2 = 1.0\ cm^2/s^2$. The average distance, that changes from $R_{1-2} = 1.0\ cm$ to $R_{1-n} = 1.328 \times 10^{26}\ cm$ the average squared orbital velocity the second body, that changes from $V_2^2 = 1.328 \times 10^{26}\ cm^2/s^2$ to $V_2^2 = 1.0\ cm^2/s^2$ are conditional. The Sun with larger mass M_{sun} can't rotate around itself the second body with smaller mass M_2 at the average distance between the Sun and the second body $R_{sun-2} = 1.0\ cm$ because the radius of the Sun is equal to $R_{sun} = 6.9598 \times 10^{10}\ cm$. The Sun with larger mass M_{sun} can rotate around itself the second body with smaller mass M_2 at the average distance between the Sun and the second body that is longer then $R_{sun-2} = 1.328 \times 10^{26}\ cm$ if the average squared orbital velocity the second body is less than $V_2^2 = 1.0\ cm^2/s^2$. In order to retain the second body on the orbit of the Sun it is necessary average distance increases (decreases) between the Sun and the second body the average squared orbital velocity the second body increases (decreases) the constant of the gravitational field of the mass of the Sun A_{sun}^M would be equal to $A_{sun}^M = 1.328 \times 10^{26}\ cm^3/s^2$. If the constant of the gravitational field of the mass of the Sun A_{sun}^M, that was determined by the parameters of the second body is smaller or larger than $A_{sun}^M = 1.328 \times 10^{26}\ cm^3/s^2$ it will result in falling of the second body on the Sun its leaving the borders of the gravitational field of the Sun.

It should be taken into account the fact that in the interval between the planets the constant of the gravitational field of the mass of the Sun A_{sun}^M, found by the parameters of virtual bodies grows to a certain maximum that occurs in the middle of the interval and diminishes according to normal (or Gaussian) distribution до $A_{sun}^M = 1.328 \times 10^{26}\ cm^3/s^2$.

The physical nature and the method of the determination of the parameters of the gravitational waves using the parameters of virtual bodies that rotate around the first body will be shown in other works.

If a number of bodies rotate around the first body with larger mass M_1, that for the determination of the constant of the gravitational field of the mass of the first body A_1^M it is reasonable to use the second body with larger mass a more stable orbit.

The constant of the gravitational field of the mass of the first body A_1^M, that was determined by the parameters of a spacecraft using the thrust of the engines is insufficiently accurate and needs more accuracy.

For example, the constant of the gravitational field of the mass of the Moon A_{moo}^M, that was determined by the parameters of spacecrafts rotating at different time on different orbits (Luna, Apollo, Chang'e, etc.) rotating has a sufficient range. That's why the constant of the gravitational field of the mass of the Moon A_{moo}^M was determined with the help of FPC in TGT by the formulas (), (). In the same way the constant of the gravitational field of the mass of the 67P/Churyumov–Gerasimenko A_{67P}^M, it is necessary to make more precise the constant of the determined by the parameters of Rosetta probe rotating around it on different orbits using the thrust of engines.

The physical nature and the method the determination of the constant of the gravitational field of the mass of the first body A_1^M (the constant of the gravitational field of the mass of Mercury A_{mer}^M, the constant of the gravitational field of the mass of Venus A_{ven}^M, the constant of the gravitational field of the mass of the Moon A_{moo}^M, etc.) around which other bodies don't rotate, with the help of FPC in TGT will be shown is other works.

The gravitational field is in the state of constant motion.

The gravitational field generated by the first body interacts with the gravitation field generated by second body not through vacuum. luminiferous aether, graviton, Higgs boson, etc. were considered for the explanation of the mechanism of gravitation in different periods of time.

The determination of the parameters of the gravitational waves generated by different bodies in the Universe according to TGT showed that the gravitation of bodies is caused by the interference of the gravitational waves.

The physical nature the methods of determination of the parameters of the gravitational waves generated by different bodies in the Universe according to FPC in TGT will be shown in other works.

The constant of the gravitational field of the mass of the first body A_1^M () with larger mass M_1, that are determined by the parameters of the second body with smaller mass M_2 that rotates around it at the average distance R_{1-2} at the average orbital velocity V_2 show that the increase of the average distance from the first body with larger mass M_1 to the second bodies with smaller mass M_2 rotating around it, is compensated by the decrease of the squared average orbital velocity V_2 in such a way that the constant of the gravitational field of the mass of the first body A_1^M doesn't change in this case.

It means that the first body with larger mass M_1 adds the same quantity of energy to the second bodies with smaller mass M_2 that rotates around it at the average distance R_{1-2} at the squared average orbital velocity V_2 the same quantity of energy.

However, in the process of the determination of the constant of the gravitational field of the mass of the first body A_1^M with larger mass M_1, determined by the parameters of the second body rotating around it at the average distance between the first body and the second body R_{1-2} at the squared average orbital velocity of the second body V_2 by the formula () on the examples of differ in the Universe there were found some divergence.

These divergences are partly explained as round–off error.

These divergences we party explained by the insufficient accuracy of the determination of the average distance between the first body and the second body $R_{1-2}$with the help of the known methods (parallax, dynamical parallax, spectroscopic parallax, standard candles, etc.).

Some these divergences are party explained by insufficient accuracy of the determination of the average orbital speed of the second body V_2.

It is known that the most exact average distance between the Earth and the Moon was determined with the help of retroreflector set up by the American astronauts of Apollo 11, 14, and 15 missions on the Moon surface [26]. To deliver the retroreflector to the surface all the black holes, stars, planets, planetary satellites, dwarf planets, the satellites of dwarf planets, asteroids, satellites of asteroids, comets, etc. is rather difficult.

The known terms cosmic distance ladder and average orbital velocity should be made more precise. At the same time besides making more precise the average distances between various bodies in the Universe there must be made precise all FPC in TGT.

The physical nature and the method of determination of semi–major Axis (cosmic distance ladder) according to FPC in TGT will be shown in other works.

The physical nature and the method of grounding the location of planets at the known distances according to the so–called Titius–Bode law according to FPC in TGT will be shown in some other works.

The physical nature and the method of определения the average orbital velocity of the second body V_2 according to FPC in TGT will be shown in some other works.

The constant of the gravitational field of the mass of $1.0\,g$ of the body $A^M_{1.0}$ является FPC. The constant of the gravitational field of the mass of $1.0\,g$ of the body $A^M_{1.0}$ to all the bodies in the Universe. The constant of the gravitational field of the mass of $1.0\,g$ of the body $A^M_{1.0}$, determined by the parameters of the Sun, Mars, Jupiter, Saturn, Phobos, Deimos, Io, Europa, Ganymede, etc. equal to $A^M_{1.0} = 1.04324 \times 10^{-4}\,cm^3/s^2$.

The constant of the gravitational field of the mass of the first body A^M_1 isn't FPC. The constant of the gravitational field of the mass of the first body A^M_1 is a physical constant only for the given body in the Universe. The constant of the gravitational field of the mass of the Sun A^M_{sun}, determined by the parameters of Mars, Jupiter, Saturn, etc. equal to $A^M_{sun} = 1.328\ \times 10^{26}\,cm^3/s^2$. The constant of the gravitational field of the mass of Mars A^M_{mar}, determined by the parameters of Phobos and Deimos equal to $A^M_{mar} = 4.290\ \times 10^{19}\,cm^3/s^2$. The constant of the gravitational field of the mass of Jupiter A^M_{jup}, determined by the parameters of Io, Europa, Ganymede, etc. equal to $A^M_{jup} = 1.328\ \times ??\,10^{26}\,cm^3/s^2$.

The gravitational field of the body is a curvilinear figure the form of which is determined by the mass, the speed of the rotation around its axis, etc.

It is known that for the addition or subtraction of fractions it is necessary to reduce these fractions to the common denominator. All bodies in the Universe has different gravitational fields. The diameter of the gravitational field of galaxies is measured by light years. The diameter of the gravitational field of $1.0\,g$ of the body is equal to $D = 2 \times 1.04324 \times 10^{-4}\,cm$. In the same way the same and different parameters of gravitational fields of the first fields and the second fields are to be expressed in a comparable form.

To characterize visually the constant of the gravitational field of the mass of $1.0\,g$ of the body $A_{1.0}^{M}$ there was used the experiment of Faraday of representing the magnetic force lines of permanent magnet iron filings.

The role of iron filings in the gravitational field generated by superclusters is played by galaxies with smaller mass, spirals, bondings, constellation, nebula, molecular cloud, open cluster, star clusters, stars, interstellar cloud, intergalactic dust, galaxy filaments, cosmic voids, etc.

The role of iron filings in the gravitational field generated by Galactic Center, Supermassive black hole (stars) is played by the stars with smaller mass, bulge, accretion disc, planets, asteroids, comets, circumstellar dust, asteroid belt, etc.

The role of iron filings in the gravitational field generated by planets is played by satellite system, ring system, Moonlet, etc.

The role of iron filings in the gravitational field generated by asteroids is played by minor–planet moon, etc.

The role of iron filings in the gravitational field generated by atomic nuclei is played by electrons.

7.1.2. The determination of the gravitational constant G

The gravitational constant G was determined in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ (1), the equation $M_1 \times g_2 = M_2 \times g_1$ ( ), GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}$ ( ), the equation . $\frac{G \times M_1 \times g_2}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ) and the equation . $\frac{G \times M_2 \times g_1}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ).

The gravitational constant G was determined in the process of solution GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}$ ( ).

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ (48) having been solved with respect to G, it was obtained

$$G = \frac{R_{1-2} \times V_2^2}{2 \times M_1 \times g_{1.0}^M}. \qquad ( )$$

Taking into account that $A_{1.0}^M = \frac{R_{1-2} \times V_2^2}{M_1}$ ( ) the formula ( ) was written in the following way

$$G = \frac{A_{1.0}^M}{2 \times g_{1.0}^M}, \qquad ( )$$

where G – is the gravitational constant, cm^2;

$A_{1.0}^M$– is the constant of the gravitational field of the mass of 1.0 g of the body, cm^3/gs^2;

$g_{1.0}^M$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2.

The gravitational constant G was determined as the relation of the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^M$ to the doubled constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^M$ by the formula ( )

$$G = \frac{A_{1.0}^M}{2 \times g_{1.0}^M} = \frac{1.04324 \times 10^{-4}}{2 \times 2.5645 \times 10^{-22}} = 2.034 \times 10^{17} cm^2. \qquad ( )$$

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) having been solved with respect to G, there was obtained

$$G = \frac{R_{1-2} \times V_2^2}{2 \times M_1 \times g_{1.0}^M}. \qquad ( )$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ) and $g_1 = M_1 \times g_{1.0}^M$ ( ) the formula () was written in the following way

$$G = \frac{A_1^M}{2 \times g_1}, \qquad ( )$$

where G– is the gravitational constant, cm^2;

A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

g_1 – is the gravitational acceleration of the first body, cm/s^2.

The gravitational constant G was determined as the relation of the constant of the gravitational field of the mass of $1.0\,g$ of the body $A_{1.0g}^M$ to the doubled gravitational acceleration of $1.0\,g$ of the body $g_{1.0g}$ by the formula ( )

$$G = \frac{A_{1.0g}^M}{2 \times g_{1.0g}} = \frac{1.04324 \times 10^{-4}}{2 \times 2.5645 \times 10^{-22}} = 2.034 \times 10^{17} cm^2. \qquad ( )$$

The gravitational constant G was determined as the relation of the constant of the gravitational field of the mass of $1.0\,cm^3/s^2$ of the body $A_{1.0cm^3/s^2}^M$ to the doubled gravitational acceleration of $1.0\,cm^3/s^2$ of the body $g_{1.0cm^3/s^2}$ by the formula ( )

$$G = \frac{A_{1.0cm^3/s^2}^M}{2 \times g_{1.0cm^3/s^2}} = \frac{1.0}{2 \times 2.4582 \times 10^{-18}} = 2.034 \times 10^{17} cm^2. \qquad ( )$$

The gravitational constant G was determined as the relation of the constant of the gravitational field of the mass of $1.0\,cm/s^2$ of the body $A_{1.0cm/s^2}^M$ to the doubled gravitational acceleration of the $1.0\,cm/s^2$ of the body $g_{1.0cm/s^2}$ by the formula ( )

$$G = \frac{A_{1.0cm/s^2}^M}{2 \times g_{1.0cm/s^2}} = \frac{4.068 \times 10^{17}}{2 \times 1.0} = 2.034 \times 10^{17} cm^2. \qquad ( )$$

The gravitational constant G was determined as the relation of the constant of the gravitational field of the mass of $1.0\,cm$ of the body $A_{1.0cm}^M$ to the doubled gravitational acceleration of the $1.0\,cm$ of the body $g_{1.0cm}$ by the formula ( )

$$G = \frac{A^M_{1.0cm}}{2 \times g_{1.0cm}} = \frac{8.988 \times 10^{20}}{2 \times 2209.326} = 2.034 \times 10^{17} cm^2. \quad ( )$$

The gravitational constant G was determined as the relation of the constant of the gravitational field of the mass of the Sun A^M_{sun} to the doubled gravitational acceleration of the Sun g_{sun} by the formula ( )

$$G = \frac{V^M_{sun}}{2 \times g_{sun}} = \frac{1.328 \times 10^{26}}{2 \times 3.265 \times 10^{8}} = 2.034 \times 10^{17} cm^2. \quad ( )$$

The gravitational constant G was determined as the relation of the constant of the gravitational field of the mass of the Earth A^M_{ear} to the doubled gravitational acceleration of the Earth g_{ear} by the formula ( )

$$G = \frac{A^M_{ear}}{2 \times g_{ear}} = \frac{4.023 \times 10^{20}}{2 \times 980.665} = 2.051 \times 10^{17} cm^2. \quad ( )$$

The gravitational constant G was determined as the relation of the constant of the gravitational field of the mass of the Moon A^M_{moo} to the doubled gravitational acceleration of the Moon g_{moo} by the formula ( )

$$G = \frac{A^M_{moo}}{2 \times g_{moo}} = \frac{7.807 \times 10^{18}}{2 \times 19.190} = 2.034 \times 10^{17} cm^2. \quad ( )$$

The gravitational constant G was determined as the relation of the constant of the gravitational field of the mass of (3671) Dionysus A^M_{dio} to the doubled gravitational acceleration of (3671) Dionysus g_{dio} by the formula ( )

$$G = \frac{A^M_{dio}}{2 \times g_{dio}} = \frac{1.850 \times 10^{8}}{2 \times 4.547 \times 10^{-10}} = 2.034 \times 10^{17} cm^2. \quad ( )$$

The gravitational constant G was determined as the relation of the constant of the gravitational field of the mass of 67P/Churyumov–Gerasimenko A^M_{67P} to the doubled gravitational acceleration of 67P/Churyumov–Gerasimenko g_{67P} by the formula ( )

$$G = \frac{A^M_{67P}}{2 \times g_{67P}} = \frac{1.083 \times 10^{9}}{2 \times 2.662 \times 10^{-9}} = 2.034 \times 10^{17} cm^2. \quad ( )$$

The gravitational constant G was determined as the relation of the constant of the gravitational field of the mass of Sagittarius A A^M_{sgra} to the doubled gravitational acceleration of Sagittarius A g_{sgra} by the formula ( )

$$G = \frac{A_{sgra}^{M}}{2 \times g_{sgra}} = \frac{9.470 \times 10^{29}}{2 \times 2.328 \times 10^{12}} = 2.034 \times 10^{17} cm^2. \qquad (\;)$$

The gravitational constant G was determined as the relation of the constant of the gravitational field of the mass of the Milky Way galaxy centre A_{mwgc}^{M} to the doubled gravitational acceleration of the Milky Way galaxy centre g_{mwgc} by the formula ( )

$$G = \frac{A_{mwgc}^{M}}{2 \times g_{mwgc}} = \frac{1.361 \times 10^{33}}{2 \times 3.347 \times 10^{15}} = 2.033 \times 10^{17} cm^2. \qquad (\;)$$

In the same way it is possible to determine the constant of the gravitational constant G with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, which have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT by the formula ( ).

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) having been solved with respect to G, there was obtained

$$G = \frac{R_{1-2} \times V_2^2}{2 \times M_1 \times g_{1.0}^{M}}. \qquad (\;)$$

Taking into account that $A_{1.0}^{M} = \frac{R_{1-2} \times V_2^2}{M_1}$ ( ), $G = \frac{A_{1.0}^{M}}{2 \times g_{1.0}^{M}}$ ( ), $A_{1.0}^{M} = \frac{1}{M_{1.0}^{A}}$ ( ), $G = \frac{1}{2 \times M_{1.0}^{A} \times g_{1.0}^{M}}$?( ) and $g_1^A = M_{1.0}^{A} \times g_{1.0}^{M}$ ( ) the formula ( ) was written in the following way

$$G = \frac{1}{2 \times g_{1.0}^{A}}, \qquad (\;)$$

where G – is the gravitational constant, cm^2;

$g_{1.0}^{A}$– is the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body, $1/cm^2$.

The gravitational constant G was determined value as the doubled the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^{A}$ by the formula ( )

$$G = \frac{1}{2 \times g_{1.0}^{A}} = \frac{1}{2 \times 2.4582 \times 10^{-18}} = 2.034 \times 10^{17} cm^2. \qquad ( )$$

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) having been solved with respect to G, there was obtained

$$G = \frac{R_{1-2} \times V_2^2}{2 \times M_1 \times g_{1.0}^{M}}. \qquad ( )$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ), $A_1^M = R_1^c \times c^2$ ( ), $g_1 = M_1 \times g_{1.0}^{M}$ () and $g_1 = R_1^c \times g_{1.0}^{R}$ ( ) the formula ( ) was written in the following way

$$G = \frac{R_{1.0}^{g} \times c^2}{2}, \qquad ( )$$

where G – is the gravitational constant, cm^2;

$R_{1.0}^{g}$– is the constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body, s^2;

c– is the speed of light in vacuum, cm/s.

The gravitational constant G was determined as the half of the product the constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body $R_{1.0}^{g}$ and the squared speed of light in vacuum c by the formula ( )

$$G = \frac{R_{1.0}^{g} \times c^2}{2} = \frac{4.52604 \times 10^{-4} \times (2.988 \times 10^{10})^2}{2} = 2.034 \times 10^{17}\ cm^2. ( )$$

GF ( ) having been solved with respect to G there was obtained

$$G = \frac{R_{1-2} \times V_2^2}{2 \times M_1 \times g_{1.0}^{M}}. \qquad ( )$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ), $A_1^M = R_1^c \times c^2$ ( ), $g_1 = M_1 \times g_{1.0}^{M}$ () and $g_1 = R_1^c \times g_{1.0}^{R}$ ( ) the formula ( ) was written in the following way

$$G = \frac{c^2}{2 \times g_{1.0}^{R}}, \qquad ( )$$

where G– is the gravitational constant, cm^2;

c– is the speed of light in vacuum, cm/s;

$g_{1.0}^{R}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$.

The gravitational constant G was determined as the relation of the squared speed of light in vacuum c to the doubled of the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ by the formula ( )

$$G = \frac{c^2}{2 \times g_{1.0}^{R}} = \frac{(2.988 \times 10^{10})^2}{2 \times 2209.43656} = 2.034 \times 10^{17} cm^2. \qquad ( )$$

The gravitational constant G was determined by the formula

$$G = \frac{F_{sta-sta}}{2 \times p_{1.0}^{M}}, \qquad ( )$$

where G– is the gravitational constant, cm^2;

$F_{sta-sta}$– is the constant of gravitational force of the mass of 1.0 g of the body, gcm/s^2;

$p_{1.0}^{M}$– is the constant of the pressure of the gravitational force of the mass of 1.0 cm of the body, g/cms^2.

The gravitational constant G was determined as the relation of the constant of the gravitational force of the mass of 1.0 g of the body $F_{sta-sta}$ to the doubled constant of the pressure of the gravitational force of the mass of 1.0 cm of the body $p_{1.0}^{M}$ by the formula ( ).

$$G = \frac{F_{sta-sta}}{2 \times p_{1.0}^{M}} = \frac{1.04324 \times 10^{-4}}{2 \times 2.5645 \times 10^{-22}} = 2.034 \times 10^{17} cm^2. \qquad ( )$$

The equation ( ) having been solved with respect to G, there was obtained

$$G = \frac{R_{1-2} \times V_2^2 \times M_2}{2 \times M_1 \times g_2}. \qquad ( )$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ), $A_{1.0}^{M} = \frac{A_1^M}{M_1}$ ( ), $M_{1.0}^{g} = \frac{M_2}{g_2}$ ( ) and $A_{1.0}^{M} = \frac{R_{1-2} \times V_2^2}{M_1}$ ( ) the formula ( ) was written in the following way

$$G = \frac{A_{1.0}^{M} \times M_{1.0}^{g}}{2}, \qquad ( )$$

where G – is the gravitational constant, cm^2;

$A_{1.0}^{M}$– is the constant of the gravitational field of the mass of 1.0 g of the body, cm^3/gs^2;

$M_{1.0}^{g}$– is the constant of the mass of the gravitational acceleration of $1.0\,cm/s^2$ of the body, gs^2/cm.

The gravitational constant G was determined as the half of the product the constant of the gravitational field of the mass of $1.0\,g$ of the body $A_{1.0}^{M}$ and the constant of the mass of the gravitational acceleration of $1.0\,cm/s^2$ of the body $M_{1.0}^{g}$ by the formula ( )

$$G = \frac{A_{1.0}^{M} \times M_{1.0}^{g}}{2} = \frac{1.04324 \times 10^{-4} \times 3.8994 \times 10^{21}}{2} = 2.034 \times 10^{17} cm^2. \,(\,)$$

The equation ( ) having been solved with respect to M_1 there was obtained

$$M_1 = \frac{R_{1-2} \times V_2^2 \times M_2}{2 \times G \times g_2}. \qquad (\,)$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ), $M_{1.0}^{g} = \frac{M_2}{g_2}$ ( ), $M_{1.0}^{g} = \frac{2 \times G \times M_1}{A_1^M}$ (), $M_{1.0}^{A} = \frac{M_1}{A_1^M}$ ( ) and $M_{1.0}^{g} = 2 \times G \times M_{1.0}^{A}$ ( ) the formula ( ) was written in the following way

$$G = \frac{M_{1.0}^{g}}{2 \times M_{1.0}^{A}}, \qquad (\,)$$

where G – is the gravitational constant, cm^2;

$M_{1.0}^{g}$– is the constant of the mass of the gravitational acceleration of $1.0\,cm/s^2$ of the body, gs^2/cm;

$M_{1.0}^{A}$– is the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body, gs^2/cm^3.

The gravitational constant G was determined as the relation of the constant of the mass of the gravitational acceleration of $1.0\,cm/s^2$ of the body $M_{1.0}^{g}$ to the doubled the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M_{1.0}^{A}$ by the formula ( )

$$G = \frac{M_{1.0}^{g}}{2 \times M_{1.0}^{A}} = \frac{3.8994 \times 10^{21}}{2 \times 9585.522} = 2.034 \times 10^{17} cm^2. \qquad (\,)$$

The gravitational constant G was determined in the process of solution the equation. $\frac{G \times M_2 \times g_1}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ).

The equation ( ) having been solved with regard to G, there was obtained

$$G = \frac{R_{1-2} \times V_2^2}{2 \times g_1}. \quad ( )$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ) the formula ( ) was written in the following way

$$G = \frac{A_1^M}{2 \times g_1}, \quad ( )$$

where G– is the gravitational constant, cm^2;

A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

g_1 – is the gravitational acceleration of the first body, cm/s^2.

The formula obtained is identical to the formula ( ).

The determination of the gravitational constant G according to FPC in TGT made it possible to formulate some conclusions.

The coincidence of the values of the gravitational constant G, that were determined by the parameters of the first body and the second body and other FPC in TGT in the Universe according to FPC in TGT the formulas ( ), ( ) shows their validity.

The determination of the gravitational constant G mat possible to determine all the other FPC in TGT and all the rest of the parameters in physics.

Our calculations according to FPC in TGT confirmed that the so–called Cavendish gravitational constant G from the doubtful Newtonian gravitation law doesn't correspond to the facts.

It is known that the first body that attracts the second body and the second body that attracts the first body, can have the same constants of the gravitational field of the mass, weight, mass, etc., and can have different the constant of the gravitational field of the mass, weight, mass, etc. The Sun attracts the Earth, and the Earth attracts the Sun, the Earth attracts an apple, an apple attracts the Earth, etc. The gravitational field of the body is a curvilinear figure the form of which is determined by the constant of the gravitational field of the mass, weight, mass, speed of rotation around its axis, etc.

This curvilinear figure may be presented a two–sided square with a side equal to $l_G = 2.034 \times 10^{17}\, cm$.

The constants of the gravitational fields of different bodies may differ sufficiently from each other (the constant of the gravitational field of the mass of the Sun $A^M_{sun} = 1.328 \times 10^{26}\, cm^3/s^2$, the constant of the gravitational field of the mass of the Earth $A^M_{ear} = 4.023 \times 10^{20}\, cm^3/s^2$, the constant of the gravitational field of the mass of 1.0 g of the body $A^M_{1.0} = 1.04324 \times 10^{-4}\, cm^3/s^2$, etc.). Some constants of the gravitational field of the mass are smaller $1.0\, cm^3/s^2$, while others are larger, etc. These bodies can generate different gravitational accelerations.

It is known, for example, that in order to add fractions is necessary these fractions to the common denominator. In same way the constants of the gravitational fields of different bodies must be reduced to the common denominator.

It follows from the determination of the gravitational force according to the formulas (1), (2) and (3) that the gravitational force – is the sum of the gravitational force of the first body to the second body and the gravitational force of the second body to the first body. That's why, in order toad two rectangular parallelepipeds they must have two pairs of the identical sides.

Our calculations according to TGT showed that all these requirements correspond to length and the height of $1.0\, cm^3/s^2$ the body with the mass of a parallelepiped or the common denominator that makes it possible to compare the gravitational field of the first and the second bodies.

7.2. The determination of fundamental physical constants (FPC) in Tsiganok gravitation theory (TGT), characterizing the mass of the body and other parameters of bodies

7.2.1. The determination of the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M^A_{1.0}$

The constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M^A_{1.0}$ was determined in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R^2_{1-2}}$ (1), the equation $M_1 \times g_2 + M_2 \times g_1$ ( ), GF $V^2_2 = \frac{2 \times G \times M_1 \times g^M_{1.0}}{R_{1-2}}$ ( ), the equation . $\frac{G \times M_1 \times g_2}{R^2_{1-2}} = \frac{M_2 \times V^2_2}{2 \times R_{1-2}}$ ( ) and the equation . $\frac{G \times M_2 \times g_1}{R^2_{1-2}} = \frac{M_2 \times V^2_2}{2 \times R_{1-2}}$ ( ).

The constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M^A_{1.0}$ was determined in the process of solution GF $V^2_2 = \frac{2 \times G \times M_1 \times g^M_{1.0}}{R_{1-2}}$ ( ).

Taking into account that $A^M_1 = R_{1-2} \times V^2_2$ ( ), $M^A_{1.0} = \frac{M_1}{A^M_1}$ ( ), $1 = A^M_{1.0} \times M^A_{1.0}$ ( ), $A^M_{1.0} = 2 \times G \times g^M_{1.0}$ ( ) and $A^M_{1.0} = \frac{1}{M^A_{1.0}}$ ( ) GF $R_{1-2} \times V^2_2 = 2 \times G \times M_1 \times g^M_{1.0}$ ( ) was written in the following way

The constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M^A_{1.0}$ was determined in the process of solving the equation (), () and () with regard to all the included parameters.

Taking into account that $A^M_1 = R_{1-2} \times V^2_2$ ( ), $A^M_{1.0} = 2 \times G \times g^M_{1.0}$ ( ), $M^A_{1.0} = \frac{1}{A^M_{1.0}}$ ( ) and $M^A_{1.0} = \frac{1}{2 \times G \times g^M_{1.0}}$ ( ) GF $R_{1-2} \times V^2_2 = 2 \times G \times M_1 \times g^M_{1.0}$ ( ) was written in the following way

$$M^A_{1.0} = \frac{1}{A^M_{1.0}}, \qquad ( )$$

where $M_{1.0}^{A}$– is the constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body, gs^2/cm^3;

$A_{1.0}^{M}$– is the constant of the gravitational field of the mass of $1.0\,g$ of the body, cm^3/gs^2.

The constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body $M_{1.0}^{A}$ was determined as the value that is reverse to the constant of the gravitational field of $1.0\,g$ of the body $A_{1.0}^{M}$ by the formula ( )

$$M_{1.0}^{A} = \frac{1}{A_{1.0}^{M}} = \frac{1}{1.04324 \times 10^{-4}} = 9585.522\,gs^2/cm^3. \qquad (\;)$$

$$M_{1.0}^{A} = \frac{M_{1.0}^{R}}{c^2}, \qquad (32)$$

where $M_{1.0}^{A}$– is the constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body, gs^2/cm^3;

$M_{1.0}^{R}$– is the constant of the mass of the gravitational radius of $1.0\,cm$ of the body, g/cm;

c– speed of light in vacuum, cm/s.

The constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body $M_{1.0}^{A}$ was determined as the relation of the constant of the mass of the gravitational radius of $1.0\,cm$ of the body $M_{1.0}^{R}$ to the squared speed of light in vacuum c by the formula ( )

$$M_{1.0}^{R} = \frac{M_{1.0}^{R}}{c^2} = \frac{8.615 \times 10^{24}}{(2.998 \times 10^{10})^2} = 9585.522\,gs^2/cm^3. \qquad (\;)$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ), $A_{1.0}^{M} = 2 \times G \times g_{1.0}^{M}$ ( ), $A_1^M = M_1 \times A_{1.0}^{M}$ ( ), $A_{1.0}^{M} = \frac{1}{M_{1.0}^{A}}$ ( ) and $A_1^M = \frac{M_1}{M_{1.0}^{A}}$ ( ) GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) was written in the following way

$$M_{1.0}^{A} = \frac{M_1}{A_1^M}, \qquad (\;)$$

where $M_{1.0}^{A}$– is the constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body, gs^2/cm^3;

M_1– is the mass of the first body, g;

A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2.

The constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body $M_{1.0}^A$ was determined as the relation of the mass of 1.0 g of the body $M_{1.0g}$ to the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0g}^M$ by the formula ( )

$$M_{1.0}^A = \frac{M_{1.0g}}{A_{1.0g}^M} = \frac{1.0}{1.04324 \times 10^{-4}} = 9585.522\,gs^2/cm^3. \qquad ( )$$

The constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body $M_{1.0}^A$ was determined as the relation of the mass of $1.0\,cm^3/s^2$ of the body $M_{1.0cm^3/s^2}$ to the constant of the gravitational field of the mass of $1.0\,cm^3/s^2$ of the body $A_{1.0cm^3/s^2}^M$ by the formula ( )

$$M_{1.0}^A = \frac{M_{1.0cm^3/s^2}}{A_{1.0cm^3/s^2}^M} = \frac{9585.522}{1.0} = 9585.522\,gs^2/cm^3. \qquad ( )$$

The constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body $M_{1.0}^A$ was determined as the relation of the mass of $1.0\,cm/s^2$ of the body $M_{1.0\,cm/s^2}$ to the constant of the gravitational field of the mass of the mass of $1.0\,cm/s^2$ of the body $A_{1.0\,cm/s^2}^M$ by the formula ( )

$$M_{1.0}^A = \frac{M_{1.0cm/s^2}}{A_{1.0cm/s^2}^M} = \frac{3.8994 \times 10^{21}}{4.068 \times 10^{17}} = 9585.5457\,gs^2/cm^3. \qquad ( )$$

The constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body $M_{1.0}^A$ was determined as the relation of the mass of 1.0 cm of the body $M_{1.0cm}$ to the constant of the gravitational field of the mass of the mass of $1.0\,cm/s^2$ of the body $A_{1.0\,cm/s^2}^M$ by the formula ( )

$$M_{1.0}^A = \frac{M_{1.0cm}}{A_{1.0cm}^M} = \frac{8.615 \times 10^{24}}{8.988 \times 10^{20}} = 9585.00\,gs^2/cm^3. \qquad ( )$$

The constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body $M_{1.0}^A$ was determined as the relation of the mass of the Sun M_{sun} to the constant of the gravitational field of the mass of the Sun A_{sun}^M by the formula ( )

$$M_{1.0}^{A} = \frac{M_{sun}}{A_{sun}^{M}} = \frac{1.273 \times 10^{30}}{1.328 \times 10^{26}} = 9585.843\, gs^2/cm^3. \qquad ( )$$

The constant of the mass of the gravitational field of $1.0\, cm^3/s^2$ of the body $M_{1.0}^{A}$ was determined as the relation of the mass of the Earth M_{ear} to the constant of the gravitational field of the mass of the Earth A_{ear}^{M} by the formula ( )

$$M_{1.0}^{A} = \frac{M_{ear}}{A_{ear}^{M}} = \frac{3.856 \times 10^{24}}{4.023 \times 10^{20}} = 9584.887\, gs^2/cm^3. \qquad ( )$$

The constant of the mass of the gravitational field of $1.0\, cm^3/s^2$ of the body $M_{1.0}^{A}$ was determined as the relation of the mass of the Moon M_{moo} to the constant of the gravitational field of the mass of the Moon A_{moo}^{M} by the formula ( )

$$M_{1.0}^{A} = \frac{M_{moo}}{A_{moo}^{M}} = \frac{7.483 \times 10^{22}}{7.807 \times 10^{18}} = 9584.988\, gs^2/cm^3. \qquad ( )$$

The constant of the mass of the gravitational field of $1.0\, cm^3/s^2$ of the body $M_{1.0}^{A}$ was determined as the relation of the mass of (3671) Dionysus M_{dio} to the constant of the gravitational field of the mass of (3671) Dionysus A_{dio}^{M} by the formula ( )

$$M_{1.0}^{A} = \frac{M_{dio}}{A_{dio}^{M}} = \frac{1.491 \times 10^{12}}{1.555 \times 10^{8}} = 9588.424\ \ gs^2/cm^3. \qquad ( )$$

The constant of the mass of the gravitational field of $1.0\, cm^3/s^2$ of the body $M_{1.0}^{A}$ was determined as the relation of the mass of 67P/Churyumov–Gerasimenko M_{67P} to the constant of the gravitational field of the mass of 67P/Churyumov–Gerasimenko A_{67P}^{M} by the formula ( )

$$M_{1.0}^{A} = \frac{M_{67P}}{A_{67P}^{M}} = \frac{1.038 \times 10^{13}}{1.083 \times 10^{9}} = 9584.4875\, gs^2/cm^3. \qquad ( )$$

The constant of the mass of the gravitational field of $1.0\, cm^3/s^2$ of the body $M_{1.0}^{A}$ was determined as the relation of the mass of Sagittarius A M_{sgra} to the constant of the gravitational field of the mass of Sagittarius A A_{sgra}^{M} by the formula ( )

$$M_{1.0}^{A} = \frac{M_{sgra}}{A_{sgra}^{M}} = \frac{9.077 \times 10^{33}}{9.470 \times 10^{29}} = 9585.930\, gs^2/cm^3. \qquad ( )$$

The constant of the mass of the gravitational field of $1.0\, cm^3/s^2$ of the body $M_{1.0}^{A}$ was determined as the relation of the mass of the Milky Way galaxy centre M_{mwgc} to the constant of the gravitational field the mass of the Milky Way galaxy centre A^M_{mwgc} by the formula ( )

$$M^A_{1.0} = \frac{M_{mwgc}}{A^M_{mwgc}} = \frac{1.305 \times 10^{37}}{1.361 \times 10^{33}} = 9588.5378\, gs^2/cm^3. \qquad ( )$$

In the same way it is possible to determine the constant of the constant of the mass of the gravitational field of $1.0\, cm^3/s^2$ of the body $M^A_{1.0}$ with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, whey have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT by the formula ( ).

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g^M_{1.0}$ ( ) having been solved with respect to G there was obtained

$$G = \frac{R_{1-2} \times V_2^2}{2 \times M_1 \times g^M_{1.0}}. \qquad ( )$$

Taking into account that $A^M_{1.0} = \frac{R_{1-2} \times V_2^2}{M_1}$ ( ), $G = \frac{A^M_{1.0}}{2 \times g^M_{1.0}}$ ( ), $A^M_{1.0} = \frac{1}{M^A_{1.0}}$ ( ), $G = \frac{1}{2 \times M^A_{1.0} \times g^M_{1.0}}$?( ) and $g^A_1 = M^A_{1.0} \times g^M_{1.0}$ ( ) the formula ( ) was written in the following way

$$M^A_{1.0} = \frac{g^A_{1.0}}{g^M_{1.0}}, \qquad ( )$$

where $M^A_{1.0}$– is the constant of the mass of the gravitational field of $1.0\, cm^3/s^2$ of the body, gs^2/cm^3;

$g^A_{1.0}$– is the constant of the gravitational acceleration of the gravitational field of $1.0\ cm^3/s^2$ of the body, $1/cm^2$;

$g^M_{1.0}$– is the constant of the gravitational acceleration of the mass of $1.0\ g$ of the body, cm/gs^2.

The constant of the mass of the gravitational field of $1.0\, cm^3/s^2$ of the body $M^A_{1.0}$ was determined as the relation of the constant of the gravitational acceleration of the gravitational field of $1.0\, cm^3/s^2$ of the body $g^A_{1.0}$ to the constant of the gravitational acceleration of the mass of $1.0\ g$ of the body $g^M_{1.0}$ by the formula ( )

$$M_{1.0}^{A} = \frac{g_{1.0}^{A}}{g_{1.0}^{M}} = \frac{2.4582 \times 10^{-18}}{2.5645 \times 10^{-22}} = 9585.522\, gs^2/cm^3. \qquad ( )$$

Similarly, other FPC in TGT was determined in the process of solution GF $V_2^2 = \frac{2\times G\times M_1\times g_{1.0}^{M}}{R_{1-2}}$ ( ).

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) having been solved with respect to G there was obtained

$$G = \frac{R_{1-2} \times V_2^2}{2 \times M_1 \times g_{1.0}^{M}}. \qquad ( )$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ), $A_1^M = R_1^c \times c^2$ ( ), $g_1 = M_1 \times g_{1.0}^{M}$ (), $g_1 = R_1^c \times g_{1.0}^{R}$ ( ), $c^2 = 2 \times G \times g_{1.0}^{R}$ ( ), $G = \frac{1}{2\times M_{1.0}^{A}\times g_{1.0}^{M}}$ ( ), $g_{1.0}^{R} = \frac{g_{1.0}^{M}}{R_{1.0}^{M}}$ ( ) and $c^2 = \frac{1}{2\times M_{1.0}^{A}\times R_{1.0}^{M}}$ ( ) the formula (111) was written in the following way

$$M_{1.0}^{A} = \frac{1}{R_{1.0}^{M} \times c^2}, \qquad ( )$$

where $M_{1.0}^{A}$– is the constant of the mass of the gravitational field of $1.0\, cm^3/s^2$ of the body, gs^2/cm^3;

$R_{1.0}^{M}$ – is the constant of the gravitational field of the gravitational radius of 1.0 g of the body, cm/g;

c – speed of light in vacuum, cm/s.

The constant of the mass of the gravitational field of $1.0\, cm^3/s^2$ of the body $M_{1.0}^{A}$ defined as the inverse of the product the constant of the gravitational field of the gravitational radius of 1.0 g of the body $R_{1.0}^{M}$ and the squared speed of light in vacuum c by the formula ( )

$$M_{1.0}^{A} = \frac{1}{R_{1.0}^{M} \times c^2} = \frac{1}{1.16070316 \times 10^{-25} \times (2.998 \times 10^{10})^2}$$
$$= 9585.522\, gs^2/cm^3. \qquad ( )$$

Similarly, other FPC in TGT was determined in the process of solution GF $V_2^2 = \frac{2\times G\times M_1\times g_{1.0}^{M}}{R_{1-2}}$ ( ).

The constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M_{1.0}^A$ was determined in the process of solution the equation. $\frac{G\times M_1\times g_2}{R_{1-2}^2}=\frac{M_2\times V_2^2}{2\times R_{1-2}}$ ( ).

The equation ( ) having been solved with respect to M_1 there was obtained

$$M_1=\frac{M_2\times R_{1-2}\times V_2^2}{2\times G\times g_2}. \quad ( )$$

Dividing the left and right of the formula ( ) by A_1^M there was receive

$$\frac{M_1}{A_1^M}=\frac{M_2\times R_{1-2}\times V_2^2}{2\times G\times A_1^M\times g_2}. \quad ( )$$

Taking into account that $M_{1.0}^A=\frac{M_1}{A_1^M}$ ( ), $A_1^M=R_{1-2}\times V_2^2$ ( ) and $M_{1.0}^g=\frac{M_2}{g_2}$ ( ) the formula ( ) was written in the following way

$$M_{1.0}^A=\frac{M_{1.0}^g}{2\times G}, \quad ( )$$

where $M_{1.0}^A$– is the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body, gs^2/cm^3;

$M_{1.0}^g$– is the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body, gs^2/cm;

G – is the gravitational constant, cm^2.

The constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M_{1.0}^A$ was determined as the relation of the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^g$ to the doubled gravitational constant G by the formula ( )

$$M_{1.0}^A=\frac{M_{1.0}^g}{2\times G}=\frac{3.8994\times 10^{21}}{2\times 2.034\times 10^{17}}=9585.5457\, gs^2/cm^3. \quad ( )$$

The equation ( ) having been solved with respect to M_1 there was obtained

$$M_1=\frac{M_2\times R_{1-2}\times V_2^2}{2\times G\times g_2}. \quad ( )$$

Taking into account that $A_1^M=R_{1-2}\times V_2^2$ ( ), $M_{1.0}^g=\frac{M_2}{g_2}$ ( ), $M_{1.0}^g=2\times G\times M_{1.0}^A$ ( ) and $M_1=A_1^M\times M_{1.0}^A$ ( ) the formula ( ) was written in the following way

$$M_{1.0}^{A} = \frac{M_1}{A_1^M}, \qquad ( )$$

where $M_{1.0}^{A}$– is the constant of the mass of the gravitational field of $1.0\, cm^3/s^2$ of the body, gs^2/cm^3;

M_1– is the mass of the first body, g;

A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2.

Similarly, other FPC in TGT were determined in the process of solving the equation. $\frac{G\times M_1\times g_2}{R_{1-2}^2} = \frac{M_2\times V_2^2}{2\times R_{1-2}}$ ( ).

The constant of the mass of the gravitational field of $1.0\, cm^3/s^2$ of the body $M_{1.0}^{A}$ according to FPC in TGT made it possible to formulate the following conclusions.

The coincidence of the values of the constant of the mass of the gravitational field of $1.0\, cm^3/s^2$ of the body $M_{1.0}^{A}$, that were determined by the of the first and the second bodies and other bodies in the Universe according to FPC in TGT by the formulas ( ), ( ) shows their validity.

The determination of the constant of the mass of the gravitational field of $1.0\, cm^3/s^2$ of the body $M_{1.0}^{A}$ makes it possible to determine all the other FPC in TGT and all the other parameters in physics.

7.2.2. The determination of the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M^g_{1.0}$

The constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M^g_{1.0}$ was determined in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R^2_{1-2}}$ (1), the equation $M_1 \times g_2 = M_2 \times g_1$ ( ), GF $V^2_2 = \frac{2 \times G \times M_1 \times g^M_{1.0}}{R_{1-2}}$ ( ), the equation . $\frac{G \times M_1 \times g_2}{R^2_{1-2}} = \frac{M_2 \times V^2_2}{2 \times R_{1-2}}$ ( ) and the equation . $\frac{G \times M_2 \times g_1}{R^2_{1-2}} = \frac{M_2 \times V^2_2}{2 \times R_{1-2}}$ ( ).

The constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M^g_{1.0}$ was determined in the process of solving the equation $M_1 \times g_2 = M_2 \times g_1$ ( ).

The equation ( ) having been solved with respect to M_2 there was obtained

$$M_2 = \frac{M_1 \times g_2}{g_1}, \qquad ( )$$

Taking into account that $M_2 = g_2 \times M^g_{1.0}$ ( ) the formula ( ) was written in the following way

$$M^g_{1.0} = \frac{M_1}{g_1}, \qquad ( )$$

where $M^g_{1.0}$– is the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body, gs^2/cm;

M_1 – is the mass of the first body, g;

g_1 – is the gravitational acceleration of the first body, cm/s^2.

The constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M^g_{1.0}$ was determined as the relation of the mass of 1.0 g of the body $M_{1.0g}$ to the gravitational acceleration of 1.0 g of the body $g_{1.0g}$ by the formula ( )

$$M^g_{1.0} = \frac{M_{1.0g}}{g_{1.0g}} = \frac{1.0}{2.5645 \times 10^{-22}} = 3.8994 \times 10^{21}\, gs^2/cm. \qquad ( )$$

The constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ was determined as the relation of the mass of 1.0 cm^3/s^2 of the body $M_{1.0cm^3/s^2}$ to the gravitational acceleration of 1.0 cm^3/s^2 of the body $g_{1.0cm^3/s^2}$ by the formula ( )

$$M_{1.0}^{g} = \frac{M_{1.0cm^3/s^2}}{g_{1.0cm^3/s^2}} = \frac{9585.522}{2.4582 \times 10^{-18}} = 3.8994 \times 10^{21}\, gs^2/cm. \quad (\ )$$

The constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ was determined as the relation of the mass of 1.0 cm/s^2 of the body $M_{1.0cm/s^2}$ to the gravitational acceleration of 1.0 cm/s^2 of the body $g_{1.0cm/s^2}$ by the formula ( )

$$M_{1.0}^{g} = \frac{M_{1.0cm/s^2}}{g_{1.0cm/s^2}} = \frac{3.8994 \times 10^{21}}{1.0} = 3.8994 \times 10^{21}\, gs^2/cm. \quad (\ )$$

The constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ was determined as the relation of the mass of 1.0 cm of the body $M_{1.0cm}$ to the gravitational acceleration of 1.0 cm of the body $g_{1.0cm}$ by the formula ( )

$$M_{1.0}^{g} = \frac{M_{1.0cm}}{g_{1.0cm}} = \frac{8.615 \times 10^{24}}{2209.326} = 3.8994 \times 10^{21}\, gs^2/cm. \quad (\ )$$

The constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ was determined as the relation of the mass of the Sun M_{sun} to the gravitational acceleration of the Sun g_{sun} by the formula ( )

$$M_{1.0}^{g} = \frac{M_{sun}}{g_{sun}} = \frac{1.273 \times 10^{30}}{3.265 \times 10^{8}} = 3.8994 \times 10^{21}\, gs^2/cm. \quad (\ )$$

The constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ was determined as the relation of the mass of the Earth M_{ear} to the gravitational acceleration of the Earth g_{ear} by the formula ( )

$$M_{1.0}^{g} = \frac{M_{ear}}{g_{ear}} = \frac{3.856 \times 10^{24}}{980.665} = 3.932 \times 10^{21}\, gs^2/cm. \quad (\ )$$

The constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ was determined as the relation of the mass of the Moon M_{moo} to the gravitational acceleration of the Moon g_{moo} by the formula ( )

$$M_{1.0}^{g} = \frac{M_{moo}}{g_{moo}} = \frac{7.483 \times 10^{22}}{19.190} = 3.8994 \times 10^{21}\, gs^2/cm. \quad (\ )$$

The constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ was determined as the relation of the mass of (3671) Dionysus M_{dio} to the gravitational acceleration of (3671) Dionysus g_{dio} by the formula ( )

$$M_{1.0}^{g} = \frac{M_{dio}}{g_{dio}} = \frac{1.491 \times 10^{12}}{3.824 \times 10^{-10}} = 3.8991 \times 10^{21}\, gs^2/cm. \qquad ( )$$

The constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ was determined as the relation of the mass of 67P/Churyumov–Gerasimenko M_{67P} to the gravitational acceleration of 67P/Churyumov–Gerasimenko g_{67P} by the formula ( )

$$M_{1.0}^{g} = \frac{M_{67P}}{g_{67P}} = \frac{1.038 \times 10^{13}}{2.662 \times 10^{-9}} = 3.8993 \times 10^{21}\, gs^2/cm. \qquad ( )$$

The constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ was determined as the relation of the mass of Sagittarius A M_{sgra} to the gravitational acceleration of the Sagittarius A g_{sgra} by the formula ( )

$$M_{1.0}^{g} = \frac{M_{sgra}}{g_{sgra}} = \frac{9.077 \times 10^{33}}{2.328 \times 10^{12}} = 3.8991 \times 10^{21}\ gs^2/cm. \qquad ( )$$

The constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ was determined as the relation of the mass of the Milky Way galaxy centre M_{mwgc} to the gravitational acceleration of the Milky Way galaxy centre g_{mwgc} by the formula ( )

$$M_{1.0}^{g} = \frac{M_{mwgc}}{g_{mwgc}} = \frac{1.317 \times 10^{41}}{3.377 \times 10^{19}} = 3.8999 \times 10^{21}\, gs^2/cm. \qquad ( )$$

In the same way it is possible to determine the constant of the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ with the help of the parameters of the first body and the second body when the second body doesn’t rotate around the first body, which have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT by the formula ( ).

The equation ( ) having been solved with respect to M_1 there was obtained

$$M_1 = \frac{M_2 \times g_1}{g_2}, \qquad ( )$$

Taking into account that $M_1 = g_1 \times M_{1.0}^{g}$ ( ) the formula ( ) was written in the following way

$$M_{1.0}^{g} = \frac{M_2}{g_2}, \qquad ( )$$

where $M_{1.0}^{g}$– is the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body, gs^2/cm;

M_2– is the mass of the second body, g;

g_2 – is the gravitational acceleration of the second body, cm/s^2.

Similarly, other FPC in TGT were determined in the process of solving the equation $M_1 \times g_2 = M_2 \times g_1$ ( ).

$$M_{1.0}^{g} = \frac{M_{1.0}^{R}}{g_{1.0}^{R}}, \qquad ( )$$

where $M_{1.0}^{g}$– is the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body, gs^2/cm;

$M_{1.0}^{R}$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm;

$g_{1.0}^{R}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$.

The constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ was determined as the relation of the constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ to the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ by the formula ( )

$$M_{1.0}^{g} = \frac{M_{1.0}^{R}}{g_{1.0}^{R}} = \frac{8.615467 \times 10^{24}}{2209.43656} = 3.8994 \times 10^{21}\, gs^2/cm. \qquad ( )$$

The constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ was determined in the process of solution GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^{M}}{R_{1-2}}$ ( )

Dividing the left and right of the GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) by g_1 there was receive

$$\frac{R_{1-2} \times V_2^2}{g_1} = \frac{2 \times G \times M_1 \times g_{1.0}^{M}}{g_1}. \qquad ( )$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ), $M_{1.0}^g = \frac{M_1}{g_1}$ ( ), $A_1^M = 2 \times G \times g_1$ ( ) and $1 = M_{1.0}^g \times g_{1.0}^M$ ( ) the formula ( ) was written in the following way

$$M_{1.0}^g = \frac{1}{g_{1.0}^M}, \qquad ( )$$

where $M_{1.0}^g$– is the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body, gs^2/cm;

$g_{1.0}^M$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2.

The constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^g$ was determined the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^M$ by the formula ( )

$$M_{1.0}^g = \frac{1}{g_{1.0}^M} = \frac{1}{2.5645 \times 10^{-22}} = 3.8994 \times 10^{21}\, gs^2/cm. \qquad ( )$$

The constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^g$ was determined in the process of solution the equation. $\frac{G \times M_1 \times g_2}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ).

The formula ( ) having been solved with respect to M_1, there was obtained

$$M_1 = \frac{R_{1-2} \times V_2^2 \times M_2}{2 \times G \times g_2}. \qquad ( )$$

Taking into account that $A_1^M = \frac{R_{1-2} \times V_2^2}{M_1}$ ( ), $M_{1.0}^g = \frac{M_2}{g_2}$ ( ), $G = \frac{A_{1.0}^M \times M_{1.0}^g}{2}$ ( ) and $A_{1.0}^M = \frac{2 \times G}{M_{1.0}^g}$ ( ) the formula ( ) was written in the following way

$$M_{1.0}^g = \frac{2 \times G}{A_{1.0}^M}, \qquad ( )$$

where $M_{1.0}^g$– is the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body, gs^2/cm;

G – is the gravitational constant, cm^2;

$A_{1.0}^M$– is the constant of the gravitational field of the mass of 1.0 g of the body, cm^3/gs^2.

The constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ was determined as the relation of the doubled gravitational constant G to the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ by the formula ( )

$$M_{1.0}^{g} = \frac{2 \times G}{A_{1.0}^{M}} = \frac{2 \times 2.034 \times 10^{17}}{1.04324 \times 10^{-4}} = 3.8994 \times 10^{21}\, gs^2/cm. \qquad (\,)$$

The equation ( ) having been solved with respect to M_1 there was obtained

$$M_1 = \frac{M_2 \times R_{1-2} \times V_2^2}{2 \times G \times g_2}. \qquad (\,)$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ), $M_{1.0}^{g} = \frac{M_2}{g_2}$ ( ), $M_1 = \frac{A_1^M \times M_{1.0}^{g}}{2 \times G}$ ( ), $M_{1.0}^{g} = \frac{2 \times G \times M_1}{A_1^M}$ ( ) and $M_{1.0}^{A} = \frac{M_1}{A_1^M}$ ( ) the formula ( ) was written in the following way

$$M_{1.0}^{g} = 2 \times G \times M_{1.0}^{A}, \qquad (\,)$$

where $M_{1.0}^{g}$– is the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body, gs^2/cm;

G– is the gravitational constant, cm^2;

$M_{1.0}^{A}$– is the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body, gs^2/cm^3.

The constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ was determined as the doubled product of the gravitational constant G by the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M_{1.0}^{A}$ by the formula ( )

$$M_{1.0}^{g} = 2 \times G \times M_{1.0}^{A} = 2 \times 2.034 \times 10^{17} \times 9585.522$$
$$= 3.8994 \times 10^{21}\, gs^2/cm. \qquad (\,)$$

The equation ( ) having been solved with respect to M_1 there was obtained

$$M_1 = \frac{M_2 \times R_{1-2} \times V_2^2}{2 \times G \times g_2}. \qquad (\,)$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ), $A_1^M = 2 \times G \times g_1$ ( ), $M_{1.0}^g = \frac{M_2}{g_2}$ ( ) and $M_1 = g_1 \times M_{1.0}^g$ ( ) the formula ( ) was written in the following way

$$M_{1.0}^g = \frac{M_1}{g_1}, \qquad ( )$$

where $M_{1.0}^g$– is the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body, gs^2/cm;

M_1– is the mass of the first body, g;

g_1– is the gravitational acceleration of the first body, cm/s^2.

The formula of the determination the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^g$ ( ),obtained by solving the equation ( ) is similar to the formula obtained by solving the equation ( ).

The equation ( ) having been solved with respect to M_2 there was obtained

$$M_2 = \frac{2 \times G \times M_1 \times g_2}{R_{1-2} \times V_2^2}. \qquad ( )$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ), $A_1^M = \frac{M_1}{M_{1.0}^A}$ ( ), $M_{1.0}^A = \frac{M_1}{A_1^M}$ ( ), $M_{1.0}^g = 2 \times G \times M_{1.0}^A$ ( ) and $M_2 = g_2 \times M_{1.0}^g$ ( ) the formula ( ) was written in the following way

$$M_{1.0}^g = \frac{M_2}{g_2}, \qquad ( )$$

where $M_{1.0}^g$– is the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body, gs^2/cm.

M_2 – is the mass of the second body, g.

g_2– is the gravitational acceleration of the second body, cm/s^2.

The determination of the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^g$ by the formula ( ) and by the formula ( ) is done in the same way.

The determination of the constant of the mass of the gravitational acceleration of $1.0\,cm/s^2$ of the body $M_{1.0}^{g}$ according to FPC in TGT made it possible to formulate some conclusions.

The coincidence of the values of the constant of the mass of the gravitational acceleration of $1.0\,cm/s^2$ of the body $M_{1.0}^{g}$, that were determined by the parameters of the first and the second bodies and other FPC in TGT in the Universe according to FPC in TGT the formulas ( ), ( ), shows their validity.

The determination of the constant of the mass of the gravitational acceleration of $1.0\,cm/s^2$ of the body $M_{1.0}^{g}$ makes it possible to determine all the other FPC in TGT and all the other parameters in physics.

7.2.3. The determination of the constant of the mass of the gravitational radius of 1.0 cm of the body $M^R_{1.0}$

The constant of the mass of the gravitational radius of 1.0 cm of the body $M^R_{1.0}$ was determined in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R^2_{1-2}}$ (1), the equation $M_1 \times g_2 = M_2 \times g_1$ ( ), GF $V_2^2 = \frac{2 \times G \times M_1 \times g^M_{1.0}}{R_{1-2}}$ ( ), the equation . $\frac{G \times M_1 \times g_2}{R^2_{1-2}} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ) and the equation . $\frac{G \times M_2 \times g_1}{R^2_{1-2}} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ).

The constant of the mass of the gravitational radius of 1.0 cm of the body $M^R_{1.0}$ was determined in the process of solution GF $V_2^2 = \frac{2 \times G \times M_1 \times g^M_{1.0}}{R_{1-2}}$ ( ).

$$M^R_{1.0} = M^A_{1.0} \times c^2, \qquad ( )$$

where $M^R_{1.0}$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm;

$M^A_{1.0}$– is the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body, gs^2/cm^3;

c– is the speed of light in vacuum, cm/s.

The constant of the mass of the gravitational radius of 1.0 cm of the body $M^R_{1.0}$ was determined as the product of the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M^A_{1.0}$ and the squared speed of light in vacuum c by the formula ()

$$M^R_{1.0} = M^A_{1.0} \times c^2 = 9585.522 \times (2.998 \times 10^{10})^2 = 8.615 \times 10^{24}\ g/cm. \qquad ( )$$

$$M^R_{1.0} = M^g_{1.0} \times g^R_{1.0}, \qquad ( )$$

where $M^R_{1.0}$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm;

$M_{1.0}^{g}$– is the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body, gs^2/cm;

$g_{1.0}^{R}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$.

The constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ was determined as the product of the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ and the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ by the formula ( )

$$M_{1.0}^{R} = M_{1.0}^{g} \times g_{1.0}^{R} = 3.8994 \times 10^{21} \times 2209.43656$$
$$= 8.615467 \times 10^{24}\ g/cm. \qquad ( )$$

$$M_{1.0}^{R} = \frac{g_{1.0}^{R}}{g_{1.0}^{M}}, \qquad ( )$$

where $M_{1.0}^{R}$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm;

$g_{1.0}^{R}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$;

$g_{1.0}^{M}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2.

The constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ was determined the relation the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ and the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ by the formula ( )

$$M_{1.0}^{R} = \frac{g_{1.0}^{R}}{g_{1.0}^{M}} = \frac{2209.43656}{2.5645 \times 10^{-22}} = 8.615467 \times 10^{24}\ g/cm. \qquad ( )$$

Dividing the left and right of the GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) by M_1 there was receive

$$\frac{R_{1-2} \times V_2^2}{M_1} = 2 \times G \times g_{1.0}^{M}. \qquad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $R_{1.0}^M = \frac{R_{1-2}}{M_1}$ ( ), $A_{1.0}^M = 2 \times G \times g_{1.0}^M$ (), $A_{1.0}^M = \frac{A_1^M}{M_1}$ ( ), $R_1^c = M_1 \times R_{1.0}^M$ ( ) and $1 = M_{1.0}^R \times R_{1.0}^M$ ( ) the formula (148) was written in the following way

$$M_{1.0}^R = \frac{1}{R_{1.0}^M}, \qquad ( )$$

where $M_{1.0}^R$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm;

$R_{1.0}^M$– is the constant of the gravitational radius of the mass of 1.0 g of the body, cm/g.

The constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^R$ is the value reverse to the constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^M$ by the formula ( )

$$M_{1.0}^R = \frac{1}{R_{1.0}^M} = \frac{1}{1.16070316 \times 10^{-25}} = 8.615467 \times 10^{24}\, g/cm. \quad ( )$$

Dividing the left and right of the GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) by M_1 there was receive

$$R_{1-2} = \frac{2 \times G \times M_1 \times g_{1.0}^M}{V_2^2}. \qquad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $A_1^M = 2 \times G \times M_1 \times g_{1.0}^M$ ( ), $R_{1-2} = \frac{A_1^M}{V_2^2}$ ( ), $R_1^c = \frac{A_1^M}{c^2}$ ( ), $c^2 = A_{1.0}^M \times M_{1.0}^R$ ( ), $M_1 = \frac{A_1^M}{A_{1.0}^M}$ ( ) and $R_1^c = \frac{M_1}{M_{1.0}^R}$ ( ) the formula ( ) was written in the following way

$$M_{1.0}^R = \frac{M_1}{R_1^c}, \qquad ( )$$

where $M_{1.0}^R$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm;

M_1– is the mass of the first body, g;

R_1^c – is the gravitational radius of the first body, cm.

The constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ was determined as the relation of the mass of 1.0 g of the body $M_{1.0g}$ to the gravitational radius of 1.0 g of the body $R_{1.0g}^{c}$ by the formula ( )

$$M_{1.0}^{R} = \frac{M_{1.0g}}{R_{1.0g}^{c}} = \frac{1.0}{1.16070316 \times 10^{-25}} = 8.615467 \times 10^{24}\, g/cm\,. \quad ( )$$

The constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ was determined as the relation of the mass of 1.0 cm^3/s^2 of the body $M_{1.0cm^3/s^2}$ the gravitational radius of 1.0 cm^3/s^2 of the body $R_{1.0cm^3/s^2}^{c}$ by the formula ( )

$$M_{1.0}^{R} = \frac{M_{1.0cm^3/s^2}}{R_{1.0cm^3/s^2}^{c}} = \frac{9585.522}{1.11259 \times 10^{-21}} = 8.6153 \times 10^{24}\, g/cm. \quad ( )$$

The constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ was determined as the relation of the mass of 1.0 cm/s^2 of the body $M_{1.0cm/s^2}$ to the gravitational radius of 1.0 cm/s^2 of the body $R_{1.0cm/s^2}^{c}$ by the formula ( )

$$M_{1.0}^{R} = \frac{M_{1.0cm/s^2}}{R_{1.0cm/s^2}^{c}} = \frac{3.8994 \times 10^{21}}{4.55645 \times 10^{-4}} = 8.558 \times 10^{24}\, g/cm. \quad ( )$$

The constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ was determined as the relation of the mass of 1.0 cm of the body $M_{1.0cm}$ to the gravitational radius of 1.0 cm of the body $R_{1.0cm}^{c}$ by the formula ( )

$$M_{1.0}^{R} = \frac{M_{1.0cm}}{R_{1.0cm}^{c}} = \frac{8.615 \times 10^{24}}{1.0} = 8.615 \times 10^{24}\, g/cm. \quad ( )$$

The constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ was determined as the relation of the mass of the Sun g_{sun} to the gravitational radius of the Sun R_{sun}^{c} by the formula ( )

$$M_{1.0}^{R} = \frac{M_{sun}}{R_{sun}^{c}} = \frac{1.273 \times 10^{30}}{147975.07788} = 8.6028 \times 10^{24}\, g/cm. \quad ( )$$

The constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ was determined as the relation of the mass of the Earth M_{ear} to the gravitational radius of the Earth R_{ear}^{c} by the formula ( )

$$M_{1.0}^{R} = \frac{M_{ear}}{R_{ear}^{c}} = \frac{4.023 \times 10^{20}}{0.4475968} = 8.988 \times 10^{24}\, g/cm. \quad ( )$$

The constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ was determined as the relation of the mass of the Moon M_{moo} to the gravitational radius of the Moon R_{moo}^{c} by the formula ( )

$$M_{1.0}^{R} = \frac{M_{moo}}{R_{moo}^{c}} = \frac{7.483 \times 10^{22}}{0.0086860258} = 8.614987 \times 10^{24}\, g/cm. \qquad ( )$$

The constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ was determined as the relation of the mass of (3671) Dionysus M_{dio} to the gravitational radius of (3671) Dionysus R_{dio}^{c} by the formula ( )

$$M_{1.0}^{R} = \frac{M_{dio}}{R_{dio}^{c}} = \frac{1.491 \times 10^{12}}{1.7301 \times 10^{-13}} = 8.618 \times 10^{24}\, g/cm. \qquad ( )$$

The constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ was determined as the relation of the mass of 67P/Churyumov–Gerasimenko M_{67R} to the gravitational radius of 67P/Churyumov–Gerasimenko R_{67R}^{c} by the formula ( )

$$M_{1.0}^{R} = \frac{M_{67R}}{R_{67R}^{c}} = \frac{1.038 \times 10^{13}}{1.213 \times 10^{-12}} = 8.557296 \times 10^{24}\, g/cm. \qquad ( )$$

The constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ was determined as the relation of the mass of Sagittarius A M_{sgra} to the gravitational radius of Sagittarius A R_{sgra}^{c} by the formula ( )

$$M_{1.0}^{R} = \frac{M_{sgra}}{R_{sgra}^{c}} = \frac{2.328 \times 10^{12}}{1.7301 \times 10^{-13}} = 8.615467 \times 10^{24}\, g/cm. \qquad ( )$$

The constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ was determined as the relation of the mass of the Milky Way galaxy centre M_{mwgc} to the gravitational radius of the Milky Way galaxy centre R_{mwgc}^{c} by the formula ( )

$$M_{1.0}^{R} = \frac{M_{mwgc}}{R_{mwgc}^{c}} = \frac{1.305 \times 10^{37}}{1.51424 \times 10^{12}} = 8.61818 \times 10^{24}\, g/cm. \qquad ( )$$

In the same way it is possible to determine the constant of the constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, which have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT by the formula ( ).

The constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ was determined in the process of the solution of the equations ( ), ( ) and ( ) with regard to all the parameters included.

The constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ was determined by the formula

$$M_{1.0}^{R} = \frac{P_{1.0}^{R}}{g_{1.0}^{R}}, \qquad ( )$$

where $M_{1.0}^{R}$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm;

$P_{1.0}^{R}$– is the constant of the weight of the gravitational radius of 1.0 cm of the body, g/cms^2;

$g_{1.0}^{R}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$.

The constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ was determined as the relation of the constant of the weight of the gravitational radius of 1.0 cm of the body $P_{1.0}^{R}$ to the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ by the formula ( )

$$M_{1.0}^{R} = \frac{P_{1.0}^{R}}{g_{1.0}^{R}} = \frac{1.903 \times 10^{28}}{2209.326} = 8.615 \times 10^{24} \ g/cm. \qquad ( )$$

The determination of the constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ according to FPC in TGT made it possible to formulate some conclusions.

Multiplying both sides of GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) by M_1 there was received

$$R_{1-2} \times V_2^2 \times c^2 = 2 \times G \times M_1 \times g_{1.0}^{M} \times c^2. \qquad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $R_{1.0}^{M} = R_{1-2} \times V_2^2$ ( ), $A_{1.0}^{M} = 2 \times G \times g_{1.0}^{M}$ ( ), $M_1 = \frac{A_1^M}{A_{1.0}^M}$ ( ), $E_1 = M_1 \times c^2$ ( ), $M_1 = R_1^c \times M_{1.0}^{R}$ ( ), $c^2 = \frac{A_1^M}{R_1^c}$ ( ) and $E_1 = A_1^M \times M_{1.0}^{R}$ ( ) the formula ( ) was written in the following way

$$M_{1.0}^{R}=\frac{E_1}{A_1^M}, \qquad ( )$$

where $M_{1.0}^{R}$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm;

E_1– is the energy of the first body, cm^2/s^2;

A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2.

The constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ was determined as the relation of the energy of 1.0 g of the body $E_{1.0g}$ to the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0g}^{M}$ by the formula ( )

$$M_{1.0}^{R}=\frac{E_{1.0g}}{A_{1.0g}^{M}}=\frac{8.988\times10^{20}}{1.04324\times10^{-4}}=8.615467\times10^{24}\,g/cm. \qquad ( )$$

The constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ was determined as the relation of the energy of 1.0 cm^3/s^2 of the body $E_{1.0cm^3/s^2}$ to the constant of the gravitational field of the mass of 1.0 cm^3/s^2 of the body $A_{1.0cm^3/s^2}^{M}$ by the formula ( )

$$M_{1.0}^{R}=\frac{E_{1.0cm^3/s^2}}{A_{1.0cm^3/s^2}^{M}}=\frac{8.615\times10^{24}}{1.0}=8.615\times10^{24}\,g/cm. \qquad ( )$$

The constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ was determined as the relation of the energy of $1.0\,cm/s^2$ of the body $E_{1.0cm/s^2}$ to the constant of the gravitational field of the mass of 1.0 cm/s^2 of the body $A_{1.0cm/s^2}^{M}$ by the formula ( )

$$M_{1.0}^{R}=\frac{E_{1.0cm/s^2}}{A_{1.0cm/s^2}^{M}}=\frac{3.505\times10^{42}}{4.068\times10^{17}}=8.616\times10^{24}\,g/cm. \qquad ( )$$

The constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ was determined as the relation of the energy of 1.0 cm of the body $E_{1.0cm}$ to the constant of the gravitational field of the mass of 1.0 cm of the body $A_{1.0cm}^{M}$ by the formula ( )

$$M_{1.0}^{R}=\frac{E_{1.0cm}}{A_{1.0cm/s^2}^{M}}=\frac{7.743\times10^{45}}{8.988\times10^{20}}=8.6148\times10^{24}\,g/cm. \qquad ( )$$

The constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ was determined as the relation of the energy of the Sun E_{sun} to the constant of the gravitational field of the mass of the Sun A_{sun}^{M} by the formula ( )

$$M_{1.0}^{R} = \frac{E_{sun}}{A_{sun}^{M}} = \frac{1.143 \times 10^{51}}{1.328 \times 10^{26}} = 8.6069 \times 10^{24}\ g/cm. \qquad (\ )$$

The constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ was determined as the relation of the energy of the Earth E_{ear} to the constant of the gravitational field of the mass of the Earth A_{ear}^{M} by the formula ( )

$$M_{1.0}^{R} = \frac{E_{ear}}{A_{ear}^{M}} = \frac{3.466 \times 10^{45}}{4.023 \times 10^{20}} = 8.615 \times 10^{24}\ g/cm. \qquad (\ )$$

The constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ was determined as the relation of the energy of the Moon E_{moo} to the constant of the gravitational field of the mass of the Moon A_{moo}^{M} by the formula ( )

$$M_{1.0}^{R} = \frac{E_{moo}}{A_{moo}^{M}} = \frac{6.7257 \times 10^{43}}{7.807 \times 10^{18}} = 8.615 \times 10^{24}\ g/cm. \qquad (\ )$$

The constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ was determined as the relation of the energy of (3671) Dionysus E_{dio} to the constant of the gravitational field of the mass of (3671) Dionysus A_{dio}^{M} by the formula ( )

$$M_{1.0}^{R} = \frac{E_{dio}}{A_{dio}^{M}} = \frac{1.34 \times 10^{33}}{1.555 \times 10^{8}} = 8.617 \times 10^{24}\ g/cm. \qquad (\ )$$

The constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ was determined as the relation of the energy of 67P/Churyumov–Gerasimenko E_{67P} to the constant of the gravitational field of the mass of 67P/Churyumov–Gerasimenko A_{67P}^{M} by the formula ( )

$$M_{1.0}^{R} = \frac{E_{67P}}{A_{67P}^{M}} = \frac{8.158 \times 10^{54}}{9.470 \times 10^{29}} = 8.615 \times 10^{24}\ g/cm. \qquad (\ )$$

The constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ was determined as the relation of the energy of Sagittarius A E_{sgra} to the constant of the gravitational field of the mass of Sagittarius A A_{sgra}^{M} by the formula ( )

$$M_{1.0}^{R} = \frac{E_{sgra}}{A_{sgra}^{M}} = \frac{8.158 \times 10^{54}}{9.470 \times 10^{29}} = 8.615 \times 10^{24}\ g/cm. \qquad ( )$$

The constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ was determined as the relation of the energy of the Milky Way galaxy centre E_{mwgc} to the constant of the gravitational field of the mass of the Milky Way galaxy centre A_{mwgc}^{M} by the formula ( )

$$M_{1.0}^{R} = \frac{E_{mwgc}}{A_{mwgc}^{M}} = \frac{1.1729 \times 10^{58}}{1.361 \times 10^{33}} = 8.618 \times 10^{24}\ g/cm. \qquad ( )$$

Similarly, other FPC in TGT was determined in the process of solution? GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^{M}}{R_{1-2}}$ (1).

The determination of the constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ according to FPC in TGT made it possible to formulate the following conclusions.

The coincidence of величин the constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$, determined with the help of the parameters of the first body and the second body and other FPC in TGT in the Universe according to FPC in TGT the formulas (), () shows their validity.

The determined of the constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ makes it possible to determine all the other FPC in TGT and allparameters in physics.

7.2.4. The determination of the mass of the first body M_1 and mass of the second body M_2

The mass of the first body M_1 and the mass of the second body M_2 was determined in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ (1), the equation $M_1 \times g_2 = M_2 \times g_1$ ( ), GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}$ ( ), the equation . $\frac{G \times M_1 \times g_2}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ) and the equation . $\frac{G \times M_2 \times g_1}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ).

The mass of the first body M_1 and the mass of the second body M_2 was determined in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ (1).

Taking into account that $g_1 = M_1 \times g_{1.0}^M$ ( ), $g_2 = M_2 \times g_{1.0}^M$ ( ), $F_{1-2} = G \times \frac{M_1 \times M_2 \times g_{1.0}^M + M_2 \times M_1 \times g_{1.0}^M}{R_{1-2}^2}$ ( ), $F_{1-2} = \frac{G \times M_1 \times M_2 \times g_{1.0}^M + G \times M_2 \times M_1 \times g_{1.0}^M}{R_{1-2}^2}$ (), $F_{1-2} = \frac{2 \times G \times M_1 \times M_2 \times g_{1.0}^M}{R_{1-2}^2}$ ( ), $A_1^M = 2 \times G \times M_1 \times g_{1.0}^M$ ( ), $A_1^M = R_{1-2} \times V_2^2$ ( ), $F_{1-2} = \frac{M_2 \times A_1^M}{R_{1-2}^2}$ ( ), $F_{1-2} = \frac{M_2 \times R_{1-2} \times V_2^2}{R_{1-2}^2}$ ( ) and $F_{1-2} = \frac{M_2 \times V_{1-2}^2}{R_{1-2}}$ ( ) TGL (1) was written in the following way

$$M_2 = \frac{F_{1-2} \times R_{1-2}}{V_2^2}, \qquad ( )$$

where M_2– is the mass of the second body, g;

F_{1-2}– is the gravitational force between the first body and the second body, gcm/s^2;

R_{1-2}– is the average distance between the first body and the second body, cm;

V_2– is the average orbital velocity of the second body, cm/s.

The mass of the first body M_1 and the mass of the second body M_2 were determined in the process of solving the TGL (1).

Taking into account that $g_1 = M_1 \times g_{1.0}^M$ ( ), $g_2 = M_2 \times g_{1.0}^M$ ( ), $F_{1-2} = G \times \frac{M_1 \times M_2 \times g_{1.0}^M + M_2 \times M_1 \times g_{1.0}^M}{R_{1-2}^2}$ ( ), $F_{1-2} = \frac{G \times M_1 \times M_2 \times g_{1.0}^M + G \times M_2 \times M_1 \times g_{1.0}^M}{R_{1-2}^2}$ (), $F_{1-2} = \frac{2 \times G \times M_1 \times M_2 \times g_{1.0}^M}{R_{1-2}^2}$ ( ), $A_1^M = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) and $F_{1-2} = \frac{M_2 \times A_1^M}{R_{1-2}^2}$ ( ) TGL (1) was written in the following way

$$M_2 = \frac{F_{1-2} \times R_{1-2}^2}{A_1^M}, \qquad ( )$$

where M_2– is the mass of the second body, g;

F_{1-2}– is the gravitational force between the first body and the second body, gcm/s^2;

R_{1-2}– is the average distance between the first body and the second body, cm;

A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2.

The mass of the first body M_1 and the mass of the second body M_2 определили в процессе решения TGL (1).

Taking into account that $g_1 = M_1 \times g_{1.0}^M$ ( ), $g_2 = M_2 \times g_{1.0}^M$ ( ), $F_{1-2} = G \times \frac{M_1 \times M_2 \times g_{1.0}^M + M_2 \times M_1 \times g_{1.0}^M}{R_{1-2}^2}$ ( ), $F_{1-2} = \frac{G \times M_1 \times M_2 \times g_{1.0}^M + G \times M_2 \times M_1 \times g_{1.0}^M}{R_{1-2}^2}$ (), $F_{1-2} = \frac{2 \times G \times M_1 \times M_2 \times g_{1.0}^M}{R_{1-2}^2}$ ( ), $A_1^M = 2 \times G \times M_1 \times g_{1.0}^M$ ( ), $F_{1-2} = \frac{M_2 \times A_1^M}{R_{1-2}^2}$ ( ), and $g_1 = \frac{A_1^M}{R_{1-2}^2}$ ( ) TGL (1) was written in the following way

$$M_2 = \frac{F_{1-2}}{g_1}, \qquad ( )$$

where M_2– is the mass of the second body, g;

F_{1-2}– is the gravitational force between the first body and the second body, gcm/s^2;

g_1– is the gravitational acceleration of the first body, cm/s^2.

Similarly, other parameters were determined of the bodies in the process of solving TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ (1).

The mass of the first body M_1 and the mass of the second body M_2 was determined in the process of solution the equation $M_1 \times g_2 = M_2 \times g_1$ ( ).

The equation $M_1 \times g_2 = M_2 \times g_1$ ( ) having been solved with regard to M_1 there was obtained

$$M_1 = \frac{M_2 \times g_1}{g_2}, \qquad ( )$$

where M_1– is the mass of the first body, g;

M_2– is the mass of the second body, g;

g_1– is the gravitational acceleration of the first body, cm/s^2;

g_2– is the gravitational acceleration of the second body, cm/s^2.

The equation $M_1 \times g_2 = M_2 \times g_1$ ( ) having been solved with respect to M_2 there was obtained

$$M_2 = \frac{M_1 \times g_2}{g_1}, \qquad ( )$$

where M_2– is the mass of the second body, g;

M_1– is the mass of the first body, g;

g_2– is the gravitational acceleration of the second body, cm/s^2;

g_1– is the gravitational acceleration of the first body, cm/s^2.

The equation ( ) having been solved with respect to M_1 there was obtained

$$M_1 = \frac{M_2 \times g_1}{g_2}, \qquad ( )$$

Taking into account that $M_{1.0}^{g} = \frac{M_2}{g_2}$ ( ) the formula ( ) was written in the following way

$$M_1 = g_1 \times M_{1.0}^{g}, \qquad ( )$$

where M_1– is the mass of the first body, g;

g_1– is the gravitational acceleration of the first body, cm/s^2;

$M_{1.0}^{g}$– is the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body, gs^2/cm.

The equation ( ) having been solved with respect to M_2 there was obtained

$$M_2 = \frac{M_1 \times g_2}{g_1}, \qquad ( )$$

Taking into account that $M_{1.0}^{g} = \frac{M_1}{g_1}$ ( ) the formula ( ) was written in the following way

$$M_2 = g_2 \times M_{1.0}^{g}, \qquad ( )$$

where M_2– is the mass of the second body, g;

g_2– is the gravitational acceleration of the second body, cm/s^2;

$M_{1.0}^{g}$– is the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body, gs^2/cm.

The equation ( ) having been solved with respect to g_1 there was obtained

$$g_1 = \frac{M_1 \times g_2}{M_2}, \qquad ( )$$

Taking into account that $g_{1.0}^{M} = \frac{g_2}{M_2}$ ( ) and $g_1 = M_1 \times g_{1.0}^{M}$ ( ) the formula ( ) was written in the following way

$$M_1 = \frac{g_1}{g_{1.0}^{M}}, \qquad ( )$$

where M_1– is the mass of the first body, g;

g_1– is the gravitational acceleration of the first body, cm/s^2;

$g_{1.0}^{M}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2;

The equation ( ) having been solved with respect to g_2 there was obtained

$$g_2 = \frac{M_2 \times g_1}{M_1}, \qquad ( )$$

Taking into account that $g_{1.0}^{M} = \frac{g_1}{M_1}$ ( ) and $g_2 = M_2 \times g_{1.0}^{M}$ ( ) the formula ( ) was written in the following way

$$M_2 = \frac{g_2}{g_{1.0}^{M}}, \qquad ( )$$

where M_2– is the mass of the second body, g;

g_2– is the gravitational acceleration of the second body, cm/s^2;

$g_{1.0}^{M}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2.

Taking into account that $P_{1-2} = M_2 \times g_1$ ( ) the equation $M_1 \times g_2 = M_2 \times g_1$ ( ) was written in the following way

$$M_1 = \frac{P_{1-2}}{g_2}, \qquad ( )$$

where M_1– is the mass of the first body, g;

P_{1-2}– is the weight of the second body, g;

g_2– is the gravitational acceleration of the second body, cm/s^2.

Taking into account that $P_{1-2} = M_1 \times g_2$ ( ) the equation $M_1 \times g_2 = M_2 \times g_1$ ( ) was written in the following way

$$M_2 = \frac{P_{1-2}}{g_1}, \qquad ( )$$

where M_2– is the mass of the second body, g;

P_{1-2}– is the weight of the body, g;

g_1– is the gravitational acceleration of the first body, cm/s^2.

Taking into account that $F_{1-2} = M_2 \times g_1$ ( ) the equation $M_1 \times g_2 = M_2 \times g_1$ ( ) was written in the following way

$$M_1 = \frac{F_{1-2}}{g_2}, \qquad ( )$$

where M_1– is the mass of the first body, g;

F_{1-2}– is the gravitational force between the first body and the second body, gcm/s^2;

g_2– is the gravitational acceleration of the second body, cm/s^2.

Taking into account that $F_{1-2} = M_1 \times g_2$ ( ) the equation $M_1 \times g_2 = M_2 \times g_1$ ( ) was written in the following way

$$M_2 = \frac{F_{1-2}}{g_1}, \qquad ( )$$

where M_2– is the mass of the second body, g;

F_{1-2}– is the gravitational force between the first body and the second body, gcm/s^2;

g_1– is the gravitational acceleration of the first body, cm/s^2.

Similarly, other parameters were determined of the bodies in the process of solving $M_1 \times g_2 = M_2 \times g_1$ ( ).

The mass of the first body M_1 and the mass of the second body M_2 was determined in the process of solution GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}$ ( ).

Taking into account that $A_{1.0}^M = 2 \times G \times g_{1.0}^M$ ( ) the formula ( ) was written in the following way

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) having been solved with respect to M_1 there was obtained

$$M_1 = \frac{R_{1-2} \times V_2^2}{2 \times G \times g_{1.0}^M}. \quad ( )$$

Taking into account that $A_{1.0}^M = 2 \times G \times g_{1.0}^M$ ( ) the formula ( ) was written in the following way

$$M_1 = \frac{R_{1-2} \times V_2^2}{A_{1.0}^M}, \quad ( )$$

where M_1– is the mass of the first body, g;

R_{1-2}– is the average distance between the first body and the second body, cm;

V_2 – is the average orbital velocity of the second body, cm/s;

$A_{1.0}^M$– is the constant of the gravitational field of the mass of 1.0 g of the body, cm^3/gs^2.

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) having been solved with respect to M_1 there was obtained

$$M_1 = \frac{R_{1-2} \times V_2^2}{2 \times G \times g_{1.0}^M}. \quad ( )$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ) and $A_{1.0}^M = 2 \times G \times g_{1.0}^M$ ( ) the formula ( ) was written in the following way

$$M_1 = \frac{A_1^M}{A_{1.0}^M}, \quad ( )$$

where M_1– is the mass of the first body, g;

A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

$A_{1.0}^M$– is the constant of the gravitational field of 1.0 g of the body, cm^3/gs^2.

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) having been solved with respect to M_1 there was obtained

$$M_1 = \frac{R_{1-2} \times V_2^2}{2 \times G \times g_{1.0}^M}. \qquad ( )$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ), $A_{1.0}^M = 2 \times G \times g_{1.0}^M$ ( ), $M_1 = \frac{A_1^M}{A_{1.0}^M}$ () and $M_{1.0}^A = \frac{M_1}{M_{1.0}^A}$ ( ) the formula ( ) was written in the following way

$$M_1 = A_1^M \times M_{1.0}^A, \qquad ( )$$

where M_1– is the mass of the first body, g;

A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

$M_{1.0}^A$– is the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body, gs^2/cm^3.

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) having been solved with respect to M_1 there was obtained

$$R_{1-2} = \frac{2 \times G \times M_1 \times g_{1.0}^M}{V_2^2}. \qquad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $A_1^M = 2 \times G \times M_1 \times g_{1.0}^M$ ( ), $R_{1-2} = \frac{A_1^M}{V_2^2}$ ( ), $R_1^c = \frac{A_1^M}{c^2}$ ( ), $c^2 = A_{1.0}^M \times M_{1.0}^R$ ( ), $M_1 = \frac{A_1^M}{A_{1.0}^M}$ ( ) and $R_1^c = \frac{M_1}{M_{1.0}^R}$ ( ) the formula ( ) was written in the following way

$$M_1 = M_{1.0}^R \times R_1^c, \qquad ( )$$

where M_1– is the mass of the first body, g;

R_1^c– is the gravitational radius of first body, cm;

$M_{1.0}^R$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm.

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) having been solved with respect to $g_{1.0}^M$ there was obtained

$$g_{1.0}^{M} = \frac{R_{1-2} \times V_2^2}{2 \times G \times M_1}. \quad ( )$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ), $A_1^M = 2 \times G \times g_1$ ( ) and $g_{1.0}^M = \frac{g_1}{M_1}$ ( ) the formula ( ) was written in the following way

$$M_1 = \frac{g_1}{g_{1.0}^M}, \quad ( )$$

where M_1– is the mass of the first body, g;

g_1 – is the gravity acceleration of the first body, cm/s^2;

$g_{1.0}^M$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2.

Dividing the left and right of the GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) by M_1 there was receive

$$\frac{R_{1-2} \times V_2^2}{M_1} = 2 \times G \times g_{1.0}^M. \quad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $R_{1.0}^M = \frac{R_{1-2}}{M_1}$ ( ), $A_{1.0}^M = 2 \times G \times g_{1.0}^M$ (), $A_{1.0}^M = \frac{A_1^M}{M_1}$ ( ) and $R_1^c = M_1 \times R_{1.0}^M$ ( ) the formula ( ) was written in the following way

$$M_1 = \frac{R_1^c}{R_{1.0}^M}, \quad ( )$$

where M_1– is the mass of the first body, g;

R_1^c – is the gravitational radius of first body, cm;

$R_{1.0}^M$– is the constant of the gravitational radius of the mass of 1.0 g of the body, cm/g.

Multiplying the left and right of the GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) by M_1 there was received

$$M_1 \times R_{1-2} \times V_2^2 = 2 \times G \times {M_1}^2 \times g_{1.0}^M. \quad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $A_1^M = R_{1-2} \times V_2^2$ ( ), $g_1 = M_1 \times g_{1.0}^M$ ( ), $A_1^M = 2 \times G \times g_1$ ( ) and $P_1 = M_1 \times g_1$ ( ) the formula ( ) was written in the following way

$$M_1 = \frac{P_1}{g_1}, \qquad ( )$$

where M_1– is the mass of the first body, g;

P_1– is the weight of the first body, cm;

g_1– is the gravitational acceleration of the first body, cm/s^2.

Multiplying the left and right of the GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) by M_2 there was received

$$M_2 \times R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times M_2 \times g_{1.0}^M. \qquad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $A_1^M = R_{1-2} \times V_2^2$ ( ), $g_1 = M_1 \times g_{1.0}^M$ ( ) and $A_1^M = 2 \times G \times g_1$ ( ) the formula ( ) was written in the following way

$$M_2 = \frac{P_{1-2}}{g_1}, \qquad ( )$$

where M_2– is the mass of the second body, g;

P_1– is the weight of the first body, cm;

g_1– is the gravitational acceleration of the first body, cm/s^2.

Multiplying the left and right of the GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) by c^2 there was received

$$R_{1-2} \times V_2^2 \times c^2 = 2 \times G \times M_1 \times g_{1.0}^M \times c^2. \qquad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $A_1^M = R_{1-2} \times V_2^2$ ( ), $A_1^M = 2 \times G \times g_1$ ( ), $M_1 = \frac{A_1^M}{A_{1.0}^M}$ ( ) and $E_1 = M_1 \times c^2$ ( ) the formula ( ) was written in the following way

$$M_1 = \frac{E_1}{c^2}, \qquad ( )$$

where M_1– is the mass of the first body, g;

E_1– is the energy of the first body, gcm^2/s^2;

c – is the speed of light in vacuum, cm/s.

Similarly, other parameters were determined of the bodies in the process of solution GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}$ ( ).

The mass of the first body M_1 and the mass of the second body M_2 was determined in the process of solution the equation . $\frac{G\times M_1\times g_2}{R_{1-2}^2} = \frac{M_2\times V_2^2}{2\times R_{1-2}}$ ( ).

The equation ( ) having been solved with respect to M_1 there was obtained

$$M_1 = \frac{M_2 \times R_{1-2} \times V_2^2}{2 \times G \times g_2}. \qquad ( )$$

Taking into account that $A_{1.0}^M = R_{1-2} \times V_2^2$ ( ), $M_{1.0}^g = \frac{M_2}{g_2}$ ( ) and $M_{1.0}^g = 2 \times G \times M_{1.0}^A$ ( ) the formula ( ) was written in the following way

$$M_1 = A_1^M \times M_{1.0}^A, \qquad ( )$$

where M_1– is the mass of the first body, g;

$A_{1.0}^M$– is the constant of the gravitational field of the mass of 1.0 g of the body, cm^3/gs^2;

$M_{1.0}^A$– is the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body, gs^2/cm^3.

The equation ( ) having been solved with respect to M_1 there was obtained

$$M_1 = \frac{M_2 \times R_{1-2} \times V_2^2}{2 \times G \times g_2}. \qquad ( )$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ), $A_1^M = 2 \times G \times g_1$ ( ) and $M_{1.0}^g = \frac{M_2}{g_2}$ ( ) the formula ( ) was written in the following way

$$M_1 = g_1 \times M_{1.0}^g, \qquad ( )$$

where M_1– is the mass of the first body, g;

g_1 – is the gravitational acceleration of the first body, cm/s^2;

$M_{1.0}^g$– is the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body, gs^2/cm.

The equation ( ) having been solved with respect to M_2 there was obtained

$$M_2 = \frac{2 \times G \times M_1 \times g_2}{R_{1-2} \times V_2^2}. \qquad ( )$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ), $A_1^M = \frac{M_1}{M_{1.0}^A}$ ( ) and $M_{1.0}^g = 2 \times G \times M_{1.0}^A$ ( ) the formula ( ) was written in to following way

$$M_2 = g_2 \times M_{1.0}^g, \qquad ( )$$

where M_2– is the mass of the second body, g;

g_2 – is the gravitational acceleration of the second body, cm/s^2;

$M_{1.0}^g$– is the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body, gs^2/cm.

Similarly, other parameters were determined of the bodies in the process of solution the equation . $\frac{G \times M_1 \times g_2}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ).

The equation ( ) having been solved with respect to g_2 there was obtained

$$g_2 = \frac{M_2 \times R_{1-2} \times V_2^2}{2 \times G \times M_1}. \qquad ( )$$

Taking into account that $A_{1.0}^M = \frac{R_{1-2} \times V_2^2}{M_1}$ ( ), $g_{1.0}^M = \frac{A_{1.0}^M}{2 \times G}$ ( ) and $g_2 = M_2 \times g_{1.0}^M$ ( ) the formula ( ) was written in the following way

$$M_2 = \frac{g_2}{g_{1.0}^M}, \qquad ( )$$

where g_2– is the gravitational acceleration of the second body, cm/s^2;

M_2– is the mass of the second body, g;

$g_{1.0}^M$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2.

The physical nature and the method of the determination of the mass of the first body M_1 and the mass of the second body M_2 without using the so–called inertial mass, gravitational mass, dark matter (cold dark matter, warm dark matter, hot dark matter, baryonic dark matter, light dark matter, mixed dark matter, self-interacting dark matter), Higgs boson, Atomic mass, Bare mass, Critical mass, Effective mass, Minimum mass, Molar mass, Molecular mass, Negative mass according to FPC in TGT by the formulas (), ( ), ( ), ( ) and ( ) will be shown in some other work.

7.3. The determination of the fundamental physical constants (FPC) in Tsiganok gravitation theory (TGT), characterizing the gravitational acceleration of body and other body parameters

7.3.1. The determination of the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ was determined in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ (1), the equation $M_1 \times g_2 = M_2 \times g_1$ ( ), GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^{M}}{R_{1-2}}$ ( ), the equation . $\frac{G \times M_1 \times g_2}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ) and the equation . $\frac{G \times M_2 \times g_1}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ).

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ was determined in the process of solution the equation $M_1 \times g_2 = M_2 \times g_1$ ( ).

The equation ( ) having been solved with respect to g_1 there was obtained

$$g_1 = \frac{M_1 \times g_2}{M_2}, \qquad ( )$$

Taking into account that $g_{1.0}^{M} = \frac{g_2}{M_2}$ ( ) and $g_1 = M_1 \times g_{1.0}^{M}$ ( ) the formula ( ) was written in the following way

$$g_{1.0}^{M} = \frac{g_1}{M_1}, \qquad ( )$$

where $g_{1.0}^{M}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2;

g_1 – is the gravitational acceleration of the first body, cm/s^2;

M_1– is the mass of the first body, g.

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ was determined as the relation of the gravitational acceleration of 1.0 g of the body $g_{1.0g}$ to the mass of 1.0 g of the body $M_{1.0g}$ by the formula ( )

$$g_{1.0}^{M} = \frac{g_{1.0g}}{M_{1.0g}} = \frac{2.5645 \times 10^{-22}}{1.0} = 2.5645 \times 10^{-22}\, cm/gs^2. \qquad ()$$

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ was determined as the relation of the gravitational acceleration of 1.0 cm^3/s^2 of the body $g_{1.0cm^3/s^2}$ to the mass of 1.0 cm^3/s^2 of the body $M_{1.0cm^3/s^2}$ by the formula ( )

$$g_{1.0}^{M} = \frac{g_{1.0cm^3/s^2}}{M_{1.0cm^3/s^2}} = \frac{2.4582 \times 10^{-18}}{9585.522} = 2.5645 \times 10^{-22}\, cm/gs^2\,. ()$$

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ was determined as the relation of the gravitational acceleration of 1.0 cm/s^2 of the body $g_{1.0cm/s^2}$ to the mass of 1.0 cm/s^2 of the body $M_{1.0cm/s^2}$ by the formula ( )

$$g_{1.0}^{M} = \frac{g_{1.0cm/s^2}}{M_{1.0cm/s^2}} = \frac{1.0}{3.8994 \times 10^{21}} = 2.5645 \times 10^{-22}\, cm/gs^2. \quad ()$$

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ was determined as the relation of the gravitational acceleration of 1.0 cm of the body $g_{1.0cm}$ to the mass 1.0 cm of the body $M_{1.0cm}$ by the formula ( )

$$g_{1.0}^{M} = \frac{g_{1.0cm}}{M_{1.0cm}} = \frac{2209.326}{8.615 \times 10^{24}} = 2.5645 \times 10^{-22}\, cm/gs^2. \qquad ()$$

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ was determined as the relation of the gravitational acceleration of the Sun g_{sun} to the mass of the Sun M_{sun} by the formula ( )

$$g_{1.0}^{M} = \frac{g_{sun}}{M_{sun}} = \frac{3.265 \times 10^{8}}{1.273 \times 10^{30}} = 2.5648 \times 10^{-22}\, cm/gs^2. \qquad ()$$

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ was determined as the relation of the gravitational acceleration of the Earth g_{ear} to the mass of the Earth M_{ear} by the formula ( )

$$g_{1.0}^{M} = \frac{g_{ear}}{M_{ear}} = \frac{980.665}{3.856 \times 10^{24}} = 2.5432 \times 10^{-22}\, cm/gs^2. \qquad ()$$

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ was determined as the relation of the gravitational acceleration of the Moon g_{moo} to the mass of the Moon M_{moo} by the formula ( )

$$g_{1.0}^{M} = \frac{g_{moo}}{M_{moo}} = \frac{19.190}{7.483 \times 10^{22}} = 2.5645 \times 10^{-22}\, cm/gs^{2}. \qquad ( )$$

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ was determined as the relation of the gravitational acceleration of (3671) Dionysus g_{dio} to the mass of (3671) Dionysus M_{dio} by the formula ( )

$$g_{1.0}^{M} = \frac{g_{dio}}{M_{dio}} = \frac{3.824 \times 10^{-10}}{1.491 \times 10^{12}} = 2.5647 \times 10^{-22}\, cm/gs^{2}. \qquad ( )$$

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ was determined as the relation of the gravitational acceleration of 67P/Churyumov–Gerasimenko g_{67P} to the mass of 67P/Churyumov–Gerasimenko M_{67P} by the formula ( )

$$g_{1.0}^{M} = \frac{g_{67P}}{M_{67P}} = \frac{2.662 \times 10^{-9}}{1.038 \times 10^{13}} = 2.5645 \times 10^{-22}\, cm/gs^{2}. \qquad ( )$$

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ was determined as the relation of the gravitational acceleration of Sagittarius A g_{sgra} to the mass of Sagittarius A M_{sgra} by the formula ( )

$$g_{1.0}^{M} = \frac{g_{sgra}}{M_{sgra}} = \frac{2.328 \times 10^{12}}{9.077 \times 10^{33}} = 2.5647 \times 10^{-22}\, cm/gs^{2}. \qquad ( )$$

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ was determined as the relation of the gravitational acceleration of the Milky Way galaxy centre g_{mwgc} to the mass of the Milky Way galaxy centre M_{mwgc} by the formula ( )

$$g_{1.0}^{M} = \frac{g_{mwgc}}{M_{mwgc}} = \frac{3.347 \times 10^{15}}{1.305 \times 10^{37}} = 2.5648 \times 10^{-22}\, cm/gs^{2}. \qquad ( )$$

In the same way it is possible to determine the constant of the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, whey have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT by the formula ( ).

The equation ( ) having been solved with respect to g_2 there was obtained

$$g_2 = \frac{M_2 \times g_1}{M_1}, \qquad ( )$$

Taking into account that $g_{1.0}^M = \frac{g_1}{M_1}$ ( ) and $g_2 = M_2 \times g_{1.0}^M$ ( ) the formula ( ) was written in the following way

$$g_{1.0}^M = \frac{g_2}{M_2}, \qquad ( )$$

where $g_{1.0}^M$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2;

g_2 – is the gravitational acceleration of the second body, cm/s^2;

M_2– is the mass of the second body, g;

Similarly, other FPC in TGT was determined in the process of solution the equation$M_1 \times g_2 = M_2 \times g_1$ ( ).

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^M$ was determined in the process of solution GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}$ ( ).

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) having been solved with respect to $g_{1.0}^M$ there was obtained

$$g_{1.0}^M = \frac{R_{1-2} \times V_2^2}{2 \times G \times M_1}. \qquad ( )$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ) and $A_1^M = 2 \times G \times g_1$ ( ) the formula ( ) was written in the following way

$$g_{1.0}^M = \frac{g_1}{M_1}, \qquad ( )$$

where $g_{1.0}^M$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2;

g_1– is the gravitational acceleration of the first body, cm/s^2;

M_1– is the mass of the first body, g.

The formula of the determination the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^M$ ( ), obtained by solving the equation () is similar to the formula obtained by solving the equation ( ).

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) having been solved with respect to $g_{1.0}^M$ there was obtained

$$g^M_{1.0} = \frac{R_{1-2} \times V_2^2}{2 \times G \times M_1}. \qquad ( )$$

Taking into account that $A^M_{1.0} = \frac{R_{1-2} \times V_2^2}{M_1}$ ( ) the formula ( ) was written in the following way

$$g^M_{1.0} = \frac{A^M_{1.0}}{2 \times G}, \qquad ( )$$

where $g^M_{1.0}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2;

$A^M_{1.0}$– is the constant of the gravitational field of 1.0 g of the body, cm^3/gs^2;

G – is the gravitational constant, cm^2.

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g^M_{1.0}$ was determined as the relation of the constant of the gravitational field of 1.0 g of the body $A^M_{1.0}$ to the doubled gravitational constant G by the formula ( )

$$g^M_{1.0} = \frac{A^M_{1.0g}}{2 \times G} = \frac{1.04324 \times 10^{-4}}{2 \times 2.034 \times 10^{17}} = 2.5645 \times 10^{-22}\, cm/gs^2. \qquad ( )$$

GF ( ) having been solved with respect to $g^M_{1.0}$, there was obtained

$$g^M_{1.0} = \frac{R_{1-2} \times V_2^2}{2 \times G \times M_1}. \qquad ( )$$

Taking into account that $A^M_{1.0} = \frac{R_{1-2} \times V_2^2}{M_1}$ ( ), $g^M_{1.0} = \frac{A^M_{1.0}}{2 \times G}$ ( ) and $A^M_{1.0} = \frac{1}{M^A_{1.0}}$ ( ) the formula ( ) was written in the following way

$$g^M_{1.0} = \frac{1}{2 \times G \times M^A_{1.0}}, \qquad ( )$$

where $g^M_{1.0}$– is the constant of the gravitational acceleration of the mass of 1.0 g of a body, cm/gs^2;

G – is the gravitational constant, cm^2;

$M^A_{1.0}$– is the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body, gs^2/cm^3.

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g^M_{1.0}$ was determined the value that is reverse to the product of the doubled gravitational constant G by the constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body $M_{1.0}^A$ by the formula ( ).

$$g_{1.0}^M = \frac{1}{2 \times G \times M_{1.0}^A} = \frac{1}{2 \times 2.034 \times 10^{17} \times 9585.522}$$
$$= 2.5645 \times 10^{-22}\,cm/gs^2. \quad ( )$$

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) having been solved with respect to G, there was obtained

$$G = \frac{R_{1-2} \times V_2^2}{2 \times M_1 \times g_{1.0}^M}. \quad ( )$$

Taking into account that $A_{1.0}^M = \frac{R_{1-2} \times V_2^2}{M_1}$ ( ), $G = \frac{A_{1.0}^M}{2 \times g_{1.0}^M}$ ( ), $A_{1.0}^M = \frac{1}{M_{1.0}^A}$ ( ), $G = \frac{1}{2 \times M_{1.0}^A \times g_{1.0}^M}$ ( ), $g_{1.0}^A = M_{1.0}^A \times g_{1.0}^M$ ( ), $g_{1.0}^M = \frac{g_{1.0}^A}{M_{1.0}^A}$ ( ) and $M_{1.0}^A = \frac{1}{A_{1.0}^M}$ ( ) the formula ( ) was written in the following way

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^M$ was determined by the formula ( )

$$g_{1.0}^M = A_{1.0}^M \times g_{1.0}^A, \quad ( )$$

where $g_{1.0}^M$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2;

$A_{1.0}^M$– is the constant of the gravitational field of the mass of 1.0 g of the body, cm^3/gs^2;

$g_{1.0}^A$– is the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body, $1/cm^2$.

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^M$ was determined as the product of the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^M$ by the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^A$ by the formula ( )

$$g_{1.0}^M = A_{1.0}^M \times g_{1.0}^A = 1.04324 \times 10^{-4} \times 2.4582 \times 10^{-18}$$
$$= 2.5645 \times 10^{-22}\,cm/gs^2. \quad ( )$$

Dividing the left and right of the GF ( ) by g_1 there was receive

$$\frac{R_{1-2} \times V_2^2}{g_1} = \frac{2 \times G \times M_1 \times g_{1.0}^M}{g_1}. \quad ()$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ), $M_{1.0}^g = \frac{M_1}{g_1}$ ( ), $A_1^M = 2 \times G \times g_1$ () and $M_{1.0}^g = \frac{1}{g_{1.0}^M}$ ( ) the formula ( ) was written in the following way

$$g_{1.0}^M = \frac{1}{M_{1.0}^g}, \quad ()$$

where $g_{1.0}^M$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2;

$M_{1.0}^g$– is the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body, gs^2/cm.

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^M$ was determined as the is the value reverse to the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^g$ by the formula ( )

$$g_{1.0}^M = \frac{1}{M_{1.0}^g} = \frac{1}{3.8994 \times 10^{21}} = 2.5645 \times 10^{-22}\, cm/gs^2. \quad ()$$

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) having been solved with respect to G, there was obtained

$$G = \frac{R_{1-2} \times V_2^2}{2 \times M_1 \times g_{1.0}^M}. \quad ()$$

Taking into account that $A_{1.0}^M = \frac{R_{1-2} \times V_2^2}{M_1}$ ( ), $G = \frac{A_{1.0}^M}{2 \times g_{1.0}^M}$ ( ), $A_{1.0}^M = \frac{1}{M_{1.0}^A}$ ( ), $G = \frac{1}{2 \times M_{1.0}^A \times g_{1.0}^M}$ ( ) and $g_{1.0}^A = M_{1.0}^A \times g_{1.0}^M$ ( ) the formula ( ) was written in the following way

$$g_{1.0}^M = \frac{g_{1.0}^A}{M_{1.0}^A}, \quad ()$$

where $g_{1.0}^M$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2;

$g_{1.0}^{A}$– is the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body, $1/cm^2$;

$M_{1.0}^{A}$– is the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body, gs^2/cm^3.

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ was determined is the relation the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^{A}$ to the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M_{1.0}^{A}$ by the formula ( ).

$$g_{1.0}^{M} = \frac{g_{1.0}^{A}}{M_{1.0}^{A}} = \frac{2.4582 \times 10^{-18}}{9585.522} = 2.5645 \times 10^{-22}\, cm/gs^2. \qquad (\,)$$

$$g_{1.0}^{M} = \frac{g_{1.0}^{R}}{M_{1.0}^{R}}, \qquad (\,)$$

where $g_{1.0}^{M}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2;

$g_{1.0}^{R}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$;

$M_{1.0}^{R}$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm.

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ was determined is the relation the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body to the constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ by the formula ( ).

$$g_{1.0}^{M} = \frac{g_{1.0}^{R}}{M_{1.0}^{R}} = \frac{2209.43656}{8.615467 \times 10^{24}} = 2.5645 \times 10^{-22}\, cm/gs^2. \qquad (\,)$$

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) having been solved with respect to G, there was obtained

$$G = \frac{R_{1-2} \times V_2^2}{2 \times M_1 \times g_{1.0}^{M}}. \qquad (\,)$$

Taking into account that $A_{1.0}^{M} = \frac{R_{1-2}\times V_2^2}{M_1}$ ( ), $G = \frac{A_{1.0}^{M}}{2\times g_{1.0}^{M}}$ ( ), $A_{1.0}^{M} = \frac{1}{M_{1.0}^{A}}$ ( ), $G = \frac{1}{2\times M_{1.0}^{A}\times g_{1.0}^{M}}$ ( ), $g_{1.0}^{A} = M_{1.0}^{A} \times g_{1.0}^{M}$ ( ), $g_{1.0}^{M} = \frac{g_{1.0}^{A}}{M_{1.0}^{A}}$ ( ), $M_{1.0}^{A} = \frac{1}{A_{1.0}^{M}}$ ( ), $g_{1.0}^{M} = A_{1.0}^{M} \times g_{1.0}^{A}$ ( ), $A_{1.0}^{M} = R_{1.0}^{M} \times c^2$ ( ) and $g_{1.0}^{A} = \frac{g_{1.0}^{R}}{c^2}$ ( ) the formula ( ) was written in the following way

$$g_{1.0}^{M} = g_{1.0}^{R} \times R_{1.0}^{M}, \tag{}$$

where $g_{1.0}^{M}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2;

$g_{1.0}^{R}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$;

$R_{1.0}^{M}$– is the constant of the gravitational radius of the mass of 1.0 g of the body, cm/g.

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ was determined as the product of the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ by the constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ by the formula ( )

$$g_{1.0}^{M} = g_{1.0}^{R} \times R_{1.0}^{M} = 2209.43656 \times 1.16070316 \times 10^{-25}$$
$$= 2.5645 \times 10^{-22}\ cm/gs^2. \tag{}$$

Dividing the left and right of the GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) by M_1 there was receive

$$\frac{R_{1-2} \times V_2^2}{M_1} = 2 \times G \times g_{1.0}^{M}. \tag{}$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $R_{1.0}^{M} = \frac{R_{1-2}}{M_1}$ ( ), $A_{1.0}^{M} = 2 \times G \times g_{1.0}^{M}$ (), $A_{1.0}^{M} = \frac{A_1^M}{M_1}$ ( ), $R_1^c = M_1 \times R_{1.0}^{M}$ ( ), $R_{1.0}^{g} = \frac{R_1^c}{g_1}$ ( ), $M_1 = \frac{g_1}{g_{1.0}^{M}}$ ( ) and $R_{1.0}^{M} = g_{1.0}^{M} \times R_{1.0}^{g}$ () the formula ( ) was written in the following way

$$g_{1.0}^{M} = \frac{R_{1.0}^{M}}{R_{1.0}^{g}}, \tag{}$$

where $g^M_{1.0}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2;

$R^M_{1.0}$– is the constant of the gravitational radius of the mass of 1.0 g of the body, cm/g;

$R^g_{1.0}$– is the constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body, s^2.

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g^M_{1.0}$ was determined as the relation of the constant of the gravitational radius of the mass of 1.0 g of the body $R^M_{1.0}$ to the constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body $R^g_{1.0}$ by the formula ( )

$$g^M_{1.0} = \frac{R^M_{1.0}}{R^g_{1.0}} = \frac{1.16070316 \times 10^{-25}}{4.52604 \times 10^{-4}} = 2.5645 \times 10^{-22}\, cm/gs^2. \quad ( )$$

The constant of the gravitational acceleration of the mass of 1.0 g of the body $g^M_{1.0}$ was determined in the process of solution the equation . $\frac{G\times M_1\times g_2}{R^2_{1-2}} = \frac{M_2\times V_2^2}{2\times R_{1-2}}$ ( ).

The equation ( ) having been solved with respect to g_2 there was obtained

$$g_2 = \frac{M_2 \times R_{1-2} \times V_2^2}{2 \times G \times M_1}. \quad ( )$$

Taking into account that $A^M_{1.0} = \frac{R_{1-2}\times V_2^2}{M_1}$ ( ), $A^M_{1.0} = \frac{A^M_1}{M_1}$ ( ), $g^M_{1.0} = \frac{A^M_{1.0}}{2 \times G}$ ( ) and $g_2 = M_2 \times g^M_{1.0}$ ( ) the formula ( ) was written in the following way

$$g^M_{1.0} = \frac{g_2}{M_2}, \quad ( )$$

where $g^M_{1.0}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2;

g_2 – is the gravitational acceleration of the second body, cm/s^2;

M_2 – is the mass of the second body, g.

The determination of the constant of the gravitational acceleration of the mass of 1.0 g of the body $g^M_{1.0}$ according to FPC in TGT made it possible to draw some conclusions.

The coincidence of the constant of the gravitational acceleration of the mass of $1.0\ g$ of the body $g_{1.0}^{M}$, of a body that were determined by the parameters of the first body and the second body and other in the Universe according to FPC in TGT of the formula (), () show their validity.

The determination of the constant of the gravitational acceleration of the mass of $1.0\ g$ of the body $g_{1.0}^{M}$ makes it possible to determine all the other FPC in TGT and all the other parameters in physics. ?

In the process of the elaboration of TGT to cheek the validity of the formulas (1), (2) and (3) the force of gravitation between the mass of the first body with the mass of the first body M_1 and the mass of the second body with the mass of the second body M_2 located at the distance between R_{1-2}^{2} F_{1-2} were searched by the replacement of the mass of the first body M_1 by the so–called mass $M_1 = 1.0\ g$ in SI ($M_1 = 0.001\ k$g in SI), the mass of the second body M_2 by the so–called mass $M_2 = 1.0\ g$ in SI ($M_2 = 0.001\ k$g in SI) and the gravitational accelerations g_1 and g_2 by the known ones according to the doubtful Newtonian gravitation theory. However, the determination of the gravitational force between different bodies always gave absurd results. It means that the so–called mass of $1.0\ g$ in SI ($M_2 = 0.001\ k$g in SI) doesn't correspond to the facts (reality).

The constant of the gravitational acceleration of the mass of $1.0\ g$ of the body $g_{1.0}^{M}$ characterizes the masses of all the bodies in the Universe. The usage of the constant of the gravitational acceleration of the mass of $1.0\ g$ of the body $g_{1.0}^{M}$ made it possible to determine the gravitational acceleration of any body by the formula (10).

7.3.2. The determination of the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 body $g_{1.0}^A$

The constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^A$ was determined in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ (1), the equation $M_1 \times g_2 = M_2 \times g_1$ ( ), GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}$ ( ), the equation . $\frac{G \times M_1 \times g_2}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ) and the equation . $\frac{G \times M_2 \times g_1}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ).

The constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^A$ was determined in the process of solution GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}$ ( ).

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) having been solved with respect to G, there was obtained

$$G = \frac{R_{1-2} \times V_2^2}{2 \times M_1 \times g_{1.0}^M}. \qquad ( )$$

Taking into account that $A_{1.0}^M = \frac{R_{1-2} \times V_2^2}{M_1}$ ( ), $G = \frac{A_{1.0}^M}{2 \times g_{1.0}^M}$ ( ), $A_{1.0}^M = \frac{1}{M_{1.0}^A}$ ( ), $G = \frac{1}{2 \times M_{1.0}^A \times g_{1.0}^M}$ ( ), $g_{1.0}^A = M_{1.0}^A \times g_{1.0}^M$ ( ) and $G = \frac{1}{2 \times g_{1.0}^A}$ ( ) the formula ( ) was written in the following way

$$g_{1.0}^A = \frac{1}{2 \times G}, \qquad ( )$$

where $g_{1.0}^A$– is the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body, $1/cm^2$;

G– is the gravitational constant, cm^2.

The constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^A$ was determined, is the value reverse to the gravitational constant G by the formula ( )

$$g_{1.0}^{A} = \frac{1}{2 \times G} = \frac{1}{2 \times 2.034 \times 10^{17}} = 2.4582 \times 10^{-18}\, 1/cm^2. \qquad ( )$$

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) having been solved with respect to G, there was obtained

$$G = \frac{R_{1-2} \times V_2^2}{2 \times M_1 \times g_{1.0}^{M}}. \qquad ( )$$

Taking into account that $A_{1.0}^{M} = \frac{R_{1-2} \times V_2^2}{M_1}$ ( ), $G = \frac{A_{1.0}^{M}}{2 \times g_{1.0}^{M}}$ ( ), $A_{1.0}^{M} = \frac{1}{M_{1.0}^{A}}$ ( ) and $G = \frac{1}{2 \times M_{1.0}^{A} \times g_{1.0}^{M}}$ ( ) the formula ( ) was written in the following way

$$g_{1.0}^{A} = M_{1.0}^{A} \times g_{1.0}^{M}, \qquad ( )$$

where $g_{1.0}^{A}$– is the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body, $1/cm^2$;

$M_{1.0}^{A}$– is the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body, gs^2/cm^3;

$g_{1.0}^{M}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2.

The constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^{A}$ was determined as the product of the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M_{1.0}^{A}$ and the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ by the formula ( )

$$g_{1.0}^{A} = M_{1.0}^{A} \times g_{1.0}^{M} = 9585.522 \times 2.5645 \times 10^{-22} = 2.4582 \times 10^{-18}\, 1/cm^2. \qquad ( )$$

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) having been solved with respect to G, there was obtained

$$G = \frac{R_{1-2} \times V_2^2}{2 \times M_1 \times g_{1.0}^{M}}. \qquad ( )$$

Taking into account that $A_{1.0}^{M} = \frac{R_{1-2} \times V_2^2}{M_1}$ ( ), $G = \frac{A_{1.0}^{M}}{2 \times g_{1.0}^{M}}$ ( ), $A_{1.0}^{M} = \frac{1}{M_{1.0}^{A}}$ ( ), $G = \frac{1}{2 \times M_{1.0}^{A} \times g_{1.0}^{M}}$ ( ), $g_{1.0}^{A} = M_{1.0}^{A} \times g_{1.0}^{M}$ ( ) and $M_{1.0}^{A} = \frac{1}{A_{1.0}^{M}}$ ( ) the formula ( ) was written in the following way

$$g^A_{1.0} = \frac{g^M_{1.0}}{A^M_{1.0}}, \qquad ( )$$

where $g^A_{1.0}$– is the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body, $1/cm^2$;

$g^M_{1.0}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2;

$A^M_{1.0}$– is the constant of the gravitational field of the mass of 1.0 g of the body, cm^3/gs^2.

The constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g^A_{1.0}$ was determined as the relation the constant of the gravitational acceleration of the mass of 1.0 g of the body $g^M_{1.0}$ to the constant of the gravitational field of the mass of 1.0 g of the body $A^M_{1.0}$ by the formula ( )

$$g^A_{1.0} = \frac{g^M_{1.0}}{A^M_{1.0}} = \frac{2.5645 \times 10^{-22}}{1.04324 \times 10^{-4}} = 2.4582 \times 10^{-18}\, 1/cm^2. \qquad ( )$$

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g^M_{1.0}$ ( ) having been solved with respect to G, there was obtained

$$G = \frac{R_{1-2} \times V_2^2}{2 \times M_1 \times g^M_{1.0}}. \qquad ( )$$

Taking into account that $A^M_{1.0} = \frac{R_{1-2} \times V_2^2}{M_1}$ ( ), $G = \frac{A^M_{1.0}}{2 \times g^M_{1.0}}$ ( ), $A^M_{1.0} = \frac{1}{M^A_{1.0}}$ ( ), $G = \frac{1}{2 \times M^A_{1.0} \times g^M_{1.0}}$ ( ), $g^A_{1.0} = M^A_{1.0} \times g^M_{1.0}$ ( ), $M^A_{1.0} = \frac{M_1}{A^M_1}$ ( ), $g^M_{1.0} = \frac{g_1}{M_1}$ ( ), $g^A_{1.0} = \frac{g_1}{A^M_1}$ ( ), $g_1 = A^M_1 \times g^A_{1.0}$ ( ), $R^c_1 = \frac{A^M_1}{c^2}$ ( ), $g^R_{1.0} = \frac{g_1}{R^c_1}$ ( ) and $g^R_{1.0} = g^A_{1.0} \times c^2$ ( ) the formula ( ) was written in the following way

$$g^A_{1.0} = \frac{g^R_{1.0}}{c^2}, \qquad ( )$$

where $g^A_{1.0}$– is the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body, $1/cm^2$;

$g_{1.0}^{R}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$;

c – speed of light in vacuum, cm/s.

The constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^{A}$ was determined as the relation the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ to the squared speed of light in vacuum c by the formula ( )

$$g_{1.0}^{A} = \frac{g_{1.0}^{R}}{c^2} = \frac{2209.43656}{(2.988 \times 10^{10})^2} = 2.4582 \times 10^{-18}\, 1/cm^2. \qquad (\ )$$

Similarly, other FPC in TGT was determined in the process of solution GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^{M}}{R_{1-2}}$ ( ).

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) having been solved with respect to G, there was obtained

$$G = \frac{R_{1-2} \times V_2^2}{2 \times M_1 \times g_{1.0}^{M}}. \qquad (\ )$$

Taking into account that $A_{1.0}^{M} = \frac{R_{1-2} \times V_2^2}{M_1}$ ( ), $G = \frac{A_{1.0}^{M}}{2 \times g_{1.0}^{M}}$ ( ), $A_{1.0}^{M} = \frac{1}{M_{1.0}^{A}}$ ( ), $G = \frac{1}{2 \times M_{1.0}^{A} \times g_{1.0}^{M}}$ ( ), $g_{1.0}^{A} = M_{1.0}^{A} \times g_{1.0}^{M}$ ( ), $M_{1.0}^{A} = \frac{M_1}{A_1^M}$ ( ) and $g_{1.0}^{M} = \frac{g_1}{M_1}$ ( ) the formula ( ) was written in the following way

$$g_{1.0}^{A} = \frac{g_1}{A_1^M}, \qquad (\ )$$

where $g_{1.0}^{A}$– is the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body, $1/cm^2$;

g_1 – is the gravitational acceleration of the first body, cm/s^2;

A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2.

The constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^{A}$ was determined as the relation of the gravitational acceleration of 1.0 g of the body $g_{1.0g}$ to the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0g}^{M}$ by the formula ( )

$$g_{1.0}^{A}=\frac{g_{1.0g}}{A_{1.0g}^{M}}=\frac{2.5645\times10^{-22}}{1.04324\times10^{-4}}=2.4582\times10^{-18}\,1/cm^{2}. \qquad ( )$$

The constant of the gravitational acceleration of the gravitational field of $1.0\,cm^3/s^2$ of the body $g_{1.0}^{A}$ was determined as the relation of the gravitational acceleration of $1.0\,cm^3/s^2$ of the body $g_{1.0cm^3/s^2}$ to the constant of the gravitational field of the mass of $1.0\,cm^3/s^2$ of the body $A_{1.0cm^3/s^2}^{M}$ by the formula ( )

$$g_{1.0}^{A}=\frac{g_{1.0cm^3/s^2}}{A_{1.0cm^3/s^2}^{M}}=\frac{2.4582\times10^{-18}}{1.0}=2.4582\times10^{-18}\,1/cm^{2}. \qquad ( )$$

The constant of the gravitational acceleration of the gravitational field of $1.0\,cm^3/s^2$ of the body $g_{1.0}^{A}$ was determined as the relation of the gravitational acceleration of $1.0\,cm/s^2$ of the body $g_{1.0cm/s^2}$ to the constant of the gravitational field of the mass of $1.0\,cm/s^2$ of the body $A_{1.0cm/s^2}^{M}$ by the formula ( )

$$g_{1.0}^{A}=\frac{g_{1.0cm/s^2}}{A_{1.0cm/s^2}^{M}}=\frac{1.0}{4.068\times10^{17}}=2.4582\times10^{-18}\,1/cm^{2}. \qquad ( )$$

The constant of the gravitational acceleration of the gravitational field of $1.0\,cm^3/s^2$ of the body $g_{1.0}^{A}$ was determined as the relation of the gravitational acceleration of $1.0\,cm$ of the body $g_{1.0cm}$ to the constant of the gravitational field of the mass of $1.0\,cm$ of the body $A_{1.0cm}^{M}$ by the formula ( )

$$g_{1.0}^{A}=\frac{g_{1.0cm}}{A_{1.0cm}^{M}}=\frac{2209.43656}{8.988\times10^{20}}=2.4582\times10^{-18}\,1/cm^{2}. \qquad ( )$$

The constant of the gravitational acceleration of the gravitational field of $1.0\,cm^3/s^2$ of the body $g_{1.0}^{A}$ was determined as the relation of the gravitational acceleration of the Sun g_{sun} to the constant of the gravitational field of the mass of the Sun A_{sun}^{M} by the formula ( )

$$g_{1.0}^{A}=\frac{g_{sun}}{A_{sun}^{M}}=\frac{3.265\times10^{8}}{1.328\times10^{26}}=2.4586\times10^{-18}\,1/cm^{2}. \qquad ( )$$

The constant of the gravitational acceleration of the gravitational field of $1.0\,cm^3/s^2$ of the body $g_{1.0}^{A}$ was determined as the relation of the gravitational acceleration of the Earth g_{ear} to the constant of the gravitational field of the mass of the Earth A_{ear}^{M} by the formula ( )

$$g_{1.0}^{A} = \frac{g_{ear}}{A_{ear}^{M}} = \frac{980.665}{4.023 \times 10^{20}} = 2.4376 \times 10^{-18}\, 1/cm^{2}. \qquad (\,)$$

The constant of the gravitational acceleration of the gravitational field of $1.0\, cm^{3}/s^{2}$ of the body $g_{1.0}^{A}$ was determined as the relation of the gravitational acceleration of the Moon g_{moo} to the constant of the gravitational field of the mass of the Moon A_{moo}^{M} by the formula ( )

$$g_{1.0}^{A} = \frac{g_{moo}}{A_{moo}^{M}} = \frac{19.190}{7.807 \times 10^{18}} = 2.4581 \times 10^{-18}\, 1/cm^{2}. \qquad (\,)$$

The constant of the gravitational acceleration of the gravitational field of $1.0\, cm^{3}/s^{2}$ of the body $g_{1.0}^{A}$ was determined as the relation of the gravitational acceleration of (3671) Dionysus g_{dio} to the constant of the gravitational field of the mass of (3671) Dionysus A_{dio}^{M} by the formula ( )

$$g_{1.0}^{A} = \frac{g_{dio}}{A_{dio}^{M}} = \frac{4.547 \times 10^{-10}}{1.850 \times 10^{8}} = 2.4578 \times 10^{-18}\, 1/cm^{2}. \qquad (\,)$$

The constant of the gravitational acceleration of the gravitational field of $1.0\, cm^{3}/s^{2}$ of the body $g_{1.0}^{A}$ was determined as the relation of the gravitational acceleration of 67P/Churyumov–Gerasimenko g_{67P} to the constant of the gravitational field of the mass of 67P/Churyumov–Gerasimenko A_{67P}^{M} by the formula ( )

$$g_{1.0}^{A} = \frac{g_{67P}}{A_{67P}^{M}} = \frac{2.662 \times 10^{-9}}{1.083 \times 10^{9}} = 2.458 \times 10^{-18}\, 1/cm^{2}. \qquad (\,)$$

The constant of the gravitational acceleration of the gravitational field of $1.0\, cm^{3}/s^{2}$ of the body $g_{1.0}^{A}$ was determined as the relation of the gravitational acceleration of Sagittarius A g_{sgra} to the constant of the gravitational field of the mass of Sagittarius A A_{sgra}^{M} by the formula ( )

$$g_{1.0}^{A} = \frac{g_{sgra}}{A_{sgra}^{M}} = \frac{2.328 \times 10^{12}}{9.470 \times 10^{29}} = 2.4583 \times 10^{-18}\, 1/cm^{2}. \qquad (\,)$$

The constant of the gravitational acceleration of the gravitational field of $1.0\, cm^{3}/s^{2}$ of the body $g_{1.0}^{A}$ was determined as the relation of the gravitational acceleration of the Milky Way galaxy centre g_{mwgc} to the constant of the gravitational field of the mass of the Milky Way galaxy centre A_{mwgc}^{M} by the formula ( )

$$g_{1.0}^{A} = \frac{g_{mwgc}}{A_{mwgc}^{M}} = \frac{3.347 \times 10^{15}}{1.361 \times 10^{33}} = 2.4592 \times 10^{-18}\, 1/cm^{2}. \qquad ( )$$

In the same way it is possible to determine the constant of the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^{A}$ with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, whey have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT by the formula ( ).

The determination of the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^{A}$ according to FPC in TGT made it possible to formulate the following conclusions.

The coincidence of the values of the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^{A}$, determined by parameters of the first body and the second body and other FPC in TGT Universe according with FPC in TGT by the formulas ( ), ( ) shows their validity.

7.3.3. The determination of the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ was determined in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ (1), the equation $M_1 \times g_2 = M_2 \times g_1$ ( ), GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^{M}}{R_{1-2}}$ ( ), the equation . $\frac{G \times M_1 \times g_2}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ) and the equation . $\frac{G \times M_2 \times g_1}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ).

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ was determined in the process of solution GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^{M}}{R_{1-2}}$ ( ).

$$g_{1.0}^{R} = \frac{M_{1.0}^{R}}{M_{1.0}^{g}}, \qquad ( )$$

where $g_{1.0}^{R}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$;

$M_{1.0}^{R}$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm;

$M_{1.0}^{g}$– is the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body, gs^2/cm.

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ was determined as the relation of the constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ to the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ by the formula ( )

$$g_{1.0}^{R} = \frac{M_{1.0}^{R}}{M_{1.0}^{g}} = \frac{8.615467 \times 10^{24}}{3.8994 \times 10^{21}} = 2209.43656\, 1/s^2. \qquad ( )$$

$$g_{1.0}^{R} = M_{1.0}^{R} \times g_{1.0}^{M}, \qquad ( )$$

where $g_{1.0}^{R}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$;

$M^R_{1.0}$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm;

$g^M_{1.0}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2.

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g^R_{1.0}$ was determined as the product of the constant of the mass of the gravitational radius of 1.0 cm of the body $M^R_{1.0}$ and the constant of the gravitational acceleration of the mass of 1.0 g of the body $g^M_{1.0}$ by the formula ( ).

$g^R_{1.0} = M^R_{1.0} \times g^M_{1.0} = 8.615467 \times 10^{24} \times 2.5645 \times 10^{-22} = 2209.43656\ 1/s^2.$ ( )

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g^M_{1.0}$ ( ) having been solved with respect to G, there was obtained

$$G = \frac{R_{1-2} \times V_2^2}{2 \times M_1 \times g^M_{1.0}}. \qquad ( )$$

Taking into account that $A^M_{1.0} = \frac{R_{1-2} \times V_2^2}{M_1}$ ( ), $G = \frac{A^M_{1.0}}{2 \times g^M_{1.0}}$ ( ), $A^M_{1.0} = \frac{1}{M^A_{1.0}}$ ( ), $G = \frac{1}{2 \times M^A_{1.0} \times g^M_{1.0}}$ ( ), $g^A_{1.0} = M^A_{1.0} \times g^M_{1.0}$ ( ), $g^M_{1.0} = \frac{g^A_{1.0}}{M^A_{1.0}}$ ( ), $M^A_{1.0} = \frac{1}{A^M_{1.0}}$ ( ), $g^M_{1.0} = A^M_{1.0} \times g^A_{1.0}$ ( ), $A^M_{1.0} = R^M_{1.0} \times c^2$ ( ), $g^A_{1.0} = \frac{g^R_{1.0}}{c^2}$ ( ) and $g^M_{1.0} = g^R_{1.0} \times R^M_{1.0}$ ( ) the formula () was written in the following way

$$g^R_{1.0} = \frac{g^M_{1.0}}{R^M_{1.0}}, \qquad ( )$$

where $g^R_{1.0}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$;

$g^M_{1.0}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2;

$R^M_{1.0}$ – is the constant of the gravitational field of the gravitational radius of 1.0 g of the body, cm/g.

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g^R_{1.0}$ was determined as the relation of the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ to the constant of the gravitational field of the gravitational radius of 1.0 g of the body $R_{1.0}^{M}$ by the formula ( )

$$g_{1.0}^{R} = \frac{g_{1.0}^{M}}{R_{1.0}^{M}} = \frac{2.5645 \times 10^{-22}}{1.16070316 \times 10^{-25}} = 2209.43656\, 1/s^2. \quad ( )$$

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) having been solved with respect to G, there was obtained

$$G = \frac{R_{1-2} \times V_2^2}{2 \times M_1 \times g_{1.0}^{M}}. \quad ( )$$

Taking into account that $A_{1.0}^{M} = \frac{R_{1-2} \times V_2^2}{M_1}$ ( ), $G = \frac{A_{1.0}^{M}}{2 \times g_{1.0}^{M}}$ ( ), $A_{1.0}^{M} = \frac{1}{M_{1.0}^{A}}$ ( ), $G = \frac{1}{2 \times M_{1.0}^{A} \times g_{1.0}^{M}}$ ( ), $g_{1.0}^{A} = M_{1.0}^{A} \times g_{1.0}^{M}$ ( ), $M_{1.0}^{A} = \frac{M_1}{A_1^{M}}$ ( ), $g_{1.0}^{M} = \frac{g_1}{M_1}$ ( ), $g_{1.0}^{A} = \frac{g_1}{A_1^{M}}$ ( ), $g_1 = A_1^{M} \times g_{1.0}^{A}$ ( ), $R_1^{c} = \frac{A_1^{M}}{c^2}$ ( ) and $g_{1.0}^{R} = \frac{g_1}{R_1^{c}}$ ( ) the formula ( ) was written in the following way

$$g_{1.0}^{R} = g_{1.0}^{A} \times c^2, \quad ( )$$

where $g_{1.0}^{R}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$;

$g_{1.0}^{A}$– is the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body, $1/cm^2$;

c– speed of light in vacuum, cm/s.

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ was determined as the product of the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^{A}$ and the squared speed of light in vacuum c by the formula ( )

$$g_{1.0}^{R} = g_{1.0}^{A} \times c^2 = 2.4582 \times 10^{-18} \times (2.988 \times 10^{10})^2 = 2209.43656\, 1/s^2. \quad ( )$$

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) having been solved with respect to G, there was obtained

$$G = \frac{R_{1-2} \times V_2^2}{2 \times M_1 \times g_{1.0}^{M}}. \quad ( )$$

Taking into account that $A_{1.0}^{M} = \frac{R_{1-2} \times V_2^2}{M_1}$ ( ), $G = \frac{A_{1.0}^{M}}{2 \times g_{1.0}^{M}}$ ( ), $A_{1.0}^{M} = \frac{1}{M_{1.0}^{A}}$ ( ), $G = \frac{1}{2 \times M_{1.0}^{A} \times g_{1.0}^{M}}$ ( ), $g_{1.0}^{A} = M_{1.0}^{A} \times g_{1.0}^{M}$ ( ), $M_{1.0}^{A} = \frac{M_1}{A_1^M}$ ( ), $g_{1.0}^{M} = \frac{g_1}{M_1}$ ( ), $g_{1.0}^{A} = \frac{g_1}{A_1^M}$ ( ), $g_1 = A_1^M \times g_{1.0}^{A}$ ( ) and $R_1^c = \frac{A_1^M}{c^2}$ ( ) the formula ( ) was written in the following way

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ was determined by the formula

$$g_{1.0}^{R} = \frac{g_1}{R_1^c}, \qquad ( )$$

where $g_{1.0}^{R}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$;

g_1– is the gravitational acceleration of the first body, cm/s^2;

R_1^c– is the gravitational radius of the first body, cm.

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ was determined as the relation of the gravitational acceleration of 1.0 g of the body $g_{1.0\,g}$ to the gravitational radius of 1.0 g of the body $R_{1.0\,g}^{c}$ by the formula ( )

$$g_{1.0}^{R} = \frac{g_{1.0g}}{R_{1.0g}^{c}} = \frac{2.5645 \times 10^{-22}}{1.16070316 \times 10^{-25}} = 2209.43656\, 1/s^2. \qquad ( )$$

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ was determined as the relation of the gravitational acceleration of 1.0 cm^3/s^2 of the body $g_{1.0cm^3/s^2}$ to the gravitational radius of 1.0 cm^3/s^2 of the body $R_{1.0cm^3/s^2}^{c}$ by the formula ( )

$$g_{1.0}^{R} = \frac{g_{1.0cm^3/s^2}}{R_{1.0cm^3/s^2}^{c}} = \frac{2.4582 \times 10^{-18}}{1.11259 \times 10^{-21}} = 2209.4392\, 1/s^2. \qquad ( )$$

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ was determined as the relation of the gravitational acceleration of 1.0 cm/s^2 of the body $g_{1.0cm/s^2}$ to the gravitational radius of 1.0 cm/s^2 of the body $R_{1.0cm/s^2}^{c}$ by the formula ( )

$$g_{1.0}^{R} = \frac{g_{1.0cm/s^2}}{R_{1.0cm/s^2}^{c}} = \frac{1.0}{4.55645 \times 10^{-4}} = 2194.691\,1/s^2. \quad ()$$

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ was determined as the relation of the gravitational acceleration of 1.0 cm of the body $g_{1.0cm}$ to the gravitational radius of 1.0 cm of the body $R_{1.0cm}^{c}$ by the formula ( )

$$g_{1.0}^{R} = \frac{g_{1.0cm}}{R_{1.0cm}^{c}} = \frac{2209.43656}{1.0} = 2209.43656\,1/s^2. \quad ()$$

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ was determined as the relation of the gravitational acceleration of the Sun g_{sun} to the gravitational radius of the Sun R_{sun}^{c} by the formula ( )

$$g_{1.0}^{R} = \frac{g_{sun}}{R_{sun}^{c}} = \frac{3.265 \times 10^{8}}{147975.07788} = 2206.4526\,1/s^2. \quad ()$$

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ was determined as the relation of the gravitational acceleration of the Earth g_{ear} to the gravitational radius of the Earth R_{ear}^{c} by the formula ( )

$$g_{1.0}^{R} = \frac{g_{ear}}{R_{ear}^{c}} = \frac{980.665}{0.4475968} = 2190.9562\,1/s^2. \quad ()$$

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ was determined as the relation of the gravitational acceleration of the Moon g_{moo} to the gravitational radius of the Moon R_{moo}^{c} by the formula ( )

$$g_{1.0}^{R} = \frac{g_{moo}}{R_{moo}^{c}} = \frac{19.190}{0.0086860258} = 2209.29576\,1/s^2. \quad ()$$

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ was determined as the relation of the gravitational acceleration of (3671) Dionysus g_{dio} to the gravitational radius of (3671) Dionysus R_{dio}^{c} by the formula ( )

$$g_{1.0}^{R} = \frac{g_{dio}}{R_{dio}^{c}} = \frac{3.824 \times 10^{-10}}{1.7301 \times 10^{-13}} = 2210.2768\,1/s^2. \quad ()$$

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ was determined as the relation of the gravitational acceleration of

67P/Churyumov–Gerasimenko g_{67R} to the gravitational radius of 67P/Churyumov–Gerasimenko R^c_{67R} by the formula ( )

$$g^R_{1.0} = \frac{g_{67R}}{R^c_{67R}} = \frac{2.662 \times 10^{-9}}{1.213 \times 10^{-12}} = 2194.5589\, 1/s^2. \qquad (\,)$$

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g^R_{1.0}$ was determined as the relation of the gravitational acceleration of Sagittarius g_{sgra} to the gravitational radius of Sagittarius A R^c_{sgra} by the formula ( )

$$g^R_{1.0} = \frac{g_{sgra}}{R^c_{sgra}} = \frac{2.328 \times 10^{12}}{1.7301 \times 10^{-13}} = 2206.4526\, 1/s^2. \qquad (\,)$$

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g^R_{1.0}$ was determined as the relation of the gravitational acceleration of the Milky Way galaxy centre g_{mwgc} to the gravitational radius o the Milky Way galaxy centre R^c_{mwgc} by the formula ( )

$$g^R_{1.0} = \frac{g_{mwgc}}{R^c_{mwgc}} = \frac{3.347 \times 10^{15}}{1.51424 \times 10^{12}} = 2210.3497\, 1/s^2. \qquad (\,)$$

In the same way it is possible to determine the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g^R_{1.0}$ with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, whey have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT by the formula ( ).

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g^M_{1.0}$ ( ) having been solved with respect to G, there was obtained

$$G = \frac{R_{1-2} \times V_2^2}{2 \times M_1 \times g^M_{1.0}}. \qquad (\,)$$

Taking into account that $R_{1-2} = R^c_1$, $V_2 = c$, $A^M_1 = R_{1-2} \times V_2^2$ ( ), $A^M_1 = R^c_1 \times c^2$ (), $g_1 = M_1 \times g^M_{1.0}$ ( ), $g_1 = R^c_1 \times g^R_{1.0}$ ( ) and $c^2 = 2 \times G \times g^R_{1.0}$ ( ) the formula ( ) was written in the following way

$$g^R_{1.0} = \frac{c^2}{2 \times G}, \qquad (\,)$$

where $g^R_{1.0}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$;

c– is the speed of light in vacuum, cm/s;

G – is the gravitational constant, cm^2.

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g^R_{1.0}$ was determined as the relation of the squared the speed of light in vacuum c to the doubled of the gravitational constant G by the formula ( )

$$g^R_{1.0} = \frac{c^2}{2 \times G} = \frac{(2.988 \times 10^{10})^2}{2 \times 2.034 \times 10^{17}} = 2209.4395\,1/s^2. \qquad ( )$$

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g^R_{1.0}$ was determined by the formula

$$g^R_{1.0} = \frac{P^R_{1.0}}{M^R_{1.0}}, \qquad ( )$$

where $g^R_{1.0}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$;

$P^R_{1.0}$– is the constant of the weight of the gravitational radius of 1.0 cm of the body, g/cms^2;

$M^R_{1.0}$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm.

The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g^R_{1.0}$ was determined as the relation of the constant of the weight of the gravitational radius of 1.0 cm of the body $P^R_{1.0}$ to the constant of the mass of the gravitational radius of 1.0 cm of the body $M^R_{1.0}$ by the formula ( )

$$g^R_{1.0} = \frac{P^R_{1.0}}{M^R_{1.0}} = \frac{1.903 \times 10^{28}}{8.615 \times 10^{24}} = 2209.326\,1/s^2. \qquad ( )$$

The determination of the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g^R_{1.0}$ according to FPC in TGT by the formulas ( ) made it possible to formulate the following conclusion.

The coincidence of the values of the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g^R_{1.0}$, determined by the parameters of the first body and the second body and other FPC in TGT in the Universe according to FPC in TGT by the formulas ( ), ( ) shows their validity.

The determination of the constant of the gravitational acceleration of the gravitational radius of $1.0\,cm$ of the body $g_{1.0}^{R}$ makes it possible to determine all the other FPC in TGT and all the other parameters in physics.

7.3.4. The determination of the gravitational acceleration of the first body (standard acceleration of gravity) g_1 and the gravitational acceleration of the second body (standard acceleration of gravity) g_2

The gravitational acceleration of the first body (standard acceleration of gravity) g_1 and the gravitational acceleration of the second body (standard acceleration of gravity) g_2 was determined in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ (1), the equation $M_1 \times g_2 = M_2 \times g_1$ ( ), GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}$ ( ), the equation . $\frac{G \times M_1 \times g_2}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ) and the equation . $\frac{G \times M_2 \times g_1}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ).

The gravitational acceleration of the first body (standard acceleration of gravity) g_1 and the gravitational acceleration of the second body (standard acceleration of gravity) g_2 was determined in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ (1).

Taking into account that $g_1 = M_1 \times g_{1.0}^M$ ( ), $g_2 = M_2 \times g_{1.0}^M$ ( ), $F_{1-2} = G \times \frac{M_1 \times M_2 \times g_{1.0}^M + M_2 \times M_1 \times g_{1.0}^M}{R_{1-2}^2}$ ( ), $F_{1-2} = \frac{G \times M_1 \times M_2 \times g_{1.0}^M + G \times M_2 \times M_1 \times g_{1.0}^M}{R_{1-2}^2}$ (), $F_{1-2} = \frac{2 \times G \times M_1 \times M_2 \times g_{1.0}^M}{R_{1-2}^2}$ ( ), $A_1^M = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) and $F_{1-2} = \frac{M_2 \times A_1^M}{R_{1-2}^2}$ ( ) TGL (1) was written in the following way

$$g_1 = \frac{A_1^M}{R_{1-2}^2}, \qquad ( )$$

where g_1– is the gravitational acceleration of the first body, cm/s^2;

A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

R_{1-2}– is the average distance between the first body and the second body, cm.

The gravitational acceleration of the first body (standard acceleration of gravity) g_1 and the gravitational acceleration of the second body (standard acceleration of gravity) g_2 was determined in the process of solution TGL (1).

Taking into account that $g_1 = M_1 \times g_{1.0}^M$ ( ), $g_2 = M_2 \times g_{1.0}^M$ ( ), $F_{1-2} = G \times \frac{M_1 \times M_2 \times g_{1.0}^M + M_2 \times M_1 \times g_{1.0}^M}{R_{1-2}^2}$ ( ), $F_{1-2} = \frac{G \times M_1 \times M_2 \times g_{1.0}^M + G \times M_2 \times M_1 \times g_{1.0}^M}{R_{1-2}^2}$ (), $F_{1-2} = \frac{2 \times G \times M_1 \times M_2 \times g_{1.0}^M}{R_{1-2}^2}$ ( ), $A_1^M = 2 \times G \times M_1 \times g_{1.0}^M$ ( ), $F_{1-2} = \frac{M_2 \times A_1^M}{R_{1-2}^2}$ ( ) and $g_1 = \frac{A_1^M}{R_{1-2}^2}$ ( ) TGL (1) was written in the following way

$$g_1 = \frac{F_{1-2}}{M_2}, \qquad ( )$$

where g_1– is the gravitational acceleration of the first body, cm/s^2;

F_{1-2}– is the gravitational force between the first body and the second body, gcm/s^2;

M_2– is the mass of the second body, g.

Similarly, other parameters were determined of the bodies in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ (1).

The gravitational acceleration of the first body (standard acceleration of gravity) g_1 and the gravitational acceleration of the second body (standard acceleration of gravity) g_2 was determined in the process of solution the equation $M_1 \times g_2 = M_2 \times g_1$ ( ).

The equation $M_1 \times g_2 = M_2 \times g_1$ ( ) having been solved with respect to g_1, there was obtained

$$g_1 = \frac{M_1 \times g_2}{M_2}, \qquad ( )$$

where g_1– is the gravitational acceleration of the first body, cm/s^2;

M_1– is the mass of the first body, g;

g_2– is the gravitational acceleration of the second body, cm/s^2;

M_2– is the mass of the second body, g.

The equation $M_1 \times g_2 = M_2 \times g_1$ ( ) having been solved with respect to g_2, there was obtained

$$g_2 = \frac{M_2 \times g_1}{M_1}, \qquad ( )$$

where g_2– is the gravitational acceleration of the second body, cm/s^2;

M_2– is the mass of the second body, g;

g_1– is the gravitational acceleration of the first body, cm/s^2;

M_1– is the mass of the first body, g.

The equation ( ) having been solved with respect to M_2, there was obtained

$$M_2 = \frac{M_1 \times g_2}{g_1}, \qquad (\ )$$

Taking into account that $M_2 = g_2 \times M_{1.0}^{g}$ ( ) the formula ( ) was written in the following way

$$g_1 = \frac{M_1}{M_{1.0}^{g}}, \qquad (\ )$$

where g_1– is the gravitational acceleration of the first body, cm/s^2;

M_1– is the mass of the first body, g;

$M_{1.0}^{g}$– is the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body, gs^2/cm.

The equation ( ) having been solved with respect to M_1, there was obtained

$$M_1 = \frac{M_2 \times g_1}{g_2}, \qquad (\ )$$

Taking into account that $M_1 = g_1 \times M_{1.0}^{g}$ ( ) the formula ( ) was written in the following way

$$g_2 = \frac{M_2}{M_{1.0}^{g}}, \qquad (\ )$$

where g_2 – is the gravitational acceleration of the second body, cm/s^2;

M_2 – is the mass of the second body, g;

$M_{1.0}^{g}$– is the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body, gs^2/cm.

The equation ( ) having been solved with respect to g_1, there was obtained

$$g_1 = \frac{M_1 \times g_2}{M_2}, \qquad (\ )$$

Taking into account that $g_{1.0}^{M} = \frac{g_2}{M_2}$ ( ) the formula ( ) was written in the following way

$$g_1 = M_1 \times g_{1.0}^{M}, \qquad ( )$$

where g_1– is the gravitational acceleration of the first body, cm/s^2;

M_1– is the mass of the first body, g;

$g_{1.0}^{M}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2.

The equation having been solved $M_1 \times g_2 = M_2 \times g_1$ ( ) with respect to g_2 there was obtained

$$g_2 = \frac{M_2 \times g_1}{M_1}, \qquad ( )$$

Taking into account that $g_{1.0}^{M} = \frac{g_1}{M_1}$ ( ) the formula ( ) was written in the following way

$$g_2 = M_2 \times g_{1.0}^{M}, \qquad ( )$$

where g_2 – is the gravitational acceleration of the second body, cm/s^2;

M_2– is the mass of the second body, g;

$g_{1.0}^{M}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2.

Similarly, other parameters were determined of the bodies in the process of solution the equation $M_1 \times g_2 = M_2 \times g_1$ ( ).

Taking into account that $P_{1-2} = M_1 \times g_2$ ( ) the equation $M_1 \times g_2 = M_2 \times g_1$ ( ) was written in the following way

$$g_1 = \frac{P_{1-2}}{M_2}, \qquad ( )$$

where g_1– is the gravitational acceleration of the first body, cm/s^2;

P_{1-2}– is the weight of the body, g;

M_2– is the mass of the second body, g.

Taking into account that $P_{1-2} = M_2 \times g_1$ ( ) the equation $M_1 \times g_2 = M_2 \times g_1$ ( ) was written in the following way

$$g_2 = \frac{P_{1-2}}{M_1}, \qquad ( )$$

where g_2 – is the gravitational acceleration of the second body, cm/s^2;

P_{1-2}– is the weight of the body, g;

M_2– is the mass of the second body, g.

Taking into account that $F_{1-2} = M_1 \times g_2$ ( ) the equation $M_1 \times g_2 = M_2 \times g_1$ ( ) was written in the following way

$$g_1 = \frac{F_{1-2}}{M_2}, \qquad ( )$$

where g_2 – is the gravitational acceleration of the second body, cm/s^2;

F_{1-2}– is the gravitational force between the first body and the second body, gcm/s^2;

M_1– is the mass of the first body, g.

Taking into account that $F_{1-2} = M_2 \times g_1$ ( ) the equation $M_1 \times g_2 = M_2 \times g_1$ ( ) was written in the following way

$$g_2 = \frac{F_{1-2}}{M_1}, \qquad ( )$$

where g_2 – is the gravitational acceleration of the second body, cm/s^2;

F_{1-2}– is the gravitational force between the first body and the second body, gcm/s^2;

M_1– is the mass of the first body, g.

Similarly, other parameters were determined of the bodies in the process of solution the equation$M_1 \times g_2 = M_2 \times g_1$ ( ).

The gravitational acceleration of the first body (standard acceleration of gravity) g_1 and the gravitational acceleration of the second body (standard acceleration of gravity) g_2 was determined in the process of solution GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}$ ( ).

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ), $g_1 = M_1 \times g_{1.0}^M$ ( ) and $A_1^M = 2 \times G \times g_1$ ( ) GF ( ) was written in the following way

$$g_1 = \frac{A_1^M}{2 \times G}, \qquad (48)$$

where g_1– is the gravitational acceleration of the first body, cm/s^2;

A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

G – is the gravitational constant, cm^2.

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) having been solved with regard to G, there was obtained

$$G = \frac{R_{1-2} \times V_2^2}{2 \times M_1 \times g_{1.0}^M}. \qquad ( )$$

Taking into account that $A_{1.0}^M = \frac{R_{1-2} \times V_2^2}{M_1}$ ( ), $G = \frac{A_{1.0}^M}{2 \times g_{1.0}^M}$ ( ), $A_{1.0}^M = \frac{1}{M_{1.0}^A}$ ( ), $G = \frac{1}{2 \times M_{1.0}^A \times g_{1.0}^M}$ ( ), $g_{1.0}^A = M_{1.0}^A \times g_{1.0}^M$ ( ), $M_{1.0}^A = \frac{M_1}{A_1^M}$ ( ), $g_{1.0}^M = \frac{g_1}{M_1}$ ( ) and $g_{1.0}^A = \frac{g_1}{A_1^M}$ () the formula ( ) was written in the following way

$$g_1 = A_1^M \times g_{1.0}^A, \qquad ( )$$

where g_1– is the gravitational acceleration of the first body, cm/s^2;

A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

$g_{1.0}^A$– is the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body, $1/cm^2$.

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) having been solved with regard to $g_{1.0}^M$, there was obtained

$$g_{1.0}^M = \frac{R_{1-2} \times V_2^2}{2 \times G \times M_1}. \qquad ( )$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ), $A_1^M = 2 \times G \times g_1$ ( ) and $g_{1.0}^M = \frac{g_1}{M_1}$ ( ) the formula ( ) was written in the following way

$$g_1 = M_1 \times g_{1.0}^M, \qquad ( )$$

where g_1– is the gravitational acceleration of the first body, cm/s^2;

M_1– is the mass of the first body, g;

$g_{1.0}^M$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2.

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) having been solved with regard to G, there was obtained

$$G = \frac{R_{1-2} \times V_2^2}{2 \times M_1 \times g_{1.0}^M}. \qquad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $A_1^M = 2 \times G \times M_1 \times g_{1.0}^M$ ( ), $R_{1-2} = \frac{A_1^M}{V_2^2}$ ( ), $R_1^c = \frac{A_1^M}{c^2}$ ( ), $A_1^M = 2 \times G \times g_1$ ( ), $c^2 = 2 \times G \times g_{1.0}^R$ ( ) and $g_{1.0}^R = \frac{g_1}{R_1^c}$ () the formula ( ) was written in the following way

$$g_1 = g_{1.0}^R \times R_1^c, \qquad ( )$$

where g_1– is the gravitational acceleration of the first body, cm/s^2;

R_1^c– is the gravitational radius of first body, cm;

$g_{1.0}^R$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$.

Dividing the left and right of the GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) by M_1 there was receive

$$\frac{R_{1-2} \times V_2^2}{M_1} = 2 \times G \times g_{1.0}^M. \qquad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $R_{1.0}^M = \frac{R_{1-2}}{M_1}$ ( ), $A_{1.0}^M = 2 \times G \times g_{1.0}^M$ ( ), $A_{1.0}^M = \frac{A_1^M}{M_1}$ ( ), $R_1^c = M_1 \times R_{1.0}^M$ ( ), $R_{1.0}^g = \frac{R_1^c}{g_1}$ ( ) and $M_1 = \frac{g_1}{g_{1.0}^M}$ ( ) the formula ( ) was written in the following way

The equation ( ) having been solved with respect to g_1, there was obtained

$$g_1 = \frac{R_1^c}{R_{1.0}^g}, \qquad ( )$$

where g_1– is the gravitational acceleration of the first body, cm/s^2;

R_1^c– is the gravitational radius of first body, cm;

$R_{1.0}^g$– is the constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body, s^2.

Multiplying the left and right of the GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) by M_1 there was received

$$M_1 \times R_{1-2} \times V_2^2 = 2 \times G \times M_1^2 \times g_{1.0}^M. \qquad ( )$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ), $g_1 = M_1 \times g_{1.0}^M$ ( ), $A_1^M = 2 \times G \times g_1$ ( ) and $P_{1-2} = M_2 \times g_1$ ( ) the formula ( ) was written in the following way

$$g_1 = \frac{P_1}{M_1}, \qquad ( )$$

where g_1– is the gravitational acceleration of the first body, cm/s^2;

P_1– is the weight of the first body, g;

M_1– is the mass of the first body, g.

Multiplying the left and right of the GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) by M_2 there was received

$$M_2 \times R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times M_2 \times g_{1.0}^M. \qquad ( )$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ), $g_1 = M_1 \times g_{1.0}^M$ ( ), $A_1^M = 2 \times G \times g_1$ ( ) and $P_{1-2} = M_2 \times g_1$ ( ) the formula ( ) was written in the following way

$$g_1 = \frac{P_{1-2}}{M_2}, \qquad ( )$$

where g_1– is the gravitational acceleration of the first body, cm/s^2;

P_1– is the weight of the first body, g;

M_2– is the mass of the second body, g.

The gravitational acceleration of the first body (standard acceleration of gravity) g_1 and the gravitational acceleration of the second body (standard acceleration of gravity) g_2 was determined in the process of solution the equation. $\frac{G \times M_1 \times g_2}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ).

The equation ( ) having been solved with respect to M_1, there was obtained

$$M_1 = \frac{M_2 \times R_{1-2} \times V_2^2}{2 \times G \times g_2}. \qquad ( )$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ), $A_1^M = 2 \times G \times g_1$ ( ), $M_{1.0}^g = \frac{M_2}{g_2}$ ( ) and $M_{1.0}^g = g_1 \times M_{1.0}^g$ ( ) the formula ( ) was written in the following way

$$g_1 = \frac{M_1}{M_{1.0}^g}, \qquad ( )$$

where g_1– is the gravitational acceleration of the first body, cm/s^2;

M_1 – is the mass of the first body, g;

$M_{1.0}^g$– is the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body, gs^2/cm.

The equation ( ) having been solved with respect to M_1, there was obtained

$$M_1 = \frac{M_2 \times R_{1-2} \times V_2^2}{2 \times G \times g_2}. \qquad ( )$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ), $M_{1.0}^g = \frac{M_2}{g_2}$ ( ), $M_{1.0}^g = \frac{2 \times G \times M_1}{A_1^M}$ () and $A_1^M = 2 \times G \times g_1$ ( ) the formula ( ) was written in the following way

$$g_2 = \frac{M_2}{M_{1.0}^g}, \qquad ( )$$

where g_2 – is the gravitational acceleration of the second body, cm/s^2;

M_2 – is the mass of the second body, g;

$M_{1.0}^g$– is the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body, gs^2/cm.

The equation ( ) having been solved with respect to g_2, there was obtained

$$g_2 = \frac{M_2 \times R_{1-2} \times V_2^2}{2 \times G \times M_1}. \qquad ( )$$

Taking into account that $A_{1.0}^M = \frac{R_{1-2} \times V_2^2}{M_1}$ ( ) and $g_{1.0}^M = \frac{A_{1.0}^M}{2 \times G}$ ( ) the formula ( ) was written in the following way

$$g_2 = M_2 \times g_{1.0}^M, \qquad ( )$$

where g_2– is the gravitational acceleration of the second body, cm/s^2;

M_2– is the mass of the second body, g;

$g_{1.0}^M$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2.

The gravitational acceleration of the first body (standard acceleration of gravity) g_1 and the gravitational acceleration of the second body (standard acceleration of gravity) g_2 was determined in the process of solution the equation. $\frac{G \times M_2 \times g_1}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ).

The equation ( ) having been solved with respect to g_1, there was obtained

$$g_1 = \frac{R_{1-2} \times V_2^2}{2 \times G}. \qquad ( )$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ) the formula ( ) was written in the following way

$$g_1 = \frac{A_1^M}{2 \times G}, \qquad ( )$$

where g_1– is the gravitational acceleration of the first body, cm/s^2;

A_1^M– is the constant of the gravitational field of the of the mass of the first body, cm^3/s^2;

G– is the gravitational constant, cm^2.

The physical nature and the method of the determination of the gravitational acceleration of the first body (standard acceleration of gravity) g_1 and the gravitational acceleration of the second body (standard acceleration of gravity) g_2 without using the so-called Cavendish gravitational constant and the so–called doubtful Newtonian gravitational law according to FPC in TGT by the formulas ( ), ( ), ( ), ( ) and ( ) will be given in other works.

According to the determination of FPC in TGT standard acceleration of gravity isn't a FPC. We placed the gravitational acceleration of the first body (standard acceleration of gravity) g_1 and the gravitational acceleration of the second body (standard acceleration of gravity) g_2 in the list of FPC in TGT (Table. 1) as "adopted values".

The physical nature and the method of the determination of the gravitational acceleration of the first body g_1 (standard acceleration of gravity g_{sta}), and the gravitational acceleration of the second body g_2 (standard acceleration of gravity g_{sta}) according to FPC in TGT will be shown in other works.

7.4. The determination of fundamental physical constants (FPC) in Tsiganok gravitation theory (TGT), characterizing the gravitational radius of the body and other parameters of bodies

7.4.1. The determination of the constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ was determined in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ (1), the equation $M_1 \times g_2 = M_2 \times g_1$ ( ), GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^{M}}{R_{1-2}}$ ( ), the equation $.\frac{G \times M_1 \times g_2}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ) and the equation $.\frac{G \times M_2 \times g_1}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ).

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ was determined in the process of solution GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^{M}}{R_{1-2}}$ ( ).

Dividing the left and right of the GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) by M_1 there was receive

$$\frac{R_{1-2} \times V_2^2}{M_1} = 2 \times G \times g_{1.0}^{M}. \qquad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $R_{1.0}^{M} = \frac{R_{1-2}}{M_1}$ ( ) and $A_{1.0}^{M} = 2 \times G \times g_{1.0}^{M}$ ( ) the formula ( ) was written in the following way

$$R_{1.0}^{M} = \frac{A_{1.0}^{M}}{c^2}, \qquad ( )$$

where $R_{1.0}^{M}$– is the constant of the gravitational radius of the mass of 1.0 g of the body, cm/g;

$A_{1.0}^{M}$– is the constant of the gravitational field of the mass of 1.0 g of a body, cm^3/gs^2;

c – is the speed of light in vacuum, cm/s.

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ was determined as the relation of the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ to the squared speed of light in vacuum c by the formula ( )

$$R_{1.0}^{M} = \frac{A_{1.0}^{M}}{c^2} = \frac{1.04324 \times 10^{-4}}{(2.988 \times 10^{10})^2} = 1.16070316 \times 10^{-25}\, cm/g. \quad ( )$$

Multiplying the left and right of the GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) by c^2 there was received

$$R_{1-2} \times V_2^2 \times c^2 = 2 \times G \times M_1 \times g_{1.0}^{M} \times c^2. \quad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $A_1^M = R_{1-2} \times V_2^2$ ( ), $A_{1.0}^{M} = 2 \times G \times g_{1.0}^{M}$ ( ), $M_1 = \frac{A_1^M}{A_{1.0}^{M}}$ ( ), $E_1 = M_1 \times c^2$ ( ), $M_1 = \frac{R_1^c}{R_{1.0}^{M}}$ ( ), $c^2 = \frac{A_1^M}{R_1^c}$ ( ) and $E_1 = \frac{A_1^M}{R_{1.0}^{M}}$ ( ) the formula ( ) was written in the following way

$$R_{1.0}^{M} = \frac{A_1^M}{E_1}, \quad ( )$$

where $R_{1.0}^{M}$– is the constant of the gravitational radius of the mass of 1.0 g of the body, cm/g;

A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

E_1– is the energy of the first body, gcm^2/s^2.

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ was determined as the relation of the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0g}^{M}$ to the energy of 1.0 g of the body $E_{1.0g}$ by the formula ( )

$$R_{1.0}^{M} = \frac{A_{1.0g}^{M}}{E_{1.0g}} = \frac{1.04324 \times 10^{-4}}{8.988 \times 10^{20}} = 1.16070316 \times 10^{-25}\, cm/g. \quad ( )$$

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ was determined as the relation of the constant of the gravitational field of the mass of 1.0 cm^3/s^2 of the body $A_{1.0cm^3/s^2}^{M}$ to the energy of 1.0 cm^3/s^2 of the body $E_{1.0cm^3/s^2}$ by the formula ( )

$$R_{1.0}^{M} = \frac{A_{1.0cm^3/s^2}^{M}}{E_{1.0cm^3/s^2}} = \frac{1.0}{8.615 \times 10^{24}} = 1.160766 \times 10^{-25}\, cm/g. \quad ( )$$

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ was determined as the relation of the constant of the gravitational field of the mass of 1.0 cm/s^2 of the body $A_{1.0cm/s^2}^{M}$ to the energy of 1.0 cm/s^2 of the body $E_{1.0cm/s^2}$ by the formula ( )

$$R_{1.0}^{M} = \frac{A_{1.0cm/s^2}^{M}}{E_{1.0cm/s^2}} = \frac{4.068 \times 10^{17}}{3.505 \times 10^{42}} = 1.1606 \times 10^{-25}\, cm/g. \qquad ( )$$

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ was determined as the relation of the constant of the gravitational field of the mass of 1.0 cm of the body $A_{1.0cm}^{M}$ to the energy of 1.0 cm of the body $E_{1.0cm}$ by the formula ( )

$$R_{1.0}^{M} = \frac{A_{1.0cm}^{M}}{E_{1.0cm}} = \frac{8.988 \times 10^{20}}{7.743 \times 10^{45}} = 1.16079 \times 10^{-25}\, cm/g. \qquad ( )$$

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ was determined as the relation of the constant of the gravitational field of the mass of the Sun A_{sun}^{M} to the energy of the Sun E_{sun} by the formula ( )

$$R_{1.0}^{M} = \frac{A_{sun}^{M}}{E_{sun}} = \frac{1.328 \times 10^{26}}{1.143 \times 10^{51}} = 1.16185 \times 10^{-25}\, cm/g. \qquad ( )$$

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ was determined as the relation of the constant of the gravitational field of the mass of the Earth A_{ear}^{M} to the energy of the Earth E_{ear} by the formula ( )

$$R_{1.0}^{M} = \frac{A_{ear}^{M}}{E_{ear}} = \frac{4.023 \times 10^{20}}{3.466 \times 10^{45}} = 1.1607 \times 10^{-25}\, cm/g. \qquad ( )$$

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ was determined as the relation of the constant of the gravitational field of the mass of the Moon A_{moo}^{M} to the energy of the Moon E_{moo} by the formula ( )

$$R_{1.0}^{M} = \frac{A_{moo}^{M}}{E_{moo}} = \frac{7.807 \times 10^{18}}{6.7257 \times 10^{43}} = 1.16077 \times 10^{-25}\, cm/g. \qquad ( )$$

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ was determined as the relation of the constant of the gravitational field of the mass of (3671) Dionysus A_{dio}^{M} to the energy of (3671) Dionysus E_{dio} by the formula ( )

$$R_{1.0}^{M} = \frac{A_{dio}^{M}}{E_{dio}} = \frac{1.555 \times 10^{8}}{1.340 \times 10^{33}} = 1.16045 \times 10^{-25}\, cm/g. \qquad ( )$$

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ was determined as the relation of the constant of the gravitational field of the mass of 67P/Churyumov–Gerasimenko A_{67P}^{M} to the energy of 67P/Churyumov–Gerasimenko E_{67P} by the formula ( )

$$R_{1.0}^{M} = \frac{A_{67P}^{M}}{E_{67P}} = \frac{1.083 \times 10^{9}}{9.3295 \times 10^{33}} = 1.1608 \times 10^{-25}\, cm/g. \qquad ( )$$

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ was determined as the relation of the constant of the gravitational field of the mass of Sagittarius A A_{sgra}^{M} to the energy of Sagittarius A E_{sgra} by the formula ( )

$$R_{1.0}^{M} = \frac{A_{sgra}^{M}}{E_{sgra}} = \frac{9.470 \times 10^{29}}{8.158 \times 10^{54}} = 1.1608 \times 10^{-25}\, cm/g. \qquad ( )$$

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ was determined as the relation of the constant of the gravitational field of the mass of the Milky Way galaxy centre V_{mwgc}^{M} to the energy of the Milky Way galaxy centre E_{mwgc} by the formula ( )

$$R_{1.0}^{M} = \frac{A_{mwgc}^{M}}{E_{sgra}} = \frac{1.361 \times 10^{33}}{1.1729 \times 10^{58}} = 1.16037 \times 10^{-25}\, cm/g. \qquad ( )$$

Similarly, other FPC in TGT was determined in the process of solution GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^{M}}{R_{1-2}}$ (1).

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) having been solved with respect to G there was obtained

$$G = \frac{R_{1-2} \times V_2^2}{2 \times M_1 \times g_{1.0}^{M}}. \qquad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $A_1^M = R_{1-2} \times V_2^2$ ( ), $A_1^M = R_1^c \times c^2$ (), $g_1 = M_1 \times g_{1.0}^{M}$ ( ), $g_1 = g_{1.0}^{R} \times R_1^c$ ( ), $c^2 = 2 \times G \times g_{1.0}^{R}$ ( ), $G = \frac{1}{2 \times M_{1.0}^{A} \times g_{1.0}^{M}}$ ( ), $g_{1.0}^{R} = \frac{g_{1.0}^{M}}{R_{1.0}^{M}}$ ( ) and $c^2 = \frac{1}{M_{1.0}^{A} \times R_{1.0}^{M}}$ ( ) the formula ( ) was written in the following way

$$R_{1.0}^{M}=\frac{1}{M_{1.0}^{A}\times c^{2}}, \quad ( )$$

where $R_{1.0}^{M}$– is the constant of the gravitational radius of the mass of 1.0 g of the body, cm/g;

$M_{1.0}^{A}$– is the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body, gs^2/cm^3;

c– is the speed of light in vacuum, cm/s.

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ was determined value, reverse to the product the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body and the squared speed of light in vacuum c by the formula ( )

$$R_{1.0}^{M}=\frac{1}{M_{1.0}^{A}\times c^{2}}=\frac{2.5645\times 10^{-22}}{9585.522\times(2.988\times 10^{10})^{2}}$$
$$=1.16070316\times 10^{-25}\,cm/g. \quad ( )$$

Dividing the left and right of the GF $R_{1-2}\times V_2^2=2\times G\times M_1\times g_{1.0}^{M}$ ( ) by M_1 there was receive

$$\frac{R_{1-2}\times V_2^2}{M_1}=2\times G\times g_{1.0}^{M}. \quad ( )$$

Taking into account that $R_{1-2}=R_1^c$, $V_2=c$, $R_{1.0}^{M}=\frac{R_{1-2}}{M_1}$ ( ), $A_{1.0}^{M}=2\times G\times g_{1.0}^{M}$ (), $A_{1.0}^{M}=\frac{A_1^M}{M_1}$ ( ), $R_1^c=M_1\times R_{1.0}^{M}$ ( ) and $1=M_{1.0}^{R}\times R_{1.0}^{M}$ ( ) the formula ( ) was written in the following way

$$R_{1.0}^{M}=\frac{1}{M_{1.0}^{R}}, \quad ( )$$

where $R_{1.0}^{M}$– is the constant of the gravitational radius of the mass of 1.0 g of the body, cm/g;

$M_{1.0}^{R}$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm.

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ was determined as the value, reverse to the constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ by the formula ( )

$$R_{1.0}^{M} = \frac{1}{M_{1.0}^{R}} = \frac{1}{8.615467 \times 10^{24}} = 1.16070318 \times 10^{-25}\, cm/g. \qquad ( )$$

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) having been solved with respect to G there was obtained

$$G = \frac{R_{1-2} \times V_2^2}{2 \times M_1 \times g_{1.0}^{M}}. \qquad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $A_{1.0}^{M} = \frac{R_{1-2} \times V_2^2}{M_1}$ ( ), $G = \frac{A_{1.0}^{M}}{2 \times g_{1.0}^{M}}$ ( ), $A_{1.0}^{M} = \frac{1}{M_{1.0}^{A}}$ ( ), $G = \frac{1}{2 \times M_{1.0}^{A} \times g_{1.0}^{M}}$ ( ), $g_{1.0}^{A} = M_{1.0}^{A} \times g_{1.0}^{M}$ ( ), $g_{1.0}^{M} = \frac{g_{1.0}^{A}}{M_{1.0}^{A}}$ ( ), $M_{1.0}^{A} = \frac{1}{A_{1.0}^{M}}$ ( ), $g_{1.0}^{M} = A_{1.0}^{M} \times g_{1.0}^{A}$ ( ), $A_{1.0}^{M} = R_{1.0}^{M} \times c^2$ ( ), $g_{1.0}^{A} = \frac{g_{1.0}^{R}}{c^2}$ ( ) and $g_{1.0}^{M} = g_{1.0}^{R} \times R_{1.0}^{M}$ ( ) the formula (156) was written in the following way

$$R_{1.0}^{M} = \frac{g_{1.0}^{M}}{g_{1.0}^{R}}, \qquad ( )$$

where $R_{1.0}^{M}$– is the constant of the gravitational radius of the mass of 1.0 g of the body, cm/g;

$g_{1.0}^{M}$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2;

$g_{1.0}^{R}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$.

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ was determined as the relation of the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ to the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ by the formula ( )

$$R_{1.0}^{M} = \frac{g_{1.0}^{M}}{g_{1.0}^{R}} = \frac{2.5645 \times 10^{-22}}{2209.43656} = 1.16070316 \times 10^{-25}\, cm/g. \qquad ( )$$

Dividing the left and right of the GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) by M_1 there was receive

$$\frac{R_{1-2} \times V_2^2}{M_1} = 2 \times G \times g_{1.0}^{M}. \qquad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $R_{1.0}^M = \frac{R_{1-2}}{M_1}$ ( ), $A_{1.0}^M = 2 \times G \times g_{1.0}^M$ (), $A_{1.0}^M = \frac{A_1^M}{M_1}$ ( ), $R_1^c = M_1 \times R_{1.0}^M$ ( ), $R_{1.0}^g = \frac{R_1^c}{g_1}$ ( ) and $M_1 = \frac{g_1}{g_{1.0}^M}$ ( ) the formula ( ) was written in the following way

$$R_{1.0}^M = g_{1.0}^M \times R_{1.0}^g, \qquad ( )$$

where $R_{1.0}^M$– is the constant of the gravitational radius of the mass of 1.0 g of the body, cm/g;

$g_{1.0}^M$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2;

$R_{1.0}^g$– is the constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body, s^2.

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^M$ was determined as the product of the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^M$ by the constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body $R_{1.0}^g$ by the formula ( )

$$R_{1.0}^M = g_{1.0}^M \times R_{1.0}^g = 2.5645 \times 10^{-22} \times 4.52604 \times 10^{-4} = 1.16070316 \times 10^{-25}\, cm/g. \qquad ( )$$

Dividing the left and right of the GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) by M_1 there was receive

$$\frac{R_{1-2} \times V_2^2}{M_1} = 2 \times G \times g_{1.0}^M. \qquad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $R_{1.0}^M = \frac{R_{1-2}}{M_1}$ ( ), $A_{1.0}^M = 2 \times G \times g_{1.0}^M$ (), $A_{1.0}^M = \frac{A_1^M}{M_1}$ ( ) and $R_1^c = M_1 \times R_{1.0}^M$ ( ) the formula ( ) was written in the following way

$$R_{1.0}^M = \frac{R_1^c}{M_1}, \qquad ( )$$

where $R_{1.0}^M$– is the constant of the gravitational radius of the mass of 1.0 g of the body, cm/g;

R_1^c – is the gravitational radius of the first body, cm;

M_1– is the mass of the first body, g.

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ was determined as the relation of the gravitational radius of 1.0 g of the body $R_{1.0g}^{c}$ to the mass of 1.0 g of the body $M_{1.0g}$ by the formula ( )

$$R_{1.0}^{M} = \frac{R_{1.0g}^{c}}{M_{1.0g}} = \frac{1.16070316 \times 10^{-25}}{1.0} = 1.16070316 \times 10^{-25}\ cm/g\,. \quad ( )$$

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ was determined as the relation of the gravitational radius of 1.0 cm^3/s^2 of the body $R_{1.0cm^3/s^2}^{c}$ to the mass of 1.0 cm^3/s^2 of the body $M_{1.0cm^3/s^2}$ by the formula ( )

$$R_{1.0}^{M} = \frac{R_{1.0cm^3/s^2}^{c}}{M_{1.0cm^3/s^2}} = \frac{1.11259 \times 10^{-21}}{9585.522} = 1.160698 \times 10^{-25}\ cm/g\,. \quad ( )$$

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ was determined as the relation of the gravitational radius of 1.0 cm/s^2 of the body $R_{1.0cm/s^2}^{c}$ to the mass 1.0 cm/s^2 of the body $M_{1.0cm/s^2}$ by the formula ( )

$$R_{1.0}^{M} = \frac{R_{1.0cm/s^2}^{c}}{M_{1.0cm/s^2}} = \frac{4.55645 \times 10^{-4}}{3.8994 \times 10^{21}} = 1.1685 \times 10^{-25}\ cm/g. \quad ( )$$

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ was determined as the relation of the gravitational radius of 1.0 cm of the body $R_{1.0cm}^{c}$ to the mass 1.0 cm of the body $M_{1.0cm}$ by the formula ( )

$$R_{1.0}^{M} = \frac{R_{1.0cm}^{c}}{M_{1.0cm}} = \frac{1.0}{8.615 \times 10^{24}} = 1.160766 \times 10^{-25}\ cm/g. \quad ( )$$

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ was determined as the relation of the gravitational radius of the Sun R_{sun}^{c} to the mass of the Sun M_{sun} by the formula ( )

$$R_{1.0}^{M} = \frac{R_{sun}^{c}}{M_{sun}} = \frac{147975.07788}{1.273\ \times 10^{30}} = 1.162412 \times 10^{-25}\ cm/g. \quad ( )$$

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ was determined as the relation of the gravitational radius of the Earth R_{ear}^{c} to the mass of the Earth M_{ear} by the formula ( )

$$R_{1.0}^{M} = \frac{R_{ear}^{c}}{M_{ear}} = \frac{0.4475968}{3.856 \times 10^{24}} = 1.16078 \times 10^{-25}\, cm/g. \qquad ( )$$

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ was determined as the relation of the gravitational radius of the Moon R_{moo}^{c} to the mass of the Moon M_{moo} by the formula ( )

$$R_{1.0}^{M} = \frac{R_{moo}^{c}}{M_{moo}} = \frac{0.0086860258}{7.483 \times 10^{22}} = 1.1607678 \times 10^{-25}\, cm/g. \qquad ( )$$

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ was determined as the relation of the gravitational radius of (3671) Dionysus R_{dio}^{c} to the mass of (3671) Dionysus M_{dio} by the formula ( )

$$R_{1.0}^{M} = \frac{R_{dio}^{c}}{M_{dio}} = \frac{1.7301 \times 10^{-13}}{1.491 \times 10^{12}} = 1.16036 \times 10^{-25}\, cm/g. \qquad ( )$$

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ was determined as the relation of the gravitational radius of 67P/Churyumov–Gerasimenko R_{67R}^{c} to the mass of 67P/Churyumov–Gerasimenko M_{67R} by the formula ( )

$$R_{1.0}^{M} = \frac{R_{67R}^{c}}{M_{67R}} = \frac{1.213 \times 10^{-12}}{1.038 \times 10^{13}} = 1.16859 \times 10^{-25}\, cm/g. \qquad ( )$$

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ was determined as the relation of the gravitational radius of Sagittarius A R_{sgra}^{c} to the mass of Sagittarius A M_{sgra} by the formula ( )

$$R_{1.0}^{M} = \frac{R_{sgra}^{c}}{M_{sgra}} = \frac{1060707885.304}{9.077 \times 10^{33}} = 1.16857 \times 10^{-25}\, cm/g. \qquad ( )$$

The constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ was determined as the relation of the gravitational radius of the Milky Way galaxy centre R_{mwgc}^{c} to the mass of the Milky Way galaxy centre M_{mwgc} by the formula ( )

$$R_{1.0}^{M} = \frac{R_{mwgc}^{c}}{M_{mwgc}} = \frac{1.51424 \times 10^{12}}{1.305 \times 10^{37}} = 1.160337 \times 10^{-25}\, cm/g. \qquad ( )$$

In the same way it is possible to determine the constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, whey have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT by the formula ( ).

The determination of the constant of the gravitational radius of the mass of $1.0\ g$ of the body $R_{1.0}^{M}$ of different bodies according to FPC in TGT made it possible to formulate some conclusions.

The coincidence of the constant of the gravitational radius of the mass of $1.0\ g$ of the body $R_{1.0}^{M}$, that were determined by the parameters of the different bodies first body and the second body and other FPC in TGT in the Universe according to FPC in TGT the formulas ( ), ( ) shows their validity.???

The determination of the constant of the gravitational radius of the mass of $1.0\ g$ of the body $R_{1.0}^{M}$ makes it possible to determine all the other FPC in TGT and all the other parameters in physics.

7.4.2. The determination of the constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body $R_{1.0}^{g}$

The constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body $R_{1.0}^{g}$ was determined in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ (1), the equation $M_1 \times g_2 = M_2 \times g_1$ ( ), GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^{M}}{R_{1-2}}$ ( ), the equation . $\frac{G \times M_1 \times g_2}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ) and the equation . $\frac{G \times M_2 \times g_1}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ).

The constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body $R_{1.0}^{g}$ was determined in the process of solution GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^{M}}{R_{1-2}}$ ( ).

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) having been solved with respect to G there was obtained

$$G = \frac{R_{1-2} \times V_2^2}{2 \times M_1 \times g_{1.0}^{M}}. \qquad ( )$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ), $A_1^M = R_1^c \times c^2$ ( ), $g_1 = M_1 \times g_{1.0}^{M}$ () и $g_1 = R_1^c \times g_{1.0}^{R}$ ( ) the formula ( ) was written in the following way

$$R_{1.0}^{g} = \frac{2 \times G}{c^2}, \qquad ( )$$

where $R_{1.0}^{g}$– is the constant of the gravitational radius of the gravity acceleration of 1.0 cm/s^2 of the body, s^2;

G– is the gravitational constant, cm^2;

c– is the speed of light in vacuum, cm/s.

The constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body $R_{1.0}^{g}$ was determined as the doubled the gravitational constant G to the squared speed of light in vacuum c by the formula ( )

$$R_{1.0}^{g} = \frac{2 \times G}{c^2} = \frac{2 \times 2.034 \times 10^{17}}{(2.988 \times 10^{10})^2} = 4.52604 \times 10^{-4}\ s^2. \qquad ( )$$

Dividing the left and right of the GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) by M_1 there was receive

$$\frac{R_{1-2} \times V_2^2}{M_1} = 2 \times G \times g_{1.0}^M. \qquad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $R_{1.0}^M = \frac{R_{1-2}}{M_1}$ ( ), $A_{1.0}^M = 2 \times G \times g_{1.0}^M$ (), $A_{1.0}^M = \frac{A_1^M}{M_1}$ ( ), $R_1^c = M_1 \times R_{1.0}^M$ ( ), $R_{1.0}^g = \frac{R_1^c}{g_1}$ ( ), $M_1 = \frac{g_1}{g_{1.0}^M}$ ( ) and $R_{1.0}^M = g_{1.0}^M \times R_{1.0}^g$ () the formula ( ) was written in the following way

$$R_{1.0}^g = \frac{R_{1.0}^M}{g_{1.0}^M}, \qquad ( )$$

where $R_{1.0}^g$– is the constant of the gravitational radius of the gravity acceleration of 1.0 cm/s^2 of the body, s^2;

$R_{1.0}^M$– is the constant of the gravitational field of the gravitational radius of 1.0 g of the body, cm/g;

$g_{1.0}^M$– is the constant of the gravitational acceleration of the mass of 1.0 g of the body, cm/gs^2.

The constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body $R_{1.0}^g$ was determined as the constant of the gravitational field of the gravitational radius of 1.0 g of the body $R_{1.0}^M$ to the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^M$ by the formula ( )

$$R_{1.0}^g = \frac{R_{1.0}^M}{g_{1.0}^M} = \frac{1.16070316 \times 10^{-25}}{2.5645 \times 10^{-22}} = 4.52604 \times 10^{-4}\ s^2. \qquad ( )$$

Dividing the left and right of the GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) by M_1 there was receive

$$\frac{R_{1-2} \times V_2^2}{M_1} = 2 \times G \times g_{1.0}^M. \qquad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $R_{1.0}^M = \frac{R_{1-2}}{M_1}$ ( ), $A_{1.0}^M = 2 \times G \times g_{1.0}^M$ (), $A_{1.0}^M = \frac{A_1^M}{M_1}$ ( ), $R_1^c = M_1 \times R_{1.0}^M$ ( ) and $M_1 = \frac{g_1}{g_{1.0}^M}$ ( ) the formula ( ) was written in the following way

$$R_{1.0}^g = \frac{R_1^c}{g_1}, \qquad ( )$$

where $R_{1.0}^g$– is the constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body, s^2;

R_1^c – is the gravitational radius of the first body, cm;

g_1 – is the gravitational acceleration of the first body, cm/s^2.

The constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body $R_{1.0}^g$ was determined as the relation of the gravitational radius of 1.0 g of the body $R_{1.0g}^c$ to the gravitational acceleration of 1.0 g of the body $g_{1.0g}$ by the formula ( )

$$R_{1.0}^g = \frac{R_{1.0g}^c}{g_{1.0g}} = \frac{1.16070316 \times 10^{-25}}{2.5645 \times 10^{-22}} = 4.52604 \times 10^{-4}\ s^2. \qquad ( )$$

The constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body $R_{1.0}^g$ was determined as the relation of the gravitational radius of 1.0 cm^3/s^2 of the body $R_{1.0cm^3/s^2}^c$ to the gravitational acceleration of 1.0 cm^3/s^2 of the body $g_{1.0cm^3/s^2}$ by the formula ( )

$$R_{1.0}^g = \frac{R_{1.0cm^3/s^2}^c}{g_{1.0cm^3/s^2}} = \frac{1.11259 \times 10^{-21}}{2.4582 \times 10^{-18}} = 4.52604 \times 10^{-4}\ s^2. \qquad ( )$$

The constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body $R_{1.0}^g$ was determined as the relation of the gravitational radius of 1.0 cm/s^2 of the body $R_{1.0cm/s^2}^c$ to the gravitational acceleration of 1.0 cm/s^2 of the body $g_{1.0cm/s^2}$ by the formula ( )

$$R_{1.0}^g = \frac{R_{1.0cm/s^2}^c}{g_{1.0cm/s^2}} = \frac{4.55645 \times 10^{-4}}{1.0} = 4.55645 \times 10^{-4}\ s^2. \qquad ( )$$

The constant of the gravitational radius of the gravitational acceleration of $1.0\,cm/s^2$ of the body $R_{1.0}^{g}$ was determined as the relation of the gravitational radius of 1.0 cm of the body $R_{1.0cm}^{c}$ to the gravitational acceleration of 1.0 cm of the body $g_{1.0cm}$ by the formula ( )

$$R_{1.0}^{g} = \frac{R_{1.0cm}^{c}}{g_{1.0cm}} = \frac{1.0}{2209.43656} = 4.52604 \times 10^{-4}\, s^2. \qquad (\;)$$

The constant of the gravitational radius of the gravitational acceleration of $1.0\,cm/s^2$ of the body $R_{1.0}^{g}$ was determined as the relation of the gravitational radius of the Sun R_{sun}^{c} to the gravitational acceleration of the Sun g_{sun} by the formula ( )

$$R_{1.0}^{g} = \frac{R_{sun}^{c}}{g_{sun}} = \frac{147975.07788}{3.265 \times 10^{8}} = 4.53216 \times 10^{-4}\, s^2. \qquad (\;)$$

The constant of the gravitational radius of the gravitational acceleration of $1.0\,cm/s^2$ of the body $R_{1.0}^{g}$ was determined as the relation of the gravitational radius of the Earth R_{ear}^{c} to the gravitational acceleration of the Earth g_{ear} by the formula ( )

$$R_{1.0}^{g} = \frac{R_{ear}^{c}}{g_{ear}} = \frac{0.4475968}{980.665} = 4.5642 \times 10^{-4}\, s^2. \qquad (\;)$$

The constant of the gravitational radius of the gravitational acceleration of $1.0\,cm/s^2$ of the body $R_{1.0}^{g}$ was determined as the relation of the gravitational radius of the Moon R_{moo}^{c} to the gravitational acceleration of the Moon g_{moo} by the formula ( )

$$R_{1.0}^{g} = \frac{R_{moo}^{c}}{g_{moo}} = \frac{0.0086860258}{19.190} = 4.5263 \times 10^{-4}\, s^2. \qquad (\;)$$

The constant of the gravitational radius of the gravitational acceleration of $1.0\,cm/s^2$ of the body $R_{1.0}^{g}$ was determined as the relation of the gravitational radius of (3671) Dionysus R_{dio}^{c} to the gravitational acceleration of (3671) Dionysus g_{dio} by the formula ( )

$$R_{1.0}^{g} = \frac{R_{dio}^{c}}{g_{dio}} = \frac{1.7301 \times 10^{-13}}{4.547 \times 10^{-10}} =?\, 4.53216 \times 10^{-4}\, s^2. \qquad (\;)$$

The constant of the gravitational radius of the gravitational acceleration of $1.0\,cm/s^2$ of the body $R_{1.0}^{g}$ was determined as the relation of the gravitational radius of

67P/Churyumov–Gerasimenko R_{67R}^{c} to the gravitational acceleration of 67P/Churyumov–Gerasimenko g_{67R} by the formula ( )

$$R_{1.0}^{g} = \frac{R_{67R}^{c}}{g_{67R}} = \frac{1.213 \times 10^{-12}}{2.662 \times 10^{-9}} = 4.55672 \times 10^{-4}\ s^{2}. \qquad ( )$$

The constant of the gravitational radius of the gravitational acceleration of $1.0\ cm/s^{2}$ of the body $R_{1.0}^{g}$ was determined as the relation of the gravitational radius of Sagittarius A R_{sgra}^{c} to the gravitational acceleration of Sagittarius A g_{sgra} by the formula ( )

$$R_{1.0}^{g} = \frac{R_{sgra}^{c}}{g_{sgra}} = \frac{1.7301 \times 10^{-13}}{2.328 \times 10^{12}} = 4.53216 \times 10^{-4}\ s^{2}. \qquad ( )$$

The constant of the gravitational radius of the gravitational acceleration of $1.0\ cm/s^{2}$ of the body $R_{1.0}^{g}$ was determined as the relation of the gravitational radius of the Milky Way galaxy centre R_{mwgc}^{c} to the gravitational acceleration of the Milky Way galaxy centre g_{mwgc} by the formula ( )

$$R_{1.0}^{g} = \frac{R_{mwgc}^{c}}{g_{mwgc}} = \frac{1.51424 \times 10^{12}}{3.347 \times 10^{15}} = 4.52417 \times 10^{-4}\ s^{2}. \qquad ( )$$

In the same way it is possible to determine the constant of the gravitational radius of the gravitational acceleration of $1.0\ cm/s^{2}$ of the body $R_{1.0}^{g}$ with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, whey have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT by the formula ( ).

The determination of the values of the constant of the gravitational radius of the gravitational acceleration of $1.0\ cm/s^{2}$ of the body $R_{1.0}^{g}$ according to FPC in TGT made it possible to formulate the following conclusions.

The coincidence of the values of the constant of the gravitational radius of the gravitational acceleration of $1.0\ cm/s^{2}$ of the body $R_{1.0}^{g}$, that were determined by the parameters of the first body and the second body and other FPC in TGT in the Universe according to FPC in TGT by the formulas ( ), ( ) shows their validity.

The determination of the constant of the gravitational radius of the gravitational acceleration of $1.0\,cm/s^2$ of the body $R_{1.0}^{g}$ makes it possible to determine all the other FPC in TGT and all the other parameters in physics.

7.4.3. The determination the average distance between the first body and the second body R_{1-2}

The average distance between the first body and the second body R_{1-2} was determined in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ (1), the equation $M_1 \times g_2 = M_2 \times g_1$ ( ), GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}$ ( ), the equation . $\frac{G \times M_1 \times g_2}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ) and the equation . $\frac{G \times M_2 \times g_1}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ).

The average distance between the first body and the second body R_{1-2} was determined in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ (1).

Taking into account that $g_1 = M_1 \times g_{1.0}^M$ ( ), $g_2 = M_2 \times g_{1.0}^M$ ( ), $F_{1-2} = G \times \frac{M_1 \times M_2 \times g_{1.0}^M + M_2 \times M_1 \times g_{1.0}^M}{R_{1-2}^2}$ ( ), $F_{1-2} = \frac{G \times M_1 \times M_2 \times g_{1.0}^M + G \times M_2 \times M_1 \times g_{1.0}^M}{R_{1-2}^2}$ (), $F_{1-2} = \frac{2 \times G \times M_1 \times M_2 \times g_{1.0}^M}{R_{1-2}^2}$ ( ), $A_1^M = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) and $F_{1-2} = \frac{M_2 \times A_1^M}{R_{1-2}^2}$ ( ) TGL (1) was written in the following way

$$R_{1-2}^2 = \frac{M_2 \times A_1^M}{F_{1-2}}, \qquad ( )$$

or

$$R_{1-2} = \sqrt{\frac{M_2 \times A_1^M}{F_{1-2}}}, \qquad ( )$$

where R_{1-2}– is the average distance between the first body and the second body, cm;

M_2– is the mass of the second body, g;

A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

F_{1-2}– is the gravitational force between the first body and the second body, gcm/s^2.

Taking into account that $g_1 = M_1 \times g_{1.0}^M$ ( ), $g_2 = M_2 \times g_{1.0}^M$ ( ), $F_{1-2} = G \times \frac{M_1 \times M_2 \times g_{1.0}^M + M_2 \times M_1 \times g_{1.0}^M}{R_{1-2}^2}$ ( ), $F_{1-2} = \frac{G \times M_1 \times M_2 \times g_{1.0}^M + G \times M_2 \times M_1 \times g_{1.0}^M}{R_{1-2}^2}$ (), $F_{1-2} = \frac{2 \times G \times M_1 \times M_2 \times g_{1.0}^M}{R_{1-2}^2}$ ( ), $A_1^M = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) and $F_{1-2} = \frac{M_2 \times A_1^M}{R_{1-2}^2}$ ( ), $g_1 = \frac{A_1^M}{R_{1-2}^2}$ ( ) TGL (1) was written in the following way

$$R_{1-2}^2 = \frac{A_1^M}{g_1}, \qquad ( )$$

or

$$R_{1-2} = \sqrt{\frac{A_1^M}{g_1}}, \qquad ( )$$

where R_{1-2}– is the average distance between the first body and the second body, cm;

A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

g_1– is the gravitational acceleration of the first body, cm/s^2.

Similarly, other parameters were determined of the bodies in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ (1).

Taking into account that $g_1 = M_1 \times g_{1.0}^M$ ( ), $g_2 = M_2 \times g_{1.0}^M$ ( ), $F_{1-2} = G \times \frac{M_1 \times M_2 \times g_{1.0}^M + M_2 \times M_1 \times g_{1.0}^M}{R_{1-2}^2}$ ( ), $F_{1-2} = \frac{G \times M_1 \times M_2 \times g_{1.0}^M + G \times M_2 \times M_1 \times g_{1.0}^M}{R_{1-2}^2}$ (), $F_{1-2} = \frac{2 \times G \times M_1 \times M_2 \times g_{1.0}^M}{R_{1-2}^2}$ ( ), $A_1^M = 2 \times G \times M_1 \times g_{1.0}^M$ ( ), $A_1^M = R_{1-2} \times V_2^2$ ( ), $F_{1-2} = \frac{M_2 \times A_1^M}{R_{1-2}^2}$ ( ) and $F_{1-2} = \frac{M_2 \times R_{1-2} \times A_1^M}{R_{1-2}^2}$ ( ) TGL (1) was written in the following way

$$R_{1-2} = \frac{M_2 \times V_2^2}{F_{1-2}}, \qquad ( )$$

where R_{1-2}– is the average distance between the first body and the second body, cm;

M_2– is the mass of the second body, g;

V_2– is the average orbital velocity of the second body, cm/s;

F_{1-2}– is the gravitational force between the first body and the second body, gcm/s^2.

The average distance between the first body and the second body R_{1-2} was determined in the process of solution GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}$ ( ).

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) having been solved with respect to R_{1-2}, there was obtained

$$R_{1-2} = \frac{2 \times G \times M_1 \times g_{1.0}^M}{V_2^2}. \qquad ( )$$

Taking into account that $A_{1.0}^M = 2 \times G \times g_{1.0}^M$ ( ) the formula ( ) was written in the following way

$$R_{1-2} = \frac{M_1 \times A_{1.0}^M}{V_2^2}, \qquad ( )$$

where R_{1-2}– is the average distance between the first body and the second body, cm;

M_1 – is the mass of the first body, g;

$A_{1.0}^M$– is the constant of the gravitational field of the mass of 1.0 g of the body, cm^3/gs^2;

V_2– is the average orbital velocity of the second body, cm/s.

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) having been solved with respect to R_{1-2}, there was obtained

$$R_{1-2} = \frac{2 \times G \times M_1 \times g_{1.0}^M}{V_2^2}. \qquad ( )$$

Taking into account that $A_1^M = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) the formula ( ) was written in the following way

$$R_{1-2} = \frac{A_1^M}{V_2^2}, \qquad ( )$$

where R_{1-2}– is the average distance between the first body and the second body, cm;

A_1^M– is the constant of the gravitational field of the first body, cm^3/s^2;

V_2– is the average orbital velocity of the second body, cm/s.

The average distance between the first body and the second body R_{1-2} was determined in the process of solution the equation . $\frac{G\times M_1\times g_2}{R_{1-2}^2}=\frac{M_2\times V_2^2}{2\times R_{1-2}}$ ( ).

The equation ( ) having been solved with respect to R_{1-2}, there was obtained

$$R_{1-2}=\frac{2\times G\times M_1\times g_2}{M_2\times V_2^2}. \qquad ( )$$

Taking into account that $g_{1.0}^M=\frac{g_2}{M_2}$ ( ) and $A_1^M=2\times G\times M_1\times g_{1.0}^M$ ( ) the formula ( ) was written in the following way

$$R_{1-2}=\frac{A_1^M}{V_2^2}, \qquad ( )$$

where R_{1-2}– is the average distance between the first body and the second body, cm;

A_1^M– is the constant of the gravitational field of the first body, cm^3/s^2;

V_2– is the average orbital velocity of the second body, cm/s.

The average distance between the first body and the second body R_{1-2} was determined in the process of solution the equation. $\frac{G\times M_2\times g_1}{R_{1-2}^2}=\frac{M_2\times V_2^2}{2\times R_{1-2}}$ ( ).

The equation ( ) having been solved with respect to R_{1-2}, there was obtained

$$R_{1-2}=\frac{2\times G\times g_1}{V_2^2}. \qquad ( )$$

Taking into account that $A_1^M=2\times G\times g_1$ ( ) the formula ( ) was written in the following way

$$R_{1-2}=\frac{A_1^M}{V_2^2}, \qquad ( )$$

where R_{1-2}– is the average distance from the first body to the second body, cm;

A_1^M– is the constant of the gravitational field of the first body, cm^3/s^2;

V_2– is the average orbital velocity of the second body, cm/s.

The obtained formula ( ) is the identical to the formula ( ).

The physical nature and the method of the determination of the average distances between the first body and the second body R_{1-2} according to FPC in TGT without using the so–called Titius–Bode law by the formulas ( ) and ( ) will be shown in other work.

The physical nature and the method of the determination of the average distance between the first body and the second body R_{1-2} (semi–major axis cosmic distance ladder) according to FPC in TGT by the formulas ( ) and ( ) will be shown in other works.

7.4.4. The determination of the gravitational radius of the first body R_1^c

The gravitational radius of the first body R_1^c was determined in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ (1), the equation $M_1 \times g_2 = M_2 \times g_1$ ( ), GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}$ ( ), the equation .$\frac{G \times M_1 \times g_2}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ) and the equation .$\frac{G \times M_2 \times g_1}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ).

The gravitational radius of the first body R_1^c was determined in the process of solution GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}$ ( ).

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ (48) having been solved with respect to R_{1-2} there was obtained

$$R_{1-2} = \frac{2 \times G \times M_1 \times g_{1.0}^M}{V_2^2}. \qquad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $A_{1.0}^M = 2 \times G \times M_1 \times g_{1.0}^M$ ( ), $A_{1.0}^M = R_1^c \times c^2$ ( ) the formula ( ) was written in the following way

$$R_1^c = \frac{A_1^M}{c^2}, \qquad ( )$$

where R_1^c– is the gravitational radius of the first body, cm;

A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

c – is the speed of light in vacuum, cm/s.

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) having been solved with respect to R_{1-2} there was obtained

$$R_{1-2} = \frac{2 \times G \times M_1 \times g_{1.0}^M}{V_2^2}. \qquad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $A_{1.0}^M = 2 \times G \times M_1 \times g_{1.0}^M$ ( ), $R_{1-2} = \frac{A_1^M}{V_2^2}$ ( ), $R_1^c = \frac{A_1^M}{c^2}$ ( ), $c^2 = A_{1.0}^M \times M_{1.0}^R$ ( ) and $M_1 = \frac{A_1^M}{A_{1.0}^M}$ ( ) the formula ( ) was written in the following way

$$R_1^c = \frac{M_1}{M_{1.0}^R}, \quad ( )$$

where R_1^c– is the gravitational radius of the first body, cm;

M_1– is the mass of the first body, g;

$M_{1.0}^R$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm.

Dividing the left and right of the GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) by M_1 there was receive

$$\frac{R_{1-2} \times V_2^2}{M_1} = 2 \times G \times g_{1.0}^M. \quad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $R_{1.0}^M = \frac{R_{1-2}}{M_1}$ ( ), $A_{1.0}^M = 2 \times G \times g_{1.0}^M$ () and $A_{1.0}^M = \frac{A_1^M}{M_1}$ ( ) the formula ( ) was written in the following way

$$R_1^c = M_1 \times R_{1.0}^M, \quad ( )$$

where R_1^c– is the gravitational radius of the first body, cm;

M_1– is the mass of the first body, g;

$R_{1.0}^M$– is the constant of the gravitational radius of the mass of 1.0 g of the body, cm/g.

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) having been solved with respect to R_{1-2} there was obtained

$$R_{1-2} = \frac{2 \times G \times M_1 \times g_{1.0}^M}{V_2^2}. \quad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $A_1^M = 2 \times G \times M_1 \times g_{1.0}^M$ ( ), $R_{1-2} = \frac{A_1^M}{V_2^2}$ ( ), $R_1^c = \frac{A_1^M}{c^2}$ ( ), $A_1^M = 2 \times G \times g_1$ ( ) and $c^2 = 2 \times G \times g_{1.0}^R$ ( ) the formula () was written in the following way

$$R_1^c = \frac{g_1}{g_{1.0}^R}, \quad ( )$$

where R_1^c– is the gravitational radius of the first body, cm;

g_1 – is the gravitational acceleration of the first body, cm/s^2;

$g_{1.0}^{R}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$.

Dividing the left and right of the GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) by M_1 there was receive

$$\frac{R_{1-2} \times V_2^2}{M_1} = 2 \times G \times g_{1.0}^{M}. \qquad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $R_{1.0}^{M} = \frac{R_{1-2}}{M_1}$ ( ), $A_{1.0}^{M} = 2 \times G \times g_{1.0}^{M}$ (), $A_{1.0}^{M} = \frac{A_1^M}{M_1}$ ( ), $R_1^c = M_1 \times R_{1.0}^{M}$ ( ), $R_{1.0}^{g} = \frac{R_1^c}{g_1}$ ( ) and $M_1 = \frac{g_1}{g_{1.0}^{M}}$ ( ) the formula ( ) was written in the following way

$$R_1^c = g_1 \times R_{1.0}^{g}, \qquad ( )$$

where R_1^c– is the gravitational radius of the first body, cm;

g_1– is the gravitational acceleration of the first body, cm/s^2;

$R_{1.0}^{g}$– is the constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body, s^2.

The physical nature and the method of the determination of the gravitational radius of the first body R_1^c without using the so–called Schwarzschild radius according to FPC in TGT will be shown in other works.

7.5. The determination of the fundamental physical constants (FPC) in Tsiganok gravitation theory (TGT), characterizing the speed of light c, and other parameters of bodies

7.5.1. The determination of the speed of light in vacuum c

Speed of light in vacuum c was determined in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ (1), the equation $M_1 \times g_2 = M_2 \times g_1$ ( ), GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}$ ( ), the equation .$\frac{G \times M_1 \times g_2}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ) and the equation .$\frac{G \times M_2 \times g_1}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ).

Speed of light in vacuum c was determined in the process of solution GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}$ ( ).

Dividing the left and right of the GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) by M_1 there was receive

$$\frac{R_{1-2} \times V_2^2}{M_1} = 2 \times G \times g_{1.0}^M. \qquad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $R_{1.0}^M = \frac{R_1^c}{M_1}$ ( ), $A_{1.0}^M = 2 \times G \times g_{1.0}^M$ ( ) and $A_{1.0}^M = R_{1.0}^M \times c^2$ ( ) the formula ( ) was written in the following way

$$c^2 = \frac{A_{1.0}^M}{R_{1.0}^M} \qquad ( )$$

or

$$c = \sqrt{\frac{A_{1.0}^M}{R_{1.0}^M}}, \qquad ( )$$

where c – is the speed of light in vacuum, cm/s;

$A_{1.0}^M$– is the constant of the gravitational field of the mass of $1.0\,g$ of the body, cm^3/gs^2;

$R_{1.0}^{M}$– is the constant of the gravitational radius of the mass of 1.0 g of the body, cm/g.

The speed of light in vacuum c was determined as the square root of the relation of the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ to the constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ by the formula ( )

$$c = \sqrt{\frac{A_{1.0}^{M}}{R_{1.0}^{M}}} = \sqrt{\frac{1.04324 \times 10^{-4}}{1.160761 \times 10^{-25}}} = 2.998 \times 10^{10}\, cm/s. \qquad ( )$$

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) having been solved with respect to R_{1-2} there was obtained

$$R_{1-2} = \frac{2 \times G \times M_1 \times g_{1.0}^{M}}{V_2^2}. \qquad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $A_1^M = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ), $R_{1-2} = \frac{A_1^M}{V_2^2}$ ( ) and $A_1^M = R_1^c \times c^2$ ( ) the formula ( ) was written in the following way

$$c^2 = \frac{A_1^M}{R_1^c} \qquad ( )$$

or

$$c = \sqrt{\frac{A_1^M}{R_1^c}}, \qquad ( )$$

where c – is the speed of light in vacuum, cm/s;

A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

R_1^c– is the gravitational radius of the first body, cm.

The speed of light in vacuum c was determined as the square root of the relation of the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0g}^{M}$ to the gravitational radius of 1.0 g of the body $R_{1.0g}^{c}$ by the formula ( )

$$c = \sqrt{\frac{A_{1.0g}^{M}}{R_{1.0g}^{c}}} = \sqrt{\frac{1.04324 \times 10^{-4}}{1.16070316 \times 10^{-25}}} = 2.988 \times 10^{10} cm/s. \qquad ( )$$

The speed of light in vacuum c was determined as the square root of the relation of the constant of the gravitational field of the mass of $1.0\, cm^3/s^2$ of the body $A^M_{1.0cm^3/s^2}$ to the gravitational radius of $1.0\, cm^3/s^2$ of the body $R^c_{1.0cm^3/s^2}$ by the formula ( )

$$c = \sqrt{\frac{A^M_{1.0cm^3/s^2}}{R^c_{1.0cm^3/s^2}}} = \sqrt{\frac{1.0}{1.11259 \times 10^{-21}}} = 2.988 \times 10^{10} cm/s. \qquad (\ )$$

The speed of light in vacuum c was determined as the square root of the relation of the constant of the gravitational field of the mass of $1.0\, cm/s^2$ of the body $A^M_{1.0cm/s^2}$ to the gravitational radius of $1.0\, cm/s^2$ of the body $R^c_{1.0cm/s^2}$ by the formula ( )

$$c = \sqrt{\frac{A^M_{1.0cm/s^2}}{R^c_{1.0cm/s^2}}} = \sqrt{\frac{4.068 \times 10^{17}}{4.55645 \times 10^{-4}}} = 2.988 \times 10^{10} cm/s. \qquad (\ )$$

Speed of light in vacuum c was determined as the square root of the relation of the constant of the gravitational field of the mass of $1.0\, cm$ of the body $A^M_{1.0cm}$ to the gravitational radius of $1.0\, cm$ of the body $R^c_{1.0cm}$ by the formula ( )

$$c = \sqrt{\frac{A^M_{1.0cm}}{R^c_{1.0cm}}} = \sqrt{\frac{8.988 \times 10^{20}}{1.0}} = 2.988 \times 10^{10} cm/s. \qquad (\ )$$

The speed of light in vacuum c was determined as the square root of the relation of the constant of the gravitational field of the mass of the Sun A^M_{sun} to the gravitational radius of the Sun R^c_{sun} by the formula ( )

$$c = \sqrt{\frac{A^M_{sun}}{R^c_{sun}}} = \sqrt{\frac{1.330?\times 10^{26}}{147975.07788}} = 2.988 \times 10^{10} cm/s. \qquad (\ )$$

The speed of light in vacuum c was determined as the square root of the relation of the constant of the gravitational field of the mass of the Earth A^M_{ear} to the gravitational radius of the Earth R^g_{ear} by the formula ( )

$$c = \sqrt{\frac{A^M_{ear}}{R^c_{ear}}} = \sqrt{\frac{4.023 \times 10^{20}}{0.4475968}} = 2.988 \times 10^{10} cm/s. \qquad (\ )$$

The speed of light in vacuum c was determined as the square root of the relation of the constant of the gravitational field of the mass of the Moon A^{M}_{moo} to the gravitational radius of the Moon R^{c}_{moo} by the formula ( )

$$c = \sqrt{\frac{A^{M}_{moo}}{R^{c}_{moo}}} = \sqrt{\frac{7.807 \times 10^{18}}{0.0086860258}} = 2.988 \times 10^{10} cm/s. \quad ( )$$

The speed of light in vacuum c was determined as the square root of the relation of the constant of the gravitational field of the mass of (3671) Dionysus A^{M}_{dio} to the gravitational radius of (3671) Dionysus R^{c}_{dio} by the formula ( )

$$c = \sqrt{\frac{A^{M}_{dio}}{R^{c}_{dio}}} = \sqrt{\frac{1.555 \times 10^{8}}{1.7301 \times 10^{-13}}} = 2.988 \times 10^{10} cm/s. \quad ( )$$

The speed of light in vacuum c was determined as the square root of the relation of the constant of the gravitational field of the mass of 67P/Churyumov–Gerasimenko A^{M}_{67P} to гравитационному радиусу 67P/Churyumov–Gerasimenko R^{c}_{67P} by the formula ( )

$$c = \sqrt{\frac{A^{M}_{67P}}{R^{c}_{67P}}} = \sqrt{\frac{1.083 \times 10^{9}}{1.213 \times 10^{-12}}} = 2.988 \times 10^{10} cm/s. \quad ( )$$

The speed of light in vacuum c was determined as the square root of the relation of the constant of the gravitational field of the mass of Sagittarius A A^{M}_{sgra} to the gravitational radius of Sagittarius A R^{c}_{sgra} by the formula ( )

$$c = \sqrt{\frac{A^{M}_{sgra}}{R^{c}_{sgra}}} = \sqrt{\frac{9.470 \times 10^{29}}{1060707885.304}} = 2.988 \times 10^{10} cm/s. \quad ( )$$

The speed of light in vacuum c was determined as the square root of the relation of the constant of the gravitational field of the mass of the Milky Way galaxy centre A^{M}_{mwgc} to the gravitational radius of the Milky Way galaxy centre R^{c}_{mwgc} by the formula ( )

$$c = \sqrt{\frac{A^{M}_{mwgc}}{R^{c}_{mwgc}}} = \sqrt{\frac{1.361 \times 10^{33}}{1.51424 \times 10^{12}}} = 2.988 \times 10^{10} cm/s. \quad ( )$$

In the same way it is possible to determine speed of light in vacuum c with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, whey have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT by the formula ( ).

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) having been solved with respect to G there was obtained

$$V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}. \qquad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $A_{1.0}^M = 2 \times G \times g_{1.0}^M$ ( ), $A_1^M = M_1 \times A_{1.0}^M$ ( ) and $M_{1.0}^R = \frac{M_1}{R_1^c}$ ( ) the formula ( ) was written in the following way

$$c^2 = A_{1.0}^M \times M_{1.0}^R, \qquad ( )$$

or

$$c = \sqrt{A_{1.0}^M \times M_{1.0}^R}, \qquad ( )$$

where c – is the speed of light in vacuum, cm/s;

$A_{1.0}^M$– is the constant of the gravitational field of the mass of 1.0 g of the body, cm^3/gs^2;

$M_{1.0}^R$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm.

Speed of light in vacuum c was determined the square root of the product the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^M$ and the constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^R$ by the formula ( )

$$c = \sqrt{A_{1.0}^M \times M_{1.0}^R}$$
$$= \sqrt{1.04324 \times 10^{-4} \times 8.615467 \times 10^{24}} = 2.988 \times 10^{10} cm/s. \qquad ( )$$

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) having been solved with respect to G there was obtained

$$G = \frac{R_{1-2} \times V_2^2}{2 \times M_1 \times g_{1.0}^M}. \qquad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $A_1^M = R_{1-2} \times V_2^2$ ( ), $A_1^M = R_1^c \times c^2$ (), $g_1 = M_1 \times g_{1.0}^M$ ( ) and $g_1 = R_1^c \times g_{1.0}^R$ ( ) the formula ( ) was written in the following way

$$c^2 = 2 \times G \times g_{1.0}^R, \qquad ( )$$

or

$$c = \sqrt{2 \times G \times g_{1.0}^R}, \qquad ( )$$

where c – is the speed of light in vacuum, cm/s;

G– is the gravitational constant, cm^2;

$g_{1.0}^R$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$.

Speed of light in vacuum c was determined the square root of the product the doubled of the gravitational constant G and the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^R$ by the formula ( )

$$c = \sqrt{2 \times G \times g_{1.0}^R} = \sqrt{2 \times 2.034 \times 10^{17} \times 2209.43656 =} \, 2.988 \times 10^{10} cm/s \, . ( )$$

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) having been solved with respect to G there was obtained

$$G = \frac{R_{1-2} \times V_2^2}{2 \times M_1 \times g_{1.0}^M}. \qquad ( )$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ), $A_1^M = R_1^c \times c^2$ ( ), $g_1 = M_1 \times g_{1.0}^M$ () and $g_1 = R_1^c \times g_{1.0}^R$ ( ) the formula ( ) was written in the following way

$$c^2 = \frac{2 \times G}{R_{1.0}^g}, \qquad ( )$$

or

$$c = \sqrt{\frac{2 \times G}{R_{1.0}^g}}, \qquad ( )$$

where c – is the speed of light in vacuum, cm/s;

G– is the gravitational constant, cm^2;

$R^{g}_{1.0}$– is the constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body, s^2.

Speed of light in vacuum c was determined as the square root of the relation of the doubled of the gravitational constant G to the square speed of light in vacuum c by the formula ( )

$$c = \sqrt{\frac{2 \times G}{R^{g}_{1.0}}} = \sqrt{\frac{2 \times 2.034 \times 10^{17}}{4.52604 \times 10^{-4}}} = 2.988 \times 10^{10}\ cm/s. \qquad (\ )$$

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g^{M}_{1.0}$ ( ) having been solved with respect to G there was obtained

$$G = \frac{R_{1-2} \times V_2^2}{2 \times M_1 \times g^{M}_{1.0}}. \qquad (\ )$$

Taking into account that $R_{1-2} = R^{c}_{1}$, $V_2 = c$, $A^{M}_{1} = R_{1-2} \times V_2^2$ ( ), $A^{M}_{1} = R^{c}_{1} \times c^2$ (), $g_1 = M_1 \times g^{M}_{1.0}$ ( ), $g_1 = R^{c}_{1} \times g^{R}_{1.0}$ ( ), $c^2 = 2 \times G \times g^{R}_{1.0}$ ( ), $G = \frac{1}{2 \times M^{A}_{1.0} \times g^{M}_{1.0}}$ ( ) and $g^{R}_{1.0} = \frac{g^{M}_{1.0}}{R^{M}_{1.0}}$ ( ) the formula ( ) was written in the following way

$$c^2 = \frac{1}{M^{A}_{1.0} \times R^{M}_{1.0}}, \qquad (\ )$$

or

$$c = \sqrt{\frac{1}{M^{A}_{1.0} \times R^{M}_{1.0}}}, \qquad (\ )$$

where c – is the speed of light in vacuum, cm/s;

$M^{A}_{1.0}$– is the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body, gs^2/cm^3;

$R^{M}_{1.0}$– is the constant of the gravitational radius of the mass of 1.0 g of the body, cm/g.

Speed of light in vacuum c was determined as the square root of the relation of is the value reverse to the product the constant of the mass of the gravitational field of

$1.0\,cm^3/s^2$ of the body $M_{1.0}^{A}$ and the constant of the gravitational radius of the mass of $1.0\ g$ of the body $R_{1.0}^{M}$ by the formula ( )

$$c = \sqrt{\frac{1}{M_{1.0}^{A} \times R_{1.0}^{M}}} = \sqrt{\frac{1}{9585.522 \times 1.16070316 \times 10^{-25}}} = 2.988 \times 10^{10} cm/s\,.\,(\ )$$

$$c^2 = \frac{M_{1.0}^{R}}{M_{1.0}^{A}}, \qquad (\ )$$

or

$$c = \sqrt{\frac{M_{1.0}^{R}}{M_{1.0}^{A}}}, \qquad (\ )$$

where c – is the speed of light in vacuum, cm/s;

$M_{1.0}^{R}$– is the constant of the mass of the gravitational radius of $1.0\ cm$ of the body, g/cm;

$M_{1.0}^{A}$– is the constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body, gs^2/cm^3.

Speed of light in vacuum c was determined as the square root of the relation of the constant of the mass of the gravitational radius of $1.0\ cm$ of the body $M_{1.0}^{R}$ to the constant of the mass of the gravitational field of $1.0\,cm^3/s^2$ of the body $M_{1.0}^{A}$ by the formula ( )

$$c = \sqrt{\frac{M_{1.0}^{R}}{M_{1.0}^{A}}} = \sqrt{\frac{8.615 \times 10^{24}}{9585.522}} = 2.998 \times 10^{10}\ cm^2/s^2. \qquad (\ )$$

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) having been solved with respect to G there was obtained

$$G = \frac{R_{1-2} \times V_2^2}{2 \times M_1 \times g_{1.0}^{M}}. \qquad (\ )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $A_{1.0}^{M} = \frac{R_{1-2} \times V_2^2}{M_1}$ ( ), $G = \frac{A_{1.0}^{M}}{2 \times g_{1.0}^{M}}$ ( ), $A_{1.0}^{M} = \frac{1}{M_{1.0}^{A}}$ ( ), $G = \frac{1}{2 \times M_{1.0}^{A} \times g_{1.0}^{M}}$ ( ), $g_{1.0}^{A} = M_{1.0}^{A} \times g_{1.0}^{M}$ ( ), $M_{1.0}^{A} = \frac{M_1}{A_1^{M}}$ ( ), $g_{1.0}^{M} = \frac{g_1}{M_1}$ ( ),

$g_{1.0}^{A} = \frac{g_1}{A_1^M}$ ( ), $g_1 = A_1^M \times g_{1.0}^{A}$ ( ), $R_1^c = \frac{A_1^M}{c^2}$ ( ), $g_{1.0}^{R} = \frac{g_1}{R_1^c}$ ( ) and $g_{1.0}^{R} = g_{1.0}^{A} \times c^2$ ( ) the formula ( ) was written in the following way

$$c^2 = \frac{g_{1.0}^{R}}{g_{1.0}^{A}}, \qquad (\ )$$

or

$$c = \sqrt{\frac{g_{1.0}^{R}}{g_{1.0}^{A}}}, \qquad (\ )$$

where c – is the speed of light in vacuum, cm/s;

$g_{1.0}^{R}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$;

$g_{1.0}^{A}$– is the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body, $1/cm^2$.

Speed of light in vacuum c was determined as the square root of the relation of the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ to the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g_{1.0}^{A}$ by the formula ( )

$$c = \sqrt{\frac{g_{1.0}^{R}}{g_{1.0}^{A}}} = \sqrt{\frac{2209.43656}{2.4582 \times 10^{-18}}} = 2.988 \times 10^{10} cm/s. \qquad (\ )$$

Multiplying the left and right of the GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^{M}$ ( ) by c^2 there was received

$$R_{1-2} \times V_2^2 \times c^2 = 2 \times G \times M_1 \times g_{1.0}^{M} \times c^2. \qquad (\ )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $A_1^M = R_{1-2} \times V_2^2$ ( ), $A_{1.0}^{M} = 2 \times G \times g_{1.0}^{M}$ ( ), $M_1 = \frac{A_1^M}{A_{1.0}^{M}}$ ( ) and $E_1 = M_1 \times c^2$ ( ) the formula ( ) was written in the following way

$$c^2 = \frac{E_1}{M_1}, \qquad (\ )$$

or

$$c = \sqrt{\frac{E_1}{M_1}}, \qquad ( )$$

where c – is the speed of light in vacuum, cm/s;

E_1– is the energy of the first body, cm^2/s^2;

M_1– is the mass of the first body, g.

Speed of light in vacuum c was determined as the square root of the relation of the energy of 1.0 g of the body $E_{1.0g}$ the mass of 1.0 g of the body $M_{1.0g}$ by the formula ( )

$$c = \sqrt{\frac{E_{1.0g}}{M_{1.0g}}} = \sqrt{\frac{8.988 \times 10^{20}}{1.0}} = 2.988 \times 10^{10} cm/s. \qquad ( )$$

Speed of light in vacuum c was determined as the square root of the relation of the energy of 1.0 cm^3/s^2 of the body $E_{1.0cm^3/s^2}$ the mass of 1.0 cm^3/s^2 of the body $M_{1.0cm^3/s^2}$ by the formula ( )

$$c = \sqrt{\frac{E_{1.0cm^3/s^2}}{M_{1.0cm^3/s^2}}} = \sqrt{\frac{8.615 \times 10^{24}}{9585.522}} = 2.988 \times 10^{10} cm/s. \qquad ( )$$

Speed of light in vacuum c was determined as the square root of the relation of the energy of 1.0 cm/s^2 of the body $E_{1.0cm/s^2}$ the mass of 1.0 cm/s^2 of the body $M_{1.0cm/s^2}$ by the formula ( )

$$c = \sqrt{\frac{E_{1.0cm/s^2}}{M_{1.0cm/s^2}}} = \sqrt{\frac{3.505 \times 10^{42}}{3.8994 \times 10^{21}}} = 2.988 \times 10^{10} cm/s. \qquad ( )$$

Speed of light in vacuum c was determined as the square root of the relation of the energy of 1.0 cm of the body $E_{1.0cm}$ the mass of 1.0 cm of the body $M_{1.0cm}$ by the formula ( )

$$c = \sqrt{\frac{E_{1.0cm}}{M_{1.0cm}}} = \sqrt{\frac{7.743 \times 10^{45}}{8.615 \times 10^{24}}} = 2.988 \times 10^{10} cm/s. \qquad ( )$$

Speed of light in vacuum c was determined as the square root of the relation of the energy of the Sun E_{sun} the mass of the Sun M_{sun} by the formula ( )

$$c=\sqrt{\frac{E_{sun}}{M_{sun}}}=\sqrt{\frac{1.143\times 10^{51}}{1.273\times 10^{30}}}=2.988\times 10^{10}cm/s. \qquad ( )$$

Speed of light in vacuum c was determined as the square root of the relation of the energy of the Earth E_{ear} the mass of the Earth M_{ear} by the formula ( )

$$c=\sqrt{\frac{E_{ear}}{M_{ear}}}=\sqrt{\frac{3.466\times 10^{45}}{3.856\times 10^{24}}}=2.988\times 10^{10}cm/s. \qquad ( )$$

Speed of light in vacuum c was determined as the square root of the relation of the energy of the Moon E_{moo} the mass of the Moon M_{moo} by the formula ( )

$$c=\sqrt{\frac{E_{moo}}{M_{moo}}}=\sqrt{\frac{6.7257\times 10^{43}}{7.483\times 10^{22}}}=2.988\times 10^{10}cm/s. \qquad ( )$$

Speed of light in vacuum c was determined as the square root of the relation of the energy of (3671) Dionysus E_{dio} the mass of (3671) Dionysus M_{dio} by the formula ( )

$$c=\sqrt{\frac{E_{dio}}{M_{dio}}}=\sqrt{\frac{1.555\times 10^{33}}{1.491\times 10^{12}}}=2.988\times 10^{10}cm/s. \qquad ( )$$

Speed of light in vacuum c was determined as the square root of the relation of the energy of 67P/Churyumov–Gerasimenko E_{67R} the mass of 67P/Churyumov–Gerasimenko M_{67R} by the formula ( )

$$c=\sqrt{\frac{E_{67R}}{M_{67R}}}=\sqrt{\frac{9.3295\times 10^{33}}{1.038\times 10^{13}}}=2.988\times 10^{10}cm/s. \qquad ( )$$

Speed of light in vacuum c was determined as the square root of the relation of the energy of Sagittarius A E_{sgra} the mass of Sagittarius A M_{sgra} by the formula ( )

$$c=\sqrt{\frac{E_{sgra}}{M_{sgra}}}=\sqrt{\frac{8.158\times 10^{54}}{9.077\times 10^{33}}}=2.988\times 10^{10}cm/s. \qquad ( )$$

Speed of light in vacuum c was determined as the square root of the relation of the energy of the Milky Way galaxy centre E_{mwgc} the mass of the Milky Way galaxy centre M_{mwgc} by the formula ( )

$$c = \sqrt{\frac{E_{mwgc}}{M_{mwgc}}} = \sqrt{\frac{1.1729 \times 10^{58}}{1.305 \times 10^{37}}} = 2.988 \times 10^{10} cm/s. \qquad ( )$$

Similarly, other FPC in TGT was determined in the process of solution GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}$ ( ).

The determination of the speed of light in vacuum c according to FPC in TGT by the formulas ( ) made it possible to formulate the following conclusions.

Determined by the parameters of the first body and the second body and other FPC in TGT in the Universe according to by the formulas ( ), ( ) shows their validity.

The determination the speed of light in vacuum c makes it possible to determine all the other FPC in TGT and all the other parameters in physics.

7.5.2. The determination of the average orbital velocity of the second body V_2

The average orbital velocity of the second body V_2 was determined in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ (1), the equation $M_1 \times g_2 = M_2 \times g_1$ ( ), GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}$ ( ), the equation $.\frac{G \times M_1 \times g_2}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ) and the equation $.\frac{G \times M_2 \times g_1}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ).

The average orbital velocity of the second body V_2 was determined in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ ( ).

Taking into account that $g_1 = M_1 \times g_{1.0}^M$ ( ), $g_2 = M_2 \times g_{1.0}^M$ ( ) $F_{1-2} = G \times \frac{M_1 \times M_2 \times g_{1.0}^M + M_2 \times M_1 \times g_{1.0}^M}{R_{1-2}^2}$ ( ), $F_{1-2} = \frac{G \times M_1 \times M_2 \times g_{1.0}^M + G \times M_2 \times M_1 \times g_{1.0}^M}{R_{1-2}^2}$ (), $F_{1-2} = \frac{2 \times G \times M_1 \times M_2 \times g_{1.0}^M}{R_{1-2}^2}$ ( ), $A_1^M = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) and $F_{1-2} = \frac{M_2 \times A_1^M}{R_{1-2}^2}$ ( ), $A_1^M = R_{1-2} \times V_2^2$ ( ), $F_{1-2} = \frac{M_2 \times R_{1-2} \times V_2^2}{R_{1-2}^2}$ ( ) and $F_{1-2} = \frac{M_2 \times V_2^2}{R_{1-2}}$ ( ) TGL (1) was written in the following way

$$V_2^2 = \frac{F_{1-2} \times R_{1-2}}{M_2}, \qquad ()$$

or

$$V_2 = \sqrt{\frac{F_{1-2} \times R_{1-2}}{M_2}}, \qquad ()$$

where V_2– is the average orbital velocity of the second body, cm/s;

F_{1-2}– the centrifugal force of the second body, gcm/s;

R_{1-2}– is the average distance between the first body and the second body, cm;

M_2– is the mass of the second body, g.

Similarly, other parameters were determined of the bodies in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ (1).

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) having been solved with respect to V_2^2, there was obtained

$$V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}. \qquad ( )$$

Taking into account that $A_{1.0}^M = \frac{R_{1-2} \times V_2^2}{M_1}$ ( ) GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) was written in the following way

$$V_2^2 = \frac{M_1 \times A_{1.0}^M}{R_{1-2}} \qquad ( )$$

or

$$V_2 = \sqrt{\frac{M_1 \times A_{1.0}^M}{R_{1-2}}}, \qquad ( )$$

where V_2– is the average orbital velocity of the second body, cm/s;

M_1– is the mass of the first body, g;

$A_{1.0}^M$– is the constant of the gravitational field of the mass of $1.0\,g$ of the body, cm^3/gs^2;

R_{1-2}– is the average distance between the first body and the second body, cm.

GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) having been solved with respect to V_2^2 there was obtained

$$V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}. \qquad ( )$$

Taking into account that $A_1^M = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) the formula ( ) was written in the following way

$$V_2^2 = \frac{A_1^M}{R_{1-2}} \qquad ( )$$

or

$$V_2 = \sqrt{\frac{A_1^M}{R_{1-2}}}, \quad ( )$$

where V_2 – is the average orbital velocity of the second body, cm/s;

A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

R_{1-2}– is the average distance between the first body and the second body, cm.

The average orbital velocity of the second body V_2 was determined in the process of solution the equation . $\frac{G\times M_1\times g_2}{R_{1-2}^2} = \frac{M_2\times V_2^2}{2\times R_{1-2}}$ ( ).

The equation ( ) having been solved with regard to V_2^2, the was obtained

$$V_2^2 = \frac{2 \times G \times M_1 \times g_2}{R_{1-2} \times M_2}. \quad ( )$$

Taking into account that $g_{1.0}^M = \frac{g_2}{M_2}$ ( ) and $A_1^M = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) the formula ( ) was written in the following way

$$V_2^2 = \frac{A_1^M}{R_{1-2}} \quad ( )$$

or

$$V_2 = \sqrt{\frac{A_1^M}{R_{1-2}}}, \quad ( )$$

where V_2– is the average orbital velocity of the second body, cm/s;

A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

R_{1-2}– is the average distance from the first to the second body, cm.

The obtained formula ( ) is identical to the formula ( ).

The average orbital velocity of the second body V_2 was determined in the process of solution the equation. $\frac{G\times M_2\times g_1}{R_{1-2}^2} = \frac{M_2\times V_2^2}{2\times R_{1-2}}$ ( ).

The equation ( ) having been solved with respect to V_2^2, there was obtained

$$V_2^2 = \frac{2 \times G \times g_1}{R_{1-2}}. \quad ( )$$

Taking into account that $A_1^M = 2 \times G \times g_1$ ( ) the formula ( ) was written in the following way

$$V_2^2 = \frac{A_1^M}{R_{1-2}} \qquad (\,)$$

or

$$V_2 = \sqrt{\frac{A_1^M}{R_{1-2}}}, \qquad (\,)$$

where V_2 – is the average orbital velocity of the second body, cm/s;

A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

R_{1-2}– is the average distance between the first body and the second body, cm.

The formula ( ) determined when solving the equation ( ) is identical to the formula obtained when by solving the equation ( ).

The physical nature and method of the determination of the average orbital velocity of the second body V_2 according to FPC in TGT by the formulas ( ), ( ), ( ), ( ) and ( ) will be shown in other works.

The physical nature and the method of the determination of the average orbital velocity of the second body V_2, without using the so-called Cavendish gravitation constant from the doubtful Newtonian gravitation law according to FPC in TGT the formulas ( ), ( ), ( ), ( ), and ( ) will be shown in other works.

7.6. The determination of the fundamental physical constants (FPC) in Tsiganok gravitation theory (TGT), characterizing the weight of the body and other parameters of bodies

7.6.1. The determination of the constant of the weight of the gravitational radius of 1.0 cm of the body $P_{1.0}^{R}$

The constant of the weight of the gravitational radius of 1.0 cm of the body $P_{1.0}^{R}$ was determined in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ (1), the equation $M_1 \times g_2 = M_2 \times g_1$ (), GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^{M}}{R_{1-2}}$ ( ), the equation . $\frac{G \times M_1 \times g_2}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ) and the equation . $\frac{G \times M_2 \times g_1}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ).

The constant of the weight of the gravitational radius of 1.0 cm of the body $P_{1.0}^{R}$ was determined in the process of solution GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^{M}}{R_{1-2}}$ ( ).

The constant of the weight of the gravitational radius of 1.0 cm of the body $P_{1.0}^{R}$ was determined by the formula

$$P_{1.0}^{R} = M_{1.0}^{R} \times g_{1.0}^{R}, \qquad ( )$$

where $P_{1.0}^{R}$– is the constant of the weight of the gravitational radius of 1.0 cm of the body, g/cms^2;

$M_{1.0}^{R}$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm;

$g_{1.0}^{R}$– is the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body, $1/s^2$.

The constant of the weight of the gravitational radius of 1.0 cm of the body $P_{1.0}^{R}$ was determined as the product of the constant of the mass of the gravitational radius of 1.0 cm of the body $M_{1.0}^{R}$ by the constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body $g_{1.0}^{R}$ by the formula ( )

$$P_{1.0}^{R} = M_{1.0}^{R} \times g_{1.0}^{R} = 8.615 \times 10^{24} \times 2209.326 = 1.903 \times 10^{28}\, g/cms^{2}\,. \text{( )}$$

The constant of the weight of the gravitational radius of 1.0 cm of the body $P_{1.0}^{R}$ was determined by the formula

$$P_{1.0}^{R} = \rho_{1.0}^{R} \times \mathrm{V}_{1}, \qquad \text{( )}$$

where $P_{1.0}^{R}$– is the constant of the weight of the gravitational radius of 1.0 cm of the body, g/cms^{2};

$\rho_{1.0}^{R}$– is the constant of the density (specific gravity) of the gravitational radius of 1.0 cm of the body, $g/cm^{4}s^{2}$;

$\mathrm{V}_{1.0cm}$– is the volume of 1.0 cm of the body, cm^{3}.

The constant of the weight of the gravitational radius of 1.0 cm of the body $P_{1.0}^{R}$ was determined as the product of the constant of the density (specific gravity) of the gravitational radius of 1.0 cm of the body $\rho_{1.0}^{R}$ by the volume of 1.0 cm of the body $\mathrm{V}_{1.0cm}$ by the formula ( )

$$P_{1.0}^{R} = \rho_{1.0}^{R} \times \mathrm{V}_{1} = 4.543 \times 10^{27} \times 4.18879 = 1.903 \times 10^{28}\, g/cms^{2}. \text{ ( )}$$

In the same way the constant of the weight of the gravitational radius of 1.0 cm of the body $P_{1.0}^{R}$ can be determined by the parameters of black holes in the Universe according to FPC in TGT by the formula ( ).

The determination of the constant of the weight of the gravitational radius of 1.0 cm of the body $P_{1.0}^{R}$ according to FPC in TGT by the formulas ( ) made it possible to formulate the following conclusions.

The coincidence of the values of the constant of the weight of the gravitational radius of 1.0 cm of the body $P_{1.0}^{R}$, determined by the parameters of the first body and the second body and other FPC in TGT in the Universe according to FPC in TGT by the formulas ( ), ( ) shows their validity.

The determination of the constant of the weight of the gravitational radius of 1.0 cm of the body $P_{1.0}^{R}$ makes it possible to determine all the other FPC in TGT and all the other parameters in physics.

7.6.2. The determination the weight of the first body P_1 and the weight of the second body P_2

Weight of the first body P_1 and the weight of the second body P_2 was determined in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ (1), the equation $M_1 \times g_2 = M_2 \times g_1$ ( ), GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}$ ( ), the equation . $\frac{G \times M_1 \times g_2}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ) and the equation . $\frac{G \times M_2 \times g_1}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ).

Weight of the first body P_1 and the weight of the second body P_2 was determined in the process of solution the equation$M_1 \times g_2 = M_2 \times g_1$ ( ).

Taking into account that $P_{1-2} = M_2 \times g_1$ ( ) the equation $M_1 \times g_2 = M_2 \times g_1$ ( ) was written in the following way

$$P_{1-2} = M_1 \times g_2, \qquad ( )$$

where P_{1-2}– is the weight of the second body, g;

M_1– is the mass of the first body, g;

g_1 – is the gravitational acceleration of the first body, cm/s^2.

Taking into account that $P_{1-2} = M_1 \times g_2$ ( ) the equation $M_1 \times g_2 + M_2 \times g_1$ ( ) was written in the following way

$$P_{1-2} = M_2 \times g_1, \qquad ( )$$

where P_{1-2}– is the weight of the second body, g;

M_2– is the mass of the second body, g;

g_1 – is the gravitational acceleration of the first body, cm/s^2.

Multiplying the left and right of the GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) by M_1 there was received

$$M_1 \times R_{1-2} \times V_2^2 = 2 \times G \times {M_1}^2 \times g_{1.0}^M. \qquad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $A_1^M = R_{1-2} \times V_2^2$ ( ), $g_1 = M_1 \times g_{1.0}^M$ ( ) and $A_1^M = 2 \times G \times g_1$ ( ) the formula ( ) was written in the following way

$$P_1 = M_1 \times g_1, \qquad ( )$$

where P_1– is the weight of the first body, cm;

M_1– is the mass of the first body, g;

g_1 – is the gravitational acceleration of the first body, cm/s^2.

Multiplying the left and right of the GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) by M_2 there was received

$$M_2 \times R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times M_2 \times g_{1.0}^M. \quad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $A_1^M = R_{1-2} \times V_2^2$ ( ), $g_1 = M_1 \times g_{1.0}^M$ ( ) and $A_1^M = 2 \times G \times g_1$ ( ) the formula ( ) was written in the following way

$$P_{1-2} = M_2 \times g_1, \quad ( )$$

where P_1– is the weight of the first body, cm;

M_2– is the mass of the second body, g;

g_1 – is the gravitational acceleration of the first body, cm/s^2.

Similarly, other parameters were determined of the bodies in the process of solution the equation $M_1 \times g_2 = M_2 \times g_1$ ( ).

Multiplying the left and right of the GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) by M_1 there was received

$$M_1 \times R_{1-2} \times V_2^2 = 2 \times G \times M_1^2 \times g_{1.0}^M. \quad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $A_1^M = R_{1-2} \times V_2^2$ ( ), $g_1 = M_1 \times g_{1.0}^M$ ( ), $A_1^M = 2 \times G \times g_1$ ( ), $P_1 = M_1 \times g_1$ ( ) and $\mathrm{V}_1 = \frac{P_1}{\rho_1}$ ( ) the formula ( ) was written in the following way

$$P_1 = \rho_1 \times \mathrm{V}_1, \quad ( )$$

where P_1– is the weight of the first body, gcm/s^2;

ρ_1– is the density (specific gravity) of the first body, g/cm^2s^2;

V_1– is the volume of the first body, cm^3.

It is reasonable to use the formula ( ) for the determination of the weight of the body in the space and for the determination of the weight of the second body P_2 on the surface of the first body having different radii.

Weight of the first body P_1 and the weight of the second body P_2 was determined in the process of solution the equation. $\frac{G \times M_1 \times g_2}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ).

The equation ( ) having been solved with respect to G, there was obtained

$$M_1 \times g_2 = \frac{M_2 \times R_{1-2} \times V_2^2}{2 \times G}, \qquad ( )$$

Taking into account that $P_{1-2} = M_1 \times g_2$ ( ), $A_1^M = R_{1-2} \times V_2^2$ ( ) and $A_1^M = 2 \times G \times g_1$ ( ) the formula ( ) was written in the following way

The weight of the second body P_2 was determined by the formula

$$P_2 = M_2 \times g_1, \qquad ( )$$

where P_2 – is the weight of the second body, gcm/s^2

M_2– is the mass of the second body, g;

g_1 – is the gravitational acceleration of the first body, cm/s^2.

7.7. The determination of the fundamental physical constants (FPC) in Tsiganok gravitation theory (TGT), characterizing the density (specific gravity) of the body and other parameters of bodies

7.7.1. The determination of the constant of the density (specific gravity) of the gravitational radius of 1.0 cm the density (specific gravity) $\rho_{1.0}^{R}$

The constant of the density (specific gravity) of the gravitational radius of 1.0 cm of the body $\rho_{1.0}^{R}$ was determined in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ (1), the equation $M_1 \times g_2 = M_2 \times g_1$ ( ), GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^{M}}{R_{1-2}}$ ( ), the equation . $\frac{G \times M_1 \times g_2}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ) and the equation . $\frac{G \times M_2 \times g_1}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ).

The constant of the density (specific gravity) of the gravitational radius of 1.0 cm of the body $\rho_{1.0}^{R}$ was determined in the process of solution GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^{M}}{R_{1-2}}$ ( ).

The constant of the density (specific gravity) of the gravitational radius of 1.0 cm of the body $\rho_{1.0}^{R}$ was determined in the process of the solution of the equations ( ), ( ) and ( ) with regard of all the parameters included.

The constant of the density (specific gravity) of the gravitational radius of 1.0 cm of the body $\rho_{1.0}^{R}$ was determined by the formula

$$\rho_{1.0}^{R} = \frac{P_{1.0}^{R}}{\mathrm{V}_1}, \qquad ( )$$

where $\rho_{1.0}^{R}$– is the constant of the density (specific gravity) of the gravitational radius of 1.0 cm of the body, $g/cm^4 s^2$;

$P_{1.0}^{R}$– is the constant of the weight of the gravitational radius of 1.0 cm of the body, g/cms^2;

$\mathrm{V}_{1.0cm}$– is the volume of 1.0 cm of the body, cm^3.

The constant of the density (specific gravity) of the gravitational radius of 1.0 cm of the body $\rho_{1.0}^{R}$ was determined as the relation of the constant of the weight of the gravitational radius of 1.0 cm of the body $P_{1.0}^{R}$ to the volume of 1.0 cm of the body $V_{1.0cm}$ by the formula ( )

$$\rho_{1.0}^{R} = \frac{P_{1.0}^{R}}{V_{1.0cm}} = \frac{1.903 \times 10^{28}}{4.18879} = 4.543 \times 10^{27}\ g/cm^{4}s^{2}. \qquad (\ )$$

In the same way the constant of the density (specific gravity) of the gravitational radius of 1.0 cm of the body $\rho_{1.0}^{R}$ can be determined by the parameters of black holes in the Universe according to FPC in TGT by the formula ( ).

The determination of the constant of the density (specific gravity) of the gravitational radius of 1.0 cm of the body $\rho_{1.0}^{R}$ according to FPC in TGT by the formulas ( ) makes it possible to formulate the following conclusions.

The determination of the constant of the density (specific gravity) of the gravitational radius of 1.0 cm of the body $\rho_{1.0}^{R}$ makes it possible to determine all the other FPC in TGT and all the other parameters in physics.

7.7.2. The determination of the average density (specific gravity) of the first body ρ_1

The average density (specific gravity) of the first body ρ_1 was determined in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ (1), the equation $M_1 \times g_2 = M_2 \times g_1$ ( ), GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}$ ( ), the equation .$\frac{G \times M_1 \times g_2}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ) and the equation .$\frac{G \times M_2 \times g_1}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ).

Multiplying the left and right of the GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) by M_1 there was received

$$M_1 \times R_{1-2} \times V_2^2 = 2 \times G \times M_1^2 \times g_{1.0}^M. \quad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $A_1^M = R_{1-2} \times V_2^2$ ( ), $g_1 = M_1 \times g_{1.0}^M$ ( ), $A_1^M = 2 \times G \times g_1$ ( ), $P_1 = M_1 \times g_1$ ( ), $\mathrm{V}_1 = \frac{P_1}{\rho_1}$ ( ) and $P_1 = \rho_1 \times \mathrm{V}_1$ ( ) the formula ( ) was written in the following way

$$\rho_1 = \frac{P_1}{\mathrm{V}_1}, \quad ( )$$

where ρ_1– is the average density (specific gravity) of the first body, g/cm^2s^2;

P_1– is the weight of the first body, gcm/s^2;

V_1– is the volume of the first body, cm^3.

The average density (specific gravity) of the first body ρ_1 was determined by the formula

$$\rho_1 = \frac{\rho_{1-2} \times g_1}{g_2}, \quad ( )$$

where ρ_1– is the average density (specific gravity) of the first body, g/cm^2s^2;

ρ_{1-2}– is the average density (specific gravity) of the first body taking into account the gravitational acceleration of the second body, g/cm^2s^2;

g_1– is the gravitational acceleration of the first body, cm/s^2;

g_2– is the gravitational acceleration of the second body, cm/s^2.

7.8. The determination of the fundamental physical constants (FPC) in Tsiganok gravitation theory (TGT), characterizing the force of gravitational force of the body and the centrifugal force

7.8.1. The determination of the constant of the gravitational force of the mass of 1.0 g of the body $F_{sta-sta}$

The constant of the gravitational force of the mass of 1.0 g of the body $F_{sta-sta}$ was determined in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ (1), the equation $M_1 \times g_2 = M_2 \times g_1$ ( ), gravitation formula (GF) $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}$ ( ), the equation . $\frac{G \times M_1 \times g_2}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ) and the equation . $\frac{G \times M_2 \times g_1}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ).

The constant of the gravitational force of the mass of 1.0 g of the body $F_{sta-sta}$ was determined in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ ( ).

The constant of the gravitational force of the mass of 1.0 g of the body $F_{sta-sta}$ was determined in the process of solving the equations ( ), ( ) and ( ) with regard to all the included parameters.

The constant of the gravitational force of the mass of 1.0 g of the body $F_{sta-sta}$ (of the gravitational force between of 1.0 g of the body and of 1.0 g of the body, located at the squared average distance between of 1.0 g of the body and of 1.0 g of the body $R_{1.0g-1.0g}$ was determined by the formula (1)

$$F_{1.0g-1.0g} = G \times \frac{M_{1.0g} \times g_{1.0g} + M_{1.0g} \times g_{1.0g}}{R_{1.0g-1.0g}^2} =$$

$$= 2.034 \times 10^{17} \times \frac{1.0 \times 2.5645 \times 10^{-22} + 1.0 \times 2.5645 \times 10^{-22}}{1.0^2}$$

$$= 2.034 \times 10^{17} \times 2.0 \times 2.5645 \times 10^{-22}$$

$$= 1.04324 \times 10^{-4}\ gcm/s^2. \qquad (\ )$$

The centrifugal force of the second body of $F_{1.0g-1.0g}$ was determined as the relation of the mass of 1.0 g of the body $M_{1.0g}$ to the squared average orbital velocity of the second body $A^2_{1.0g}$ to squared average distance between of 1.0 g of the body of 1.0 g of the body $R_{1.0g-1.0g} = 1.0\ cm$ by the formula ( )

$$F_{1.0g-1.0g} = \frac{M_{1.0g} \times V^2_{1.0g}}{R_{1.0g-1.0g}} = \frac{1.0 \times 1.04324 \times 10^{-4}}{1.0}$$

$$= 1.04324 \times 10^{-4}\ gcm/s^2. \quad ( )$$

The constant of the gravitational force of the mass of 1.0 g of the body $F_{sta-sta}$ was determined by the formula

$$F_{sta-sta} = 2 \times G \times p^M_{1.0}, \quad ( )$$

where $F_{sta-sta}$– is the constant of the gravitational force of the mass of 1.0 g of the body, gcm/s^2;

G – is the gravitational constant, cm^2;

$p^M_{1.0}$– is the constant of the pressure of the gravitational force of the mass of 1.0 g of the body, g/cms^2.

The constant of the gravitational force of the mass of 1.0 g of the body $F_{sta-sta}$ was determined as the product of the doubled gravitational constant G and the constant of the pressure of the gravitational force of the mass of 1.0 g of the body $p^M_{1.0}$ by the formula ( ).

$$F_{sta-sta} = 2 \times G \times p^M_{1.0} = 2 \times 2.034 \times 10^{17} \times 2.5645 \times 10^{-22}$$

$$= 1.04324 \times 10^{-4}\ gcm/s^2. \quad ( )$$

After the determination of the constant of the gravitational force of the mass of 1.0 g of the body $F_{sta-sta}$ it became possible to check the correctness of the determination of Cavendish gravitational force between the ball of 1.0 g in SI and the ball of 1.0 g in SI, located at the average distance between the ball of 1.0 g in SI and the body and of ball of 1.0 g in SI of the body, equal to $F_{bal(SI)-bal(SI)} = 6.6742 \times 10^{-8}\ gcm/s^2\ (cm^3/gs^2)$ (so-called Cavendish gravitation constant from the doubtful

Newtonian gravitation law) during the so-called Cavendish experiment with the help torsion balance John Michell 1798 г. [6].

Due to the fact, that Cavendish, while carrying out his calculations in $grain$, used the units of weight with the dimension of mass, the mass of each ball M_{bal} was determined first.

The mass of 1.0 g the ball M_{bal} was determined as the relation of the weight 1.0 g of the ball P_{bal} to the gravity acceleration of the Earth by the formula ( ) [ ]

$$M_{bal} = \frac{M_{bal}}{g_{ear}} = \frac{1.0}{980.665} = 1.0197 \times 10^{-3}\ g. \qquad ( )$$

The gravitational acceleration of the ball g_{bal} was determined as the product of the mass of the ball M_{bal} by the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ by the formula ( )

$$g_{bal} = M_{bal} \times g_{1.0}^{M} = 1.0197 \times 10^{-3} \times 2.5645 \times 10^{-22}$$
$$= 2.615 \times 10^{-25}\ cm/s^2. \qquad ( )$$

The force of gravitation between 1.0 g of the ball and 1.0 g of the ball, located at the squared average distance $R_{bal-bal}^2 = 1.0\ cm^2$ was determined by the formula (1)

$$F_{bal-bal} = G \times \frac{M_{bal} \times g_{bal} + M_{bal} \times g_{bal}}{R_{bal-bal}^2} =$$
$$= 2.034 \times 10^{17} \times$$
$$\times \frac{1.0197 \times 10^{-3} \times 2.615 \times 10^{-25} + 1.0197 \times 10^{-3} \times 2.615 \times 10^{-25}}{1.0^2}$$
$$= 2.034 \times 10^{17} \times 2 \times 2.667 \times 10^{-28}$$
$$= 1.0847 \times 10^{-10}\ gcm/s^2. \qquad ( )$$

The determination of the constant of the gravitational force of the mass of 1.0 cm of the body $F_{sta-sta}$ according to FPC in TGT by the formulas ( ) made it possible to formulate the following conclusions.

The coincidence of the values of the constant of the gravitational force of the mass of 1.0 cm of the body $F_{sta-sta}$, determined by the parameters of the first body and the second body and other FPC in TGT by the formulas (1), (2) and (3) centrifugal force, determined by the formula ( ) according to FPC in TGT shows their validity.

The determination of the constant of the gravitational force of the mass of 1.0 cm of the body $F_{sta-sta}$ makes it possible to determine all the other FPC in TGT and all the parameters in physics.

The determination of the gravitational force between of 1.0 g in SI of the ball ???and of 1.0 g in SI of the ball $F_{bal(SI)-bal(SI)}$ in the so-called Cavendish experiment showed the gravitational force turned out to be equal to $F_{bal-bal} = 1.0847 \times 10^{-10}\, gcm/s^2$, but not $F_{bal(SI)-bal(SI)} = 6.6742 \times 10^{-8}\, gcm/s^2$ according to the doubtful Newtonian gravitation theory. It means that the so-called was determined with the help of the doubtful formula and not resulted from the so-called Cavendish experiment.

7.8.2. The determination of the gravitational force between the first body and the second body and the centrifugal force of the second body (the weight of the second body) F_{1-2}

The gravitational force between the first body and the second body and the centrifugal force of the second body (the weight of the second body) F_{1-2} was determined in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ (1), the equation $M_1 \times g_2 = M_2 \times g_1$ ( ), GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}$ ( ), the equation . $\frac{G \times M_1 \times g_2}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ) and the equation . $\frac{G \times M_2 \times g_1}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ).

The gravitational force between the first body and the second body and the centrifugal force of the second body (the weight of the second body) F_{1-2} was determined in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ (1).

Taking into account that $g_1 = M_1 \times g_{1.0}^M$ ( ), $g_2 = M_2 \times g_{1.0}^M$ ( ), $F_{1-2} = G \times \frac{M_1 \times M_2 \times g_{1.0}^M + M_2 \times M_1 \times g_{1.0}^M}{R_{1-2}^2}$ ( ), $F_{1-2} = \frac{G \times M_1 \times M_2 \times g_{1.0}^M + G \times M_2 \times M_1 \times g_{1.0}^M}{R_{1-2}^2}$ (), $F_{1-2} = \frac{2 \times G \times M_1 \times M_2 \times g_{1.0}^M}{R_{1-2}^2}$ ( ) and $A_1^M = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) TGL (1) was written in the following way

$$F_{1-2} = \frac{M_2 \times A_1^M}{R_{1-2}}, \quad ( )$$

where F_{1-2}– is the centrifugal force of the second body, gcm/s^2;

M_2– is the mass of the second body, g;

A_1^M– is the constant of the gravitational field of the first body, cm^3/s^2;

R_{1-2}– is the average distance between the first body and the second body, cm.

Taking into account that $g_1 = M_1 \times g_{1.0}^M$ ( ), $g_2 = M_2 \times g_{1.0}^M$ ( ), $F_{1-2} = G \times \frac{M_1 \times M_2 \times g_{1.0}^M + M_2 \times M_1 \times g_{1.0}^M}{R_{1-2}^2}$ ( ), $F_{1-2} = \frac{G \times M_1 \times M_2 \times g_{1.0}^M + G \times M_2 \times M_1 \times g_{1.0}^M}{R_{1-2}^2}$

(), $F_{1-2} = \frac{2\times G\times M_1\times M_2\times g_{1.0}^M}{R_{1-2}^2}$ ( ), $A_1^M = 2\times G\times M_1\times g_{1.0}^M$ ( ), $F_{1-2} = \frac{M_2\times A_1^M}{R_{1-2}^2}$ ( ), $A_1^M = R_{1-2}\times V_2^2$ ( ) and $F_{1-2} = \frac{M_2\times R_{1-2}\times V_2^2}{R_{1-2}^2}$ ( ) TGL (1) was written in the following way

$$F_{1-2} = \frac{M_2\times V_2^2}{R_{1-2}}, \qquad ( )$$

where F_{1-2}– is the centrifugal force of the second body, gcm/s^2;

M_2– is the mass of the second body, g;

V_2– is the average orbital velocity of the second body, cm/s^2;

R_{1-2}– is the average distance between the first body and the second body, cm.

The determination of the gravitational force between the first body and the second body F_{1-2} is carried out by the formulas of TGL (1), (2) and (3).

Taking into account that $g_1 = M_1\times g_{1.0}^M$ ( ), $g_2 = M_2\times g_{1.0}^M$ ( ), $F_{1-2} = G\times\frac{M_1\times M_2\times g_{1.0}^M + M_2\times M_1\times g_{1.0}^M}{R_{1-2}^2}$ ( ), $F_{1-2} = \frac{G\times M_1\times M_2\times g_{1.0}^M + G\times M_2\times M_1\times g_{1.0}^M}{R_{1-2}^2}$ (), $F_{1-2} = \frac{2\times G\times M_1\times M_2\times g_{1.0}^M}{R_{1-2}^2}$ ( ), $A_1^M = 2\times G\times M_1\times g_{1.0}^M$ ( ), $F_{1-2} = \frac{M_2\times A_1^M}{R_{1-2}^2}$ ( ) and $g_1 = \frac{A_1^M}{R_{1-2}^2}$ ( ) TGL (1) was written in the following way

$$F_{1-2} = M_2\times g_1, \qquad ( )$$

where F_{1-2}– is the gravitational force between the first body and the second body, gcm/s^2;

M_2– is the mass of the second body, g;

g_1– is the gravitational acceleration of the first body, cm/s^2.

Similarly, other the gravitational force between the first body and the second body Similarly, other parameters were determined of the bodies in the process of solution TGL $F_{1-2} = G\times\frac{M_1\times g_2 + M_2\times g_1}{R_{1-2}^2}$ (1).

Taking into account that $F_{1-2} = M_2 \times g_1$ ( ) the equation $M_1 \times g_2 = M_2 \times g_1$ ( ) was written in the following way

$$F_{1-2} = M_1 \times g_2, \qquad ( )$$

where F_{1-2}– is the gravitational force between the first body and the second body, gcm/s^2;

M_1– is the mass of the first body, g;

g_2– is the gravitational acceleration of the second body, cm/s^2.

Taking into account that $F_{1-2} = M_1 \times g_2$ ( ) the equation $M_1 \times g_2 = M_2 \times g_1$ ( ) was written in the following way

$$F_{1-2} = M_2 \times g_1, \qquad ( )$$

where F_{1-2}– is the gravitational force between the first body and the second body, gcm/s^2;

M_2– is the mass of the second body, g;

g_1– is the gravitational acceleration of the first body, cm/s^2.

Similarly, other parameters were determined of the bodies in the process of solution the equation $M_1 \times g_2 = M_2 \times g_1$ ( ).

The physical nature and the method of the determination of the gravitational force between the first body and the second body and the centrifugal force of the second body (the weight of the second body) F_{1-2} according to FPC in TGT by the formulas TGL (1), (2) и (3) will be shown in other works.

The physical nature and the method of the determination of centrifugal force of the second body (the weight of the second body) F_{1-2} according to FPC in TGT by the formula ( ) will be shown in other works.

7.9. The determination of the fundamental physical constants (FPC) in Tsiganok gravitation theory (TGT), characterizing the pressure of the body and the body and other parameters of bodies

7.9.1. The determination of the constant of the pressure of the gravitational force of 1.0 g of the body $p_{1.0}^{M}$

The constant of the pressure of the gravitational force of the mass of 1.0 g of the body $p_{1.0}^{M}$ was determined in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ (1), the equation $M_1 \times g_2 = M_2 \times g_1$ ( ), GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^{M}}{R_{1-2}}$ ( ), the equation $.\frac{G \times M_1 \times g_2}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ) and the equation $.\frac{G \times M_2 \times g_1}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ).

The constant of the pressure of the gravitational force of the mass of 1.0 g of the body $p_{1.0}^{M}$ was determined by the formula

$$p_{1.0}^{M} = \frac{F_{sta-sta}}{2 \times G}, \qquad ( )$$

where $p_{1.0}^{M}$– is the constant of the pressure of the gravitational force of the mass of 1.0 g of the body, g/cms^2;

$F_{sta-sta}$– is the constant of the gravitational force of the mass of 1.0 cm of the body, gcm/s^2;

G – is the gravitational constant, cm^2.

The constant of the pressure of the gravitational force of the mass of 1.0 g of the body $p_{1.0}^{M}$ was determined as the relation of the constant of gravitational force of the mass of 1.0 g of the body $F_{sta-sta}$ to the doubled gravitational constant G by the formula ( ).

$$p_{1.0}^{M} = \frac{F_{sta-sta}}{2 \times G} = \frac{1.04324 \times 10^{-4}}{2 \times 2.034 \times 10^{17}} = 2.5645 \times 10^{-22}\ g/cms^2. \quad ( )$$

The determination of the constant of the pressure of the gravitational force of the mass of 1.0 g of the body $p_{1.0}^{M}$ according to FPC in TGT by the formulas ( ) made it possible to formulate the following to conclusions.

The determination of the constant of the pressure of the gravitational force of the mass of 1.0 g of the body $p_{1.0}^{M}$ makes it possible to determine all the other FPC in TGT and all the other parameters in physics.

7.9.2. The determination of the pressure of the first body p_1

The pressure of the first body ρ_1 was determined in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ (1), the equation $M_1 \times g_2 = M_2 \times g_1$ ( ), GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}$ ( ), the equation . $\frac{G \times M_1 \times g_2}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ) and the equation . $\frac{G \times M_2 \times g_1}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ).

The pressure of the first body p_1 was determined by the formula

$$p_1 = \frac{F_{1-2}}{A_1}, \qquad ( )$$

where p_1– is the pressure of the first body, g/cms^2;

F_{1-2}– is the gravitational force between the first body and the second body, gcm/s^2;

A_1– is the area of the first body, cm^2.

The physical nature and the method of the determination of the pressure of the first body p_1 according to FPC in TGT by the formula ( ) will be shown in other works.

7.10. The determination of the energy of the body and other parameters of bodies

7.10.1. The determination of the energy of the first body E_1

The energy of the first body E_1, the kinetic energy of the first body E_{K1}, the potential energy of the first body E_{P1} and the potential energy of the second body E_{P1} was determined in the process of solution TGL $F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ (1), the equation $M_1 \times g_2 = M_2 \times g_1$ ( ), GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}$ ( ), the equation . $\frac{G \times M_1 \times g_2}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ) and the equation . $\frac{G \times M_2 \times g_1}{R_{1-2}^2} = \frac{M_2 \times V_2^2}{2 \times R_{1-2}}$ ( ).

The energy of the first body E_1 was determined in the process of solution GF $V_2^2 = \frac{2 \times G \times M_1 \times g_{1.0}^M}{R_{1-2}}$ ( ).

Multiplying the left and right of the GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) by c^2 there was received

$$R_{1-2} \times V_2^2 \times c^2 = 2 \times G \times M_1 \times g_{1.0}^M \times c^2. \qquad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $A_1^M = R_{1-2} \times V_2^2$ ( ), $A_{1.0}^M = 2 \times G \times g_{1.0}^M$ ( ), $M_1 = \frac{A_1^M}{A_{1.0}^M}$ ( ), $E_1 = M_1 \times c^2$ ( ), $M_1 = R_1^c \times M_{1.0}^R$ ( ) and $c^2 = \frac{A_1^M}{R_1^c}$ ( ) the formula ( ) was written in the following way

$$E_1 = A_1^M \times M_{1.0}^R, \qquad ( )$$

where E_1– is the energy of the first body, gcm^2/s^2;

A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

$M_{1.0}^R$– is the constant of the mass of the gravitational radius of 1.0 cm of the body, g/cm.

Multiplying the left and right of the GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) by c^2 there was received

$$R_{1-2} \times V_2^2 \times c^2 = 2 \times G \times M_1 \times g_{1.0}^M \times c^2. \qquad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $A_1^M = R_{1-2} \times V_2^2$ ( ), $A_{1.0}^M = 2 \times G \times g_{1.0}^M$ ( ), $M_1 = \frac{A_1^M}{A_{1.0}^M}$ ( ), $E_1 = M_1 \times c^2$ ( ), $M_1 = \frac{R_1^c}{R_{1.0}^M}$ ( ) and $c^2 = \frac{A_1^M}{R_1^c}$ ( ) the formula ( ) was written in the following way

$$E_1 = \frac{A_1^M}{R_{1.0}^M}, \qquad ( )$$

where E_1– is the energy of the first body, gcm^2/s^2;

A_1^M– is the constant of the gravitational field of the mass of the first body, cm^3/s^2;

$R_{1.0}^M$– is the constant of the gravitational radius of the mass of 1.0 g of the body, cm/g.

Multiplying the left and right of the GF $R_{1-2} \times V_2^2 = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) by c^2 there was received

$$R_{1-2} \times V_2^2 \times c^2 = 2 \times G \times M_1 \times g_{1.0}^M \times c^2. \qquad ( )$$

Taking into account that $R_{1-2} = R_1^c$, $V_2 = c$, $A_1^M = R_{1-2} \times V_2^2$ ( ), $A_{1.0}^M = 2 \times G \times g_{1.0}^M$ ( ), $M_1 = \frac{A_1^M}{A_{1.0}^M}$ ( ), $E_1 = M_1 \times c^2$ ( ) and $M_1 = \frac{A_1^M}{A_{1.0}^M}$ ( ) the formula ( ) was written in the following way

$$E_1 = M_1 \times c^2, \qquad ( )$$

where E_1– is the energy of the first body, gcm^2/s^2;

M_1– is the mass of the first body, g;

c – is the speed of light in vacuum, cm/s.

The kinetic energy of the first body E_{K1} was determined by the formula

$$E_{K1} = \frac{M_1 \times V_2^2}{2}, \qquad ( )$$

where E_{K1}– is the kinetic energy of the first body, gcm^2/s^2;

M_1– is the mass of the first body, g;

V_2 – is the average orbital velocity of the second body, cm/s.

The potential energy of the first body E_{P1} was determined by the formula

$$E_{P1} = G \times h_1 \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}, \qquad ( )$$

where E_{P1}– is the potential energy of the first body, gcm/s^2;

G– is the gravitational constant, cm^2;

h_1– is the altitude of the location of the centre of the first body above the arbitrarily chosen zero level, cm;

M_1– is the mass of the first body, g;

M_2– is the mass of the second body, g;

g_1– is the gravitational acceleration of the first body, cm/s^2;

g_2– is the gravitational acceleration of the second body, cm/s^2;

R_{1-2}– is the average distance between the first body and the second body, cm.

The potential energy of the second body E_{P1} was determined by the formula

$$E_{P2} = \frac{M_2 \times V_2^2 \times h_2}{R_{1-2}}, \qquad ( )$$

where E_{P2}– is the potential energy of the second body, gcm/s^2;

M_2– is the mass of the second body, g;

V_2 – is the average orbital velocity of the second body, cm/s;

h_2– is the altitude of the location of the centre of the second body above the arbitrarily chosen zero level, cm;

R_{1-2}– is the average distance between the first body and the second body, cm.

The physical nature and the method of the determination of the energy of the first body E_1 without using the so–called dark energy and the cosmological constant according to FPC in TGT by the formulas ( ), ( ), ( ), ( ) and ( ) will be shown in other works.

The physical nature and the method of the determination of the kinetic energy of the first body E_{K1} without using the so–called dark energy and the cosmological constant according to FPC in TGT by the formulas ( ), ( ), ( ), ( ) and ( ) will be shown in other works.

The physical nature and the method of the determination of the potential energy of the first body E_{P1} without using the so–called dark energy and the cosmological constant according to FPC in TGT by the formulas ( ), ( ), ( ), ( ) and ( ) will be shown in other works.

8. The theoretical and experimental verification of the validity of the fundamental physical constants (FPC) in Tsiganok gravitation theory (TGT) and the known so-called fundamental physical constants (FPC) in the doubtful Newtonian gravitational theory and the known so-called Newton's second law

8.1. The theoretical and experimental verification of the mechanism of the comparison the gravitational fields generated by the first body and the second body

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Taking into account that $g_1 = M_1 \times g_{1.0}^M$ ( ) and $g_2 = M_2 \times g_{1.0}^M$ ( ) TGL (1) was written in following way

$$F_{1-2} = G \times \frac{M_1 \times M_2 \times g_{1.0}^M + M_2 \times M_1 \times g_{1.0}^M}{R_{1-2}^2} \qquad (\,)$$

or

$$F_{1-2} = \frac{G \times M_1 \times M_2 \times g_{1.0}^M + G \times M_2 \times M_1 \times g_{1.0}^M}{R_{1-2}^2} \qquad (\,)$$

or

$$F_{1-2} = \frac{2 \times G \times M_1 \times M_2 \times g_{1.0}^M}{R_{1-2}^2}. \qquad (\,)$$

Taking into account that $A_1^M = 2 \times G \times M_1 \times g_{1.0}^M$ ( ) formula ( ) was written in following way

$$F_{1-2} = \frac{M_2 \times A_1^M}{R_{1-2}^2}. \qquad (\,)$$

Taking into account that $A_1^M = R_{1-2} \times V_2^2$ ( ) formula ( ) was written in following way

$$F_{1-2} = \frac{M_2 \times R_{1-2} \times V_2^2}{R_{1-2}^2}. \qquad (\,)$$

or

$$F_{1-2} = \frac{M_2 \times V_2^2}{R_{1-2}}. \qquad (\,)$$

1. The gravitational force between the first body $2.034 \times 10^{17} g$ of the body ($M_1 = 2.034 \times 10^{17} g$) and $2.034 \times 10^{17} g$ of the body ($M_2 = 2.034 \times 10^{17} g$)

$F_{2.034\times10^{17}g-2.034\times10^{17}g}$, located at the squared the average distance between the first body and the second body, equal to the squared gravitational constant G with the dimensions cm^2 $R^2_{2.034\times10^{17}g-2.034\times10^{17}g} = (2.034\times10^{17})^2 cm^2$ $F_{2.034\times10^{17}g-2.034\times10^{17}g}$ was determined by the formula (1)

$$F_{2.034\times10^{17}g-2.034\times10^{17}g} = G\times\frac{M_{2.034\times10^{17}g}\times g_{2.034\times10^{17}g}+M_{2.034\times10^{17}g}\times g_{2.034\times10^{17}g}}{R^2_{2.034\times10^{17}g-2.034\times10^{17}g}} =$$

$$= 2.034\times10^{17}\times\frac{2.034\times10^{17}\times5.216\times10^{-5}+2.034\times10^{17}\times5.216\times10^{-5}}{(2.034\times10^{17})^2}$$

$$= 2.034\times10^{17}\times2\times2.5644\times10^{-22}$$

$$= 1.0432\times10^{-4}\,gcm/s^2. \qquad ()$$

The centrifugal force of the second body M_2 ($M_2 = 2.034\times10^{17}g$) F_{1-2} was determined as the relation of the product of the mass of the second body M_2 ($M_2 = 2.034\times10^{17}g$) by the squared velocity of the second body V_2^2 ($V_2^2 = 1.0432\times10^{-4}\,cm^2/s^2$) to the average distance between the first body and the second body, equal to the gravitational constant G with the dimensions cm $R_{1-2} = 2.034\times10^{17}cm$ by the formula ()

$$F_{1-2} = \frac{M_2\times V_2^2}{R_{1-2}} = \frac{2.034\times10^{17}\times1.0432\times10^{-4}}{2.034\times10^{17}} = 1.0432\times10^{-4}\,gcm/s^2\,.()$$

2. The gravitational force between $1.0\,cm^3/s^2$ of the body and $1.0\,cm^3/s^2$ of the body, located at the average distance between of $1.0\,cm^3/s^2$ of the body and of $1.0\,cm^3/s^2$ of the body $F_{1.0cm^3/s^2-1.0cm^3/s^2}$, equal to the squared the constant of the mass of the gravitational field of $1.0\ cm^3/s^2$ of the body $M^A_{1.0}$ with the dimensions cm $R^2_{1.0cm^3/s^2-1.0cm^3/s^2}$ $F_{1.0cm^3/s^2-1.0cm^3/s^2}$ was determined by the formula (1)

$$F_{1.0cm^3/s^2-1.0cm^3/s^2} = G \times \frac{M_{1.0cm^3/s^2} \times g_{1.0cm^3/s^2} + M_{1.0cm^3/s^2} \times g_{1.0cm^3/s^2}}{R^2_{1.0cm^3/s^2-1.0cm^3/s^2}} =$$

$$= 2.034 \times 10^{17} \times \frac{9585.522 \times 2.458 \times 10^{-18} + 9585.522 \times 2.458 \times 10^{-18}}{9585.522^2}$$

$$= 2.034 \times 10^{17} \times 2 \times 2.56428 \times 10^{-22}$$

$$= 1.0432 \times 10^{-4}\, gcm/s^2. \qquad ()$$

The centrifugal force of $1.0\, cm^3/s^2$ of the body $F_{1.0cm^3/s^2-1.0cm^3/s^2}$ was determined as the relation of the product of the mass of $1.0\, cm^3/s^2$ of the squared body by the average orbital velocity of $1.0\, cm^3/s^2$ of the body $V^2_{1.0cm^3/s^2} = 1.0432 \times 10^{-4}\, cm^2/s^2$ to the average distance between of $1.0\, cm^3/s^2$ of the body and $1.0\, cm^3/s^2$ of the body $R_{1.0cm^3/s^2-1.0cm^3/s^2}$ ($R_{1.0cm^3/s^2-1.0cm^3/s^2} = 9585.522\ cm$) was determined by the formula ()

$$F_{1.0cm^3/s^2-1.0cm^3/s^2} = \frac{M_{1.0cm^3/s^2} \times V^2_{1.0cm^3/s^2}}{R_{1.0cm^3/s^2-1.0cm^3/s^2}} = \frac{9585.522 \times 1.0432 \times 10^{-4}}{9585.522}$$

$$= 1.0432 \times 10^{-4}\, gcm/s^2. \qquad ()$$

3. The gravitational force between of 1.0 g of the body and of 1.0 g of the body, located at the average distance between 1.0 g of the body and 1.0 g of the body, equal to the squared constant of the gravitational field of the mass of 1.0 g of the body $A^M_{1.0}$ with the dimensions cm^2 $R^2_{1.0g-1.0g}$ ($R^2_{1.0g-1.0g} = (1.0432 \times 10^{-4})^2 cm^2$) $F_{1.0g-1.0g}$ was determined by the formula (1)

$$F_{1.0g-1.0g} = G \times \frac{M_{1.0g} \times g_{1.0g} + M_{1.0g} \times g_{1.0g}}{R^2_{1.0g-1.0g}} =$$

$$= 2.034 \times 10^{17} \times \frac{1.0 \times 2.5645 \times 10^{-22} + 1.0 \times 2.5645 \times 10^{-22}}{(1.0432 \times 10^{-4})^2}$$

$$= 2.034 \times 10^{17} \times 2 \times 2.5645 \times 10^{-22}$$

$$= 9586.242\ gcm/s^2. \qquad ()$$

The centrifugal force of 1.0 g of the body $F_{1.0g-1.0g}$ was determined as the relation of the product of the mass of $1.0\, g$ of the body by the squared the average orbital velocity of the second body $1.0\,g$ of the body $V_{1.0g}^2 = 1.0^2\,cm^2/s^2$ to the average distance between the mass of $1.0\,g$ of the body and $1.0\,g$ of the body, equal to the constant of the gravitational field of the mass of $1.0\,g$ of the body $A_{1.0}^M$ with the dimensions cm $R_{1.0g-1.0g} = 1.0432 \times 10^{-4}\,cm$ ( ) by the formula ( )

$$F_{1.0g-1.0g} = \frac{M_{1.0g} \times V_{1.0g}^2}{R_{1.0g-1.0g}} = \frac{1.0 \times 1.0^2}{1.0432 \times 10^{-4}} = 9585.89\,gcm/s^2\,.\ (\ )$$

4. The gravitational force between of the mass of $1.0\,cm^3/s^2$ of the body and of the mass of $1.0\,cm^3/s^2$ of the body, located at the squared the average distance between the mass of $1.0\,cm^3/s^2$ of the body and the mass of $1.0\,cm^3/s^2$ of the body $R_{1.0cm^3/s^2-1.0cm^3/s^2}^2 = 1.0^2\,cm^2$, was determined by the formula (1)

$$F_{1.0cm^3/s^2-1.0cm^3/s^2} = G \times \frac{M_{1.0cm^3/s^2} \times g_{1.0cm^3/s^2} + M_{1.0cm^3/s^2} \times g_{1.0cm^3/s^2}}{R_{1.0cm^3/s^2-1.0cm^3/s^2}^2} =$$

$$= 2.034 \times 10^{17} \times \frac{9585.522 \times 2.458 \times 10^{-18} + 9585.522 \times 2.458 \times 10^{-18}}{1.0^2}$$

$$= 9584.208\,gcm/s^2. \qquad (\ )$$

The centrifugal force of $1.0\,cm^3/s^2$ of the body $F_{1.0cm^3/s^2-1.0cm^3/s^2}$ was determined as the relation of the product of the mass of $1.0\,cm^3/s^2$ of the body by the squared velocity of the second body $1.0\,cm^3/s^2$ of the body $V_{1.0cm^3/s^2}^2 = 1.0^2\,cm^2/s^2$ located at the average distance between of $1.0\,cm^3/s^2$ of the body of $1.0\,cm^3/s^2$ of the body $R_{1.0cm^3/s^2-1.0cm^3/s^2} = 1.0\,cm$ by the formula ( )

$$F_{1.0cm^3/s^2-1.0cm^3/s^2} = \frac{M_{1.0cm^3/s^2} \times V_{1.0cm^3/s^2}^2}{R_{1.0cm^3/s^2-1.0cm^3/s^2}} = \frac{9585.522 \times 1.0^2}{1.0}$$

$$= 9585.522\,gcm/s^2. \qquad (\ )$$

The determination of the gravitational force between the first body and the second body F_{1-2} and the centrifugal force of the second body F_{1-2} according to FPC in TGT by the formula (1) and by the formula of the centrifugal force $F_{1-2} = \frac{M_2 \times V_2^2}{R_{1-2}}$ made it possible to formulate the following conclusions.

The determination the gravitational force between the first body and the second body $F_{sta-sta}$ at the determination of the gravitational force between the identical bodies when replacing the mass of the first body M_1 and the mass of the second body M_2 by different FPC in TGT with the dimensions g, the gravitational acceleration of the first body g_1 and the gravitational acceleration of the second body g_2 by different FPC in TGT with the dimensions cm/s^2 and the squared average distance between the first body and the second body ?R_{1-2}^2 by different FPC in TGT with the dimensions cm there were obtained different FPC in TGT with the dimensions gcm/s^2 in accordance with FPC in TGT by the formula ( ).

The determination the gravitational force between the first body and the second body F_{1-2} (the gravitational force between the mass of 1.0 g of the body $M_{1.0g} = 1.0\ g$ and the mass of $1.0\ g$ of the body $M_{1.0g} = 1.0\ g$) showed that at changing in the formula (1) the gravitational acceleration of the first body g_1 and the gravitational acceleration of the second body g_2 by the constant of the gravitational acceleration of the mass of $1.0\ g$ of the body $g_{1.0}^M$ with the dimensions cm/s^2 $g_{1.0}^M = 2.5645 \times 10^{-22}\ cm/s^2$, получили the constant of the gravitational field of the mass of $1.0\ g$ of the body $A_{1.0}^M$ with the dimensions gcm/s^2 in accordance with FPC in TGT by the formula ( ).

1. The determination of the gravitational force between the first body ($M_1 = 2.034 \times 10^{17} g$) and the second body ($M_2 = 2.034 \times 10^{17} g$) F_{1-2} showed that at in the formula (1) the mass of the first body M_1 and the mass of the second body M_2 by the gravitational constant G with the dimensions g, and the squared average distance between the first body and the second body R_{1-2}^2 by the gravitational constant G with the dimensions cm^2 there was obtained the constant of the gravitational field of the mass of $1.0\ g$ of the body $A_{1.0}^M$ with the dimensions gcm/s^2 in accordance with FPC in TGT by the formula ( ).

2. The determination of the gravitational force between $1.0\ cm^3/s^2$ body and $1.0\ cm^3/s^2$ body F_{1-2} showed that at the replacement in the formula (1) the mass of the first body M_1 and the mass of the second body M_2 by the constant of the mass of the

gravitational field of 1.0 cm^3/s^2 of the body $M^A_{1.0}$ with the dimensions g, the gravitational acceleration of the first body g_1, the gravitational acceleration of the second body g_2 by the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g^A_{1.0}$ and the squared average distance between the first body and the second body R^2_{1-2} by the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M^A_{1.0}$ with the dimensions cm^2 there was obtained the constant of the gravitational field of the mass of 1.0 g of the body $A^M_{1.0}$ with the dimensions gcm/s^2 in accordance with FPC in TGT by the formula ( ).

3. The determination the gravitational force between 1.0 g body and 1.0 g body F_{1-2} by the formula (1) showed that at the replacement in the formula of the gravitational acceleration of the first body g_1 and the gravitational acceleration of the second body g_2 by the constant of the gravitational acceleration of the mass of 1.0 g of the body $g^M_{1.0}$ with the dimensions of cm/s^2 and the squared average distance between the first body and the second body R^2_{1-2} to the constant of the gravitational field of the mass of 1.0 g of the body $A^M_{1.0}$ with the dimensions cm^2 there was obtained the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M^A_{1.0}$ with the dimensions of gcm/s^2 according to FPC in TGT by the formula ( ).

4. The determination the gravitational force between 1.0 cm^3/s^2 body and 1.0 cm^3/s^2 body F_{1-2} showed that at the replacement in the formula (1) of the mass of the first body M_1 and the mass of the second body M_2 by the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M^A_{1.0}$ with the dimensions g, the gravitational acceleration of the first body g_1 and the gravitational acceleration of the second body g_2 by the constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body $g^A_{1.0}$ there was obtained the constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body $M^A_{1.0}$ with the dimensions gcm/s^2 in accordance with FPC in TGT by the formula ( ).

The obtained show that there is a closer interrelationship between FPC in TGT.

The physical nature of the gravitation and the method of the determination the gravitational force among different bodies in the Universe without using of the so-called

Newtonian gravitation law and the so-called Newton's second law by the formulas (1), (2) and (3) will be shown in other work.

8.2. Theoretical and experimental verification of the mechanism for comparing the gravitational field, which generates a first body and the second body

The constants of the gravitational fields of different bodies may be identical or they may differ from one another. It is important to determine the mechanism of gravitation between the bodies on case of the existence of either identical of different gravitational fields. In this case it is possible to determine the mechanism of gravitation between the bodies.

Some constants of the gravitational fields are smaller than $1.0\,cm^3/s^2$ while the other are larger, etc. These bodies can generate different gravitational forces.

It is known, for example, that in order to add fractions it is necessary to reduce these fractions to the common denominator. In the same way the constant of the gravitational fields of different bodies are to be reduced to the common denominator.

When two gravitational waves overlap each other they interact and their perturbations are added. The strength of the gravitational field of a body conditioned by two gravitational waves is equal to the sum of strengths of the gravitational fields of each wave separately. Under superposition (covering) of two gravitational waves the gravitational fields can be added or suppress (dampen) each other depending on the reciprocal disposition of the waves.

When two gravitational waves overlap each other they interact and their perturbations are added. The strength of the gravitational field of a body conditioned by two gravitational waves is equal to the sum of strengths of the gravitational fields of each wave separately. Under superposition (covering) of two gravitational waves the gravitational fields can be added or suppress (dampen) each other depending on the reciprocal disposition of the waves.

If the gravitational waves overlap each other, they interact and their pertubations are added.

For better understanding of the gravitational mechanism let us determine the gravitational force between the two pairs of bodies having the same mass and located in the space at the distance $R_{1-2} = 1.0\ cm$.

The first pair of bodies: of 2.0 g of the body ($\mathrm{M}_{2.0g} = 2.0\ g$) with the constant of the gravitational field of the mass of 2.0 g of the body ($\mathrm{A}^{\mathrm{M}}_{2.0g} = 2.068 \times 10^{-4}\ cm^3/s^2$) and of 2.0 g of the body ($\mathrm{M}_{2.0g} = 2.0\ g$) with the constant of the gravitational field of the mass of 2.0 g of the body $\mathrm{A}^{\mathrm{M}}_{2.0g}$ ($\mathrm{A}^{\mathrm{M}}_{2.0g} = 2.068 \times 10^{-4}\ cm^3/s^2$).

The sum of the masses of 2.0 g of the body $\mathrm{M}_{2.0g} = 2.0\ g$ and of the mass of 2.0 g of the body $\mathrm{M}_{2.0g} = 2.0\ g$ was determined by the formula

$$\mathrm{M}_{2.0g+2.0g} = \mathrm{M}_{2.0g} + \mathrm{M}_{2.0g} = 2.0 + 2.0 = 4.0\ g. \qquad ()$$

The sum of the constant of the gravitational field of the mass of 2.0 g of the body $\mathrm{A}^{\mathrm{M}}_{2.0g}$ and the constant of the gravitational field of the mass of 2.0 g of the body $\mathrm{A}^{\mathrm{M}}_{2.0g}$ was determined by the formula

$$\mathrm{A}^{\mathrm{M}}_{2.0g+2.0g} = \mathrm{A}^{\mathrm{M}}_{2.0g} + \mathrm{A}^{\mathrm{M}}_{2.0g} = 2.068 \times 10^{-4} + 2.068 \times 10^{-4}$$
$$= 4.173 \times 10^{-4}\ cm^3/s^2. \qquad ()$$

The force of gravitation between of 2.0 g of the body and of 2.0 g of the body, located of the squared the average distance between of 2.0 g of the body and of 2.0 g of the body $R^2_{2.0g-2.0g} = 1.0^2\ cm^2$ was determined by the formula (1)

$$\mathrm{F}_{2.0g-2.0g} = \mathrm{G} \times \frac{\mathrm{M}_{2.0g} \times \mathrm{g}_{2.0g} + \mathrm{M}_{2.0g} \times \mathrm{g}_{2.0g}}{\mathrm{R}^2_{2.0g-2.0g}} =$$
$$= 2.034 \times 10^{17} \times \frac{2.0 \times 5.129 \times 10^{-22} + 2.0 \times 5.129 \times 10^{-22}}{1.0^2}$$
$$= 4.173 \times 10^{-4}\ gcm/s^2. \qquad ()$$

The second pair of bodies: of 3.0 g of the body ($M_{3.0g} = 3.0\ g$) with the constant of the gravitational field of the mass of 3.0 g of the body $A^M_{3.0g}$ ($A^M_{3.0g} = 3.1297 \times 10^{-4}\ cm^3/s^2$) and of 1.0 g of the body ($M_{1.0g} = 1.0\ g$) with the constant of the gravitational field of the mass of 1.0 g of the body $A^M_{1.0g}$ ($A^M_{1.0g} = 1.04324 \times 10^{-4}\ cm^3/s^2$).

The sum of the mass of 3.0 g of the body $M_{3.0g}$ and of the mass of 1.0 g of the body $M_{1.0g}$ was determined by the formula

$$M_{3.0g+1.0g} = M_{3.0g} + M_{1.0g} = 3.0 + 1.0 = 4.0\ g. \qquad ()$$

The sum of the constant of the gravitational field of the mass of 3.0 g of the body $A_{3.0g}^{M}$ and the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0g}^{M}$ was determined by the formula

$$A_{3.0g+1.0g}^{M} = A_{3.0g}^{M} + A_{1.0g}^{M} = 3.1297 \times 10^{-4} + 1.04324 \times 10^{-4}$$
$$= 4.173 \times 10^{-4}\, cm^3/s^2. \qquad ( )$$

The force of gravitation between of 3.0 g of the body and of 1.0 g of the body $M_{1.0g} = 1.0\ g$, located of the squared the average distance between 3.0 g of the body and 1.0 g of the body $R_{3.0g-1.0g}^{2} = 1.0^2\ cm^2$ was determined by the formula (1)

$$F_{3.0g-1.0g} = G \times \frac{M_{3.0g} \times g_{1.0g} + M_{1.0g} \times g_{3.0g}}{R_{3.0g-1.0g}^{2}} =$$
$$= 2.034 \times 10^{17} \times \frac{3.0 \times 2.5645 \times 10^{-22} + 1.0 \times 7.6935 \times 10^{-22}}{1.0^2}$$
$$= 3.1297 \times 10^{-4}\, gcm/s^2. \qquad ( )$$

The sum of the masses $\mathrm{M}_{2.0g+2.0g}$, $M_{3.0g+1.0g}$ and the constants of the gravitational field of the masses $\mathrm{A}_{2.0g+2.0g}^{\mathrm{M}}$, $\mathrm{A}_{3.0g+1.0g}^{M}$ in the first and the second pairs are equal.

It seems at the first side that the gravitational force between of 2.0 g of the body and of 2.0 g of the body $\mathrm{F}_{2.0g-2.0g}$ must be equal to the gravitational force between of 3.0 g of the body of the body and of 1.0 g of the body $F_{3.0g-1.0g}$. However, it isn't so.

The difference between the gravitational force 2.0 g of the body and of 2.0 g of the body $\mathrm{F}_{2.0g-2.0g}$ and the gravitational force between of 3.0 g of the body and of 1.0 g of the body $F_{3.0g-1.0g}$ was determined by the formula

$$F_{1-2} = \mathrm{F}_{2.0g-2.0g} - F_{3.0g-1.0g} = 4.173 \times 10^{-4} - 3.1297 \times 10^{-4}$$
$$= 1.04324 \times 10^{-4}\, gcm/s^2. \qquad ( )$$

The determination of the gravitational force between 2.0 g of the body and 2.0 g of the body $\mathrm{F}_{2.0g-2.0g}$ by the formula ( ) showed that the gravitational force between two bodies with the same masses the constants of the gravitational fields the volumes of gravitational fields, etc. are maximal. In this case, the contact area of the gravitational fields of bodies is maximum. In the result of the interference of the gravitational waves with different parameters (wavelength, amplitude, frequency, etc.) generated by 2.0 g of the body and 2.0 g of the body there is created the resulting gravitational wave with a greater amplitude.

The determination of the gravitational force between 3.0 g of the body and 1.0 g of the body $F_{3.0g-1.0g}$ by the formula ( ) showed that the gravitational force between two bodies with different masses, volumes of the gravitational fields, etc. isn't maximal. In this case the contact are of the gravitational field of these bodies decreases. In the result of the interference of the gravitational waves with different parameters (wavelength, amplitude, frequency, etc.), generated by 3.0 g of the body and 1.0 g of the body there is created the resulting gravitational wave with smaller amplitude.

This is shown by the fact that the difference between the gravitational force between 2.0 g of the body and 2.0 g of the body $\mathrm{F}_{2.0g-2.0g}$ and the gravitational force between 3.0 g of the body 1.0 g of the body $F_{3.0g-1.0g}$ F_{1-2} is equal to the value of the constant of the gravitational field of the mass of 1.0 g of the body $A_{1.0}^{M}$ but it has the dimensions of gcm/s^2.

The gravitational force occurs (appears) in the process of the transmission of energy from the resulting waves to the gravitated bodies.

8.2. The theoretical and experimental verification of the validity of the so-called Newton's second law

For better understanding of the physical nature of the gravitational constant G it is necessary to determine the gravitational force among different bodies in Universe: of $1.0\, cm/s^2$ of the body ($M_{1.0cm/s^2} = 3.8994 \times 10^{21} g$), the Sun (the star), the Earth (the planet), the Moon (the planetary satellite), (3671) Dionysus asteroid, 67P/Churyumov–Gerasimenko comet, Sagittarius A black hole and the Milky Way galaxy centre) and the so–called standard–copy of the mass of $1.0\, kg$ in SI ($M_{sta} = 1.0197\, g$ in TGT, $P_{sta} = 1000.0\, gcm/s^2$ in TGT) located at the distance of radius of these bodies or at the average distance between the first body and the second body, equal to the doubled gravitational constant G (of the squared radius of the Earth) $2 \times G = 2 \times 2.034 \times 10^{17} cm^2 \approx R_{ear}^2 = (6.371 \times 10^8)^2 cm^2$ with the help TGL ( ), the formula of centrifugal force $F_{1-2} = \dfrac{M_2 \times V_2^2}{R_{1-2}}$ and the so–called formula Newton's second law $F_{1-2} = M_2 \times g_1$.

$1.0\, g$

The gravitational force between of $1.0\, g$ of the body and the so–called standard–copy of the mass of $1.0\, kg$ in SI of the body $F_{1.0g-1.0kg}$, located at the squared average distance of $1.0\, g$ of the body and of the so–called standard–copy of the mass of $1.0\, kg$ in SI of the body $R_{1.0g-1.0kg}$ was determined by the formula (1)

$$F_{1.0g-sta} = G \times \frac{M_{1.0g} \times g_{1.0g} + M_{1.0g} \times g_{1.0g}}{R_{1.0g-sta}^2} =$$

$$= 2.034 \times 10^{17} \times \frac{1.0 \times 2.615 \times 10^{-22} + 1.0197 \times 2.5645 \times 10^{-22}}{1.0^2}$$

$$= 2.034 \times 10^{17} \times 2 \times 2.615 \times 10^{-22}$$

$$= 1.064 \times 10^{-4}\, gcm/s^2. \quad (\,)$$

The centrifugal force of the so–called standard–copy of the mass of $1.0\, kg$ in SI of the body of $F_{1.0g-1.0kg}$ was determined as the relation of the product of the mass of the so–called standard–copy of the mass of $1.0\, kg$ in SI of the body $M_{1.0kg}$ to the squared first cosmic velocity of the so–called standard–copy of 1.0 kg in SI of the mass of $V_{1.0kg-fcv}$ by the average distance between of 1.0 g of the body and of the so–called standard–copy of the mass of 1.0 kg in SI of the body of $R_{1.0g-1.0kg}$ by the formula ( )

$$F_{1.0g-sta} = \frac{M_{sta} \times V^2_{sta(1.0g)-fcv}}{R_{1.0g-sta}} = \frac{1.0197 \times (?)^2}{1.0}$$
$$= 4.148 \times 10^{17}\, gcm/s^2. \qquad ( )$$

The gravitational force between of 1.0 g of the body and the so–called standard–copy of the mass of 1.0 kg in SI of the body of $F_{1.0cm/s^2-1.0kg}$, located at the average distance between 1.0 g of the body and of the so–called standard–copy of the mass of 1.0 kg in SI of the body of, equal to the doubled gravitational constant G (the squared radius of the Earth) $R_{1.0g-1.0kg} = 2 \times G = 2 \times 2.034 \times 10^{17}\, cm^2 \approx R^2_{ear} = (6.371 \times 10^8)^2\, cm^2$ was determined by the formula (1)

$$F_{1.0g-sta} = G \times \frac{M_{1.0g} \times g_{sta} + M_{sta} \times g_{1.0g}}{2 \times G} =$$
$$= 2.034 \times 10^{17} \times \frac{1.0 \times 2.5645 \times 10^{-22} + 1.0 \times 2.5645 \times 10^{-22}}{2 \times 2.034 \times 10^{17}} =$$
$$= 2.5645 \times 10^{-22}\, gcm/s^2. \qquad ( )$$

The gravitational force between 1.0 g of the body and the so–called standard–copy of the mass of 1.0 kg in SI of the body of $F_{1.0g-1.0kg}$ was determined as the product of the mass of the so–called standard–copy of the mass of 1.0 kg in SI of the body of $M_{1.0kg}$ by the gravitational acceleration of 1.0 g of the body $g_{1.0g}$, equal to the relation of the constant of the gravitational field of the mass of 1.0 g of the body $A^M_{1.0g}$ to the doubled gravitational constant G (the squared radius of the Earth R_{ear}) $2 \times G = 2 \times 2.034 \times 10^{17}\, cm^2 \approx R^2_{ear} = (6.371 \times 10^8)^2\, cm^2$ was determined by the formula ( )

$$F_{1.0g-sta} = M_{sta} \times g_{1.0g} = M_{sta} \times \frac{A^M_{1.0g}}{2 \times G} = 1.0197 \times \frac{1.04324 \times 10^{-4}}{2 \times 2.034 \times 10^{17}}$$
$$= 1.0197 \times 2.5645 \times 10^{-22} = 1.0197 gcm/s^2. \qquad ( )$$

1.0 cm^3/s^2

The gravitational force between of 1.0 cm^3/s^2 of the body and the so–called standard–copy of the mass of 1.0 kg in SI of the body $F_{1.0cm^3/s^2-1.0kg}$, located at the squared average distance of 1.0 cm^3/s^2 of the body and of the so–called standard–copy of the mass of 1.0 kg in SI of the body $R_{1.0cm^3/s^2-1.0kg}$ was determined by the formula (1)

$$F_{1.0cm^3/s^2-sta} = G \times \frac{M_{1.0cm^3/s^2} \times g_{sta} + M_{sta} \times g_{1.0cm^3/s^2}}{R^2_{1.0g-sta}} =$$
$$= 2.034 \times 10^{17}$$
$$\times \frac{9585.522 \times 2.615 \times 10^{-22} + 1.0197 \times 2.4582 \times 10^{-18}}{1.0^2}$$
$$= 2.034 \times 10^{17} \times 2 \times 2.5066 \times 10^{-18}$$
$$= 1.0197\, gcm/s^2. \qquad ( )$$

The centrifugal force of the so–called standard–copy of the mass of 1.0 kg in SI of the body of $F_{1.0cm^3/s^2-1.0kg}$ was determined as the relation of the product of the mass of the so–called standard–copy of the mass of 1.0 kg in SI of the body $M_{1.0kg}$ to the squared first cosmic velocity of the so–called standard–copy of 1.0 kg in SI of the mass of $V_{1.0kg-fcv}$ by the average distance between of 1.0 cm^3/s^2 of the body and of the so–called standard–copy of the mass of 1.0 kg in SI of the body of $R_{1.0cm^3/s^2-1.0kg}$ by the formula ()

$$F_{1.0cm^3/s^2-sta} = \frac{M_{sta} \times V^2_{sta(1.0cm^3/s^2)-fcv}}{R_{1.0cm/s^2-sta}} = \frac{1.0197 \times (?)^2}{1.0}$$
$$= 4.148 \times 10^{17}\, gcm/s^2. \qquad ( )$$

The gravitational force between of 1.0 cm^3/s^2 of the body and the so–called standard–copy of the mass of 1.0 kg in SI of the body of $F_{1.0cm^3/s^2-1.0kg}$, located at the average distance between 1.0 cm^3/s^2 of the body and of the so–called standard–copy of the mass of 1.0 kg in SI of the body $R_{1.0cm/s^2-1.0kg}$, equal to the doubled gravitational constant G (the squared radius of the Earth R_{ear}) $R_{1.0cm^3/s^2-1.0kg} = 2 \times G = 2 \times 2.034 \times 10^{17}\ cm^2 \approx R^2_{ear} = (6.371 \times 10^8)^2\ cm^2$ was determined by the formula (1)

$$F_{1.0cm/s^2-sta} = G \times \frac{M_{1.0cm^3/s^2} \times g_{sta} + M_{sta} \times g_{1.0cm^3/s^2}}{2 \times G} =$$

$$= 2.034 \times 10^{17} \times \frac{3.8994 \times 10^{21} \times 2.615 \times 10^{-22} + 1.0197 \times 1.0}{2 \times 2.034 \times 10^{17}} =$$

$$= 1.0197\ gcm/s^2. \qquad ()$$

The gravitational force between $1.0\ cm^3/s^2$ of the body and the so–called standard–copy of the mass of $1.0\ kg$ in SI of the body of $F_{1.0cm^3/s^2-1.0kg}$ was determined as the product of the mass of the so–called standard–copy of the mass of $1.0\ kg$ in SI of the body of $M_{1.0kg}$ by the gravitational acceleration of $1.0\ cm^3/s^2$ of the body $g_{1.0cm^3/s^2}$, equal to the relation of the constant of the gravitational field of the mass of $1.0\ cm/s^2$ of the body $A^M_{1.0cm^3/s^2}$ to the doubled gravitational constant G (the squared radius of the Earth R_{ear}) $2 \times G = 2 \times 2.034 \times 10^{17}\ cm^2 \approx R^2_{ear} = (6.371 \times$ *1082 cm2* was determined by the formula ( )

$$F_{1.0cm^3/s^2-sta} = M_{sta} \times g_{1.0cm^3/s^2} = M_{sta} \times \frac{A^M_{1.0cm^3/s^2}}{2 \times G} = 1.0197 \times \frac{4.068 \times 10^{17}}{2 \times 2.034 \times 10^{17}}$$

$$= 1.0197 \times 1.0 = 1.0197 gcm/s^2. \qquad ()$$

$1.0\ cm/s^2$

The gravitational force between of $1.0\ cm/s^2$ of the body and the so–called standard–copy of the mass of $1.0\ kg$ in SI of the body $F_{1.0cm/s^2-1.0kg}$, located at the squared average distance of $1.0\ cm/s^2$ of the body and of the so–called standard–copy of the mass of $1.0\ kg$ in SI of the body $R_{1.0cm/s^2-1.0kg}$ was determined by the formula (1)

$$F_{1.0cm/s^2-1.0kg} = G \times \frac{M_{1.0cm/s^2} \times g_{sta} + M_{sta} \times g_{1.0cm/s^2}}{R^2_{1.0cm/s^2-sta}} =$$

$$= 2.034 \times 10^{17} \times \frac{3.8994 \times 10^{21} \times 2.615 \times 10^{-22} + 1.0197 \times 1.0}{1.0^2}$$

$$= 4.148 \times 10^{17}\ gcm/s^2. \qquad ()$$

The centrifugal force of the so–called standard–copy of the mass of $1.0\ kg$ in SI of the body of $F_{1.0cm/s^2-1.0kg}$ was determined as the relation of the product of the mass of the so–called standard–copy of the mass of $1.0\ kg$ in SI of the body $M_{1.0kg}$ to the squared first cosmic velocity of the so–called standard–copy of $1.0\ kg$ in SI of the mass of $V_{1.0kg-fcv}$ by the average distance between of $1.0\,cm/s^2$ of the body and of the so–called standard–copy of the mass of $1.0\,kg$ in SI of the body of $R_{1.0cm/s^2-1.0kg}$ by the formula ( )

$$F_{1.0cm/s^2-sta} = \frac{M_{sta} \times V_{sta-fcv}^2}{R_{1.0cm/s^2-sta}} = \frac{1.0197 \times (?)^2}{1.0} = 4.148 \times 10^{17}\, gcm/s^2\,. \quad (\,)$$

The gravitational force between of $1.0\,cm/s^2$ of the body and the so–called standard–copy of the mass of $1.0\,kg$ in SI of the body $F_{1.0cm/s^2-1.0kg}$, located at the average distance between $1.0\,cm/s^2$ of the body and of the so–called standard–copy of the mass of $1.0\,kg$ in SI of the body $R_{1.0cm/s^2-1.0kg}$, equal to the doubled gravitational constant G (the squared radius of the Earth) $R_{1.0cm/s^2-1.0kg} = 2 \times G = 2 \times 2.034 \times 10^{17}\, cm^2 \approx R_{ear}^2 = (6.371 \times 10^8)^2\, cm^2$ was determined by the formula (1)

$$F_{1.0cm/s^2-sta} = G \times \frac{M_{1.0cm/s^2} \times g_{sta} + M_{sta} \times g_{1.0cm/s^2}}{2 \times G} =$$
$$= \; 2.034 \times 10^{17} \times \frac{3.8994 \times 10^{21} \times 2.615 \times 10^{-22} + 1.0197 \times 1.0}{2 \times 2.034 \times 10^{17}} =$$
$$= 1.0197\, gcm/s^2. \quad (\,)$$

The gravitational force between $1.0\,cm/s^2$ of the body and the so–called standard–copy of the mass of $1.0\,kg$ in SI of the body $F_{1.0cm/s^2-1.0kg}$ was determined as the product of the mass of the so–called standard–copy of the mass of $1.0\,kg$ in SI of the body of $M_{1.0kg}$ by the gravitational acceleration of $1.0\,cm/s^2$ of the body $g_{1.0cm/s^2}$, equal to the relation of the constant of the gravitational field of the mass of $1.0\,cm/s^2$ of the body $A_{1.0cm/s^2}^M$ to the doubled gravitational constant G (the squared radius of the Earth R_{ear}) $2 \times G = 2 \times 2.034 \times 10^{17}\, cm^2 \approx R_{ear}^2 = (6.371 \times 10^8)^2\, cm^2$ was determined by the formula ( )

$$F_{1.0cm/s^2-sta} = M_{sta} \times g_{1.0cm/s^2} = M_{sta} \times \frac{A_{1.0cm/s^2}^M}{2 \times G} = 1.0197 \times \frac{4.068 \times 10^{17}}{2 \times 2.034 \times 10^{17}}$$
$$= 1.0197 \times 1.0 = 1.0197 gcm/s^2. \quad (\,)$$

1.0 cm

The gravitational force between of 1.0 cm of the body and the so–called standard–copy of the mass of 1.0 kg in SI of the body $F_{1.0cm-1.0kg}$, located at the squared average distance of 1.0 cm of the body and of the so–called standard–copy of the mass of 1.0 kg in SI of the body $R_{1.0cm-1.0kg}$ was determined by the formula (1)

$$F_{1.0cm-1.0kg} = G \times \frac{M_{1.0cm} \times g_{sta} + M_{sta} \times g_{1.0cm}}{R^2_{1.0cm-sta}} =$$

$$= 2.034 \times 10^{17} \times \frac{8.615 \times 10^{24} \times 2.615 \times 10^{-22} + 1.0197 \times 2209.43656}{1.0^2}$$

$$= 9.161 \times 10^{20}\, gcm/s^2. \qquad ( )$$

The centrifugal force of the so–called standard–copy of the mass of 1.0 kg in SI of the body of $F_{1.0cm-1.0kg}$ was determined as the relation of the product of the mass of the so–called standard–copy of the mass of 1.0 kg in SI of the body $M_{1.0kg}$ to the squared first cosmic velocity of the so–called standard–copy of 1.0 kg in SI of the mass of в квадрате $V_{sta(1.0cm)-fcv}$ by the average distance between of 1.0 cm of the body and of the so–called standard–copy of the mass of 1.0 kg in SI of the body of $R_{1.0cm-1.0kg}$ by the formula ( )

$$F_{1.0cm-sta} = \frac{M_{sta} \times V^2_{sta-fcv}}{R_{1.0cm-sta}} = \frac{1.0197 \times (?)^2}{1.0} = 2.164766 \times 10^{20}\, gcm/s^2. ( )$$

The gravitational force between of 1.0 cm of the body and the so–called standard–copy of the mass of 1.0 kg in SI of the body $F_{1.0cm-1.0kg}$, located at the average distance between 1.0 cm of the body and of the so–called standard–copy of the mass of 1.0 kg in SI of the body $R_{1.0cm-1.0kg}$, equal to the doubled gravitational constant G (the squared radius of the Earth) $R_{1.0cm-1.0kg} = 2 \times G = 2 \times 2.034 \times 10^{17}\, cm^2 \approx R^2_{ear} = (6.371 \times 10^8)^2\, cm^2$ was determined by the formula (1)

$$F_{1.0cm-1.0kg} = G \times \frac{M_{1.0cm} \times g_{sta} + M_{sta} \times g_{1.0cm}}{2 \times G} =$$

$$= 2.034 \times 10^{17} \times \frac{8.615 \times 10^{24} \times 2.615 \times 10^{-22} + 1.0197 \times 2209.43656}{2 \times 2.034 \times 10^{17}} =$$

$$= 532.145\, gcm/s^2. \qquad ( )$$

The gravitational force between 1.0 cm of the body and the so–called standard–copy of the mass of 1.0 kg in SI of the body of $F_{1.0cm-1.0kg}$ was determined as the product of the mass of the so–called standard–copy of the mass of 1.0 kg in SI of the body of $M_{1.0kg}$ by the gravitational acceleration of 1.0 cm of the body $g_{1.0cm}$, equal to the relation of the constant of the gravitational field of the mass of 1.0 cm of the body $A^{M}_{1.0cm}$ to the doubled gravitational constant G (the squared radius of the Earth) $2 \times G = 2 \times 2.034 \times 10^{17}\ cm^2 \approx R^2_{ear} = (6.371 \times 10^8)^2\ cm^2$ was determined by the formula ()

$$F_{1.0cm-sta} = M_{sta} \times g_{1.0cm} = M_{sta} \times \frac{A^{M}_{1.0cm}}{2 \times G} = 1.0197 \times \frac{8.988 \times 10^{20}}{2 \times 2.034 \times 10^{17}}$$
$$= 1.0197 \times 2209.4395 = 2252.965\ gcm/s^2. \quad ()$$

the Sun

The gravitational force between the Sun and the so–called standard–copy of the mass of 1.0 kg in SI of the body $F_{sun-1.0kg}$, located at the average distance of the squared radius of the Sun R_{sun} was determined by the formula (1)

$$F_{sun-1.0kg} = G \times \frac{M_{sun} \times g_{sta} + M_{sta} \times g_{sun}}{R^2_{sun}} =$$
$$= 2.034 \times 10^{17} \times \frac{1.273 \times 10^{30} \times 2.615 \times 10^{-22} + 1.0197 \times 3.265 \times 10^{8}}{(6.9598 \times 10^{10})^2}$$
$$= 2.7957 \times 10^4\ gcm/s^2. \quad ()$$

The centrifugal force of the so–called standard–copy of the mass of 1.0 kg in SI of the body of $F_{sun-1.0kg}$ was determined as the relation of the product of the mass of the so–called standard–copy of the mass of 1.0 kg in SI of the body of $M_{1.0kg}$ by the squared first cosmic velocity of the Sun $V_{sun-fcv}$ to the radius of the Sun R_{sun} by the formula ( )

$$F_{sun-sta} = \frac{M_{sta} \times V^2_{sun-fcv}}{R_{sun}} = \frac{1.0197 \times (4.368 \times 10^7)^2}{6.9598 \times 10^{10}}$$
$$= 2.7954 \times 10^4\ gcm/s^2. \quad ()$$

The gravitational force between the Sun and the so–called standard–copy of the mass of 1.0 kg in SI of the body $F_{sun-1.0kg}$, located at the average distance between the Sun and the so–called standard–copy of the mass of 1.0 kg in SI of the body $R_{sun-1.0kg}$, equal to the doubled gravitational constant G (the squared radius of the Earth R_{ear})

$R_{sun-1.0kg} = 2 \times G = 2 \times 2.034 \times 10^{17}\ cm^2 \approx R_{ear}^2 = (6.371 \times 10^8)^2\ cm^2$ was determined by the formula (1)

$$F_{sun-1.0kg} = G \times \frac{M_{sun} \times g_{sta} + M_{sta} \times g_{sun}}{2 \times G} =$$
$$= 2.034 \times 10^{17} \times \frac{1.273 \times 10^{30} \times 2.615 \times 10^{-22} + 1.0197 \times 3.265 \times 10^{8}}{2 \times 2.034 \times 10^{17}} =$$
$$= 3.329 \times 10^8\ gcm/s^2. \qquad ( )$$

The gravitational force between the Sun and of the so–called standard–copy of the mass of 1.0 kg in SI of the body of $F_{sun-1.0kg}$ was determined as the product of the mass of the so–called standard–copy of the mass of 1.0 kg in SI of the body $M_{1.0kg}$ by the gravity acceleration of the Sun g_{sun}, equal to the relation of the constant of the gravitational field of the mass of the Sun A_{sun}^M to the doubled gravitational constant G (the squared radius of the Earth R_{ear}) $2 \times G = 2 \times 2.034 \times 10^{17}\ cm^2 \approx R_{ear}^2 = (6.371 \times 10^8)^2\ cm^2$ was determined by the formula ( )

$$F_{sun-sta} = M_{sta} \times g_{sun} = M_{sta} \times \frac{A_{sun}^M}{2 \times G} = 1.0197 \times \frac{1.328 \times 10^{26}}{2 \times 2.034 \times 10^{17}}$$
$$= 1.0197 \times 3.265 \times 10^8 = 3.329 \times 10^8\ gcm/s^2. \qquad ( )$$

the Earth

The gravitational force between the Earth and the so–called standard–copy of the mass of 1.0 kg in SI of the body of $F_{ear-1.0kg}$, located at the distance of the squared radius of the Earth R_{ear} was determined by the formula (1)

$$F_{ear-1.0kg} = G \times \frac{M_{ear} \times g_{sta} + M_{sta} \times g_{ear}}{R_{ear}^2} =$$
$$= 2.034 \times 10^{17} \times \frac{3.824 \times 10^{24} \times 2.615 \times 10^{-22} + 1.0197 \times 980.665}{(6.371 \times 10^8)^2}$$
$$= 1002.217\ gcm/s^2. \qquad ( )$$

The centrifugal force of the so–called standard–copy of the mass of 1.0 kg in SI of the body of $F_{ear-1.0kg}$ was determined as the relation of the product of the mass of the so–called standard–copy of the mass of 1.0 kg in SI of the body of $M_{1.0kg}$ by the squared first cosmic velocity of the Earth $V_{ear-fcv}$ to the radius of the Earth R_{ear} by the formula ()

$$F_{ear-sta} = \frac{M_{sta} \times V_{ear-fcv}^2}{R_{ear}} = \frac{1.0197 \times (7.946 \times 10^5)^2}{6.371 \times 10^8}$$
$$= 1010.5596\, gcm/s^2. \qquad ( )$$

The gravitational force between the Earth and the so–called standard–copy of the mass of 1.0 kg in SI of the body of $F_{ear-1.0kg}$, located at the average distance between the Earth and the so–called standard–copy of the mass of 1.0 kg in SI of the body $R_{ear-1.0kg}$, equal to the doubled gravitational constant G (the squared radius of the Earth R_{ear}) $R_{ear-1.0kg} = 2 \times G = 2 \times 2.034 \times 10^{17}\ cm^2 \approx R_{ear}^2 = (6.371 \times 10^8)^2\ cm^2$ was determined by the formula (1)

$$F_{ear-1.0kg} = G \times \frac{M_{ear} \times g_{sta} + M_{sta} \times g_{ear}}{2 \times G} =$$
$$= 2.034 \times 10^{17} \times \frac{3.824 \times 10^{24} \times 2.615 \times 10^{-22} + 1.0197 \times 980.665}{2 \times 2.034 \times 10^{17}}$$
$$= 1000.0\, gcm/s^2. \qquad ( )$$

The gravitational force between the Earth and of the so–called standard–copy of the mass of 1.0 kg in SI of the body $F_{ear-1.0kg}$ was determined as the product of the mass of the so–called standard–copy of the mass of 1.0 kg in SI of the body $M_{1.0kg}$ by the gravity acceleration of the Earth g_{ear}, equal to the relation of the constant of the gravitational field of the mass of the Earth A_{ear}^M to the doubled gravitational constant G (the squared radius of the Earth) $R_{ear-1.0kg}^2 = 2 \times 2.034 \times 10^{17}\ cm^2 \approx R_{ear}^2 = (6.371 \times 10^8)^2\ cm^2$ was determined by the formula ( )

$$F_{ear-sta} = M_{sta} \times g_{sun} = M_{sta} \times \frac{A_{ear}^M}{2 \times G} = 1.0197 \times \frac{4.023 \times 10^{20}}{2 \times 2.034 \times 10^{17}}$$
$$= 1.0197 \times 980.938 = 1008.42\ gcm/s^2. \qquad ( )$$

the Moon

The gravitational force between the Moon and of the so–called standard–copy of the mass of 1.0 kg in SI of the body $F_{moo-1.0kg}$, located at the distance of the squared radius of the Moon R_{moo} was determined by the formula (1)

$$F_{moo-sta} = G \times \frac{M_{moo} \times g_{sta} + M_{sta} \times g_{moo}}{R_{moo}^2} =$$

$$= 2.034 \times 10^{17} \times \frac{7.483 \times 10^{22} \times 2.615 \times 10^{-22} + 1.0197 \times 19.19}{(1.7375 \times 10^8)^2}$$

$$= 263.681\, gcm/s^2. \qquad ( )$$

The centrifugal force of the so–called standard–copy of the mass of $1.0\ kg$ in SI of the body $F_{moo-1.0kg}$ was determined as the relation of the product of the mass of the so–called standard–copy of the mass of $1.0\ kg$ in SI of the body $M_{1.0kg}$ by the squared first cosmic velocity of the Moon $V_{moo-fcv}$ to the radius of the Moon R_{moo} by the formula ( )

$$F_{moo-sta} = \frac{M_{sta} \times V_{moo-fcv}^2}{R_{moo}} = \frac{1.0197 \times (2.1197 \times 10^5)^2}{1.7375 \times 10^8}$$

$$= 263.692\, gcm/s^2. \qquad ( )$$

The gravitational force between the Moon and the so–called standard–copy of the mass of $1.0\ kg$ in SI of the body $F_{moo-1.0kg}$, located at the average distance between the Moon and of the so–called standard–copy of the mass of $1.0\ kg$ in SI of the body $R_{moo-1.0kg}$, equal to the doubled gravitational constant G (the squared radius of the Earth R_{ear}) $R_{moo-1.0kg} = 2 \times G = 2 \times 2.034 \times 10^{17}\ cm^2 \approx R_{ear}^2 = (6.371 \times 10^8)^2\ cm^2$ was determined by the formula (1)

$$F_{moo-sta} = G \times \frac{M_{moo} \times g_{sta} + M_{sta} \times g_{moo}}{2 \times G} =$$

$$= 2.034 \times 10^{17} \times \frac{7.483 \times 10^{22} \times 2.615 \times 10^{-22} + 1.0197 \times 19.19}{2 \times 2.034 \times 10^{17}}$$

$$= 19.568\, gcm/s^2. \qquad ( )$$

The gravitational force between the Moon and the so–called standard–copy of the mass of $1.0\ kg$ in SI of the body $F_{moo-1.0kg}$ was determined as the product of the mass of the so–called standard–copy of the mass of $1.0\ kg$ in SI of the body $M_{1.0kg}$ by the gravitational acceleration of the Moon g_{moo}, equal to the relation of the constant of the gravitational field of the mass of the Moon A_{moo}^M to the doubled gravitational constant G (the squared radius of the Earth R_{ear}) $2 \times G = 2 \times 2.034 \times 10^{17}\ cm^2 \approx R_{ear}^2 = (6.371 \times 10^8)^2\ cm^2$ was determined by the formula ( )

$$F_{moo-sta} = M_{sta} \times g_{sun} = M_{sta} \times \frac{A_{moo}^{M}}{2 \times G} = 1.0197 \times \frac{7.807 \times 10^{18}}{2 \times 2.034 \times 10^{17}}$$
$$= 1.0197 \times 19.191 = 19.569\ gcm/s^2. \qquad ( )$$

(3671) Dionysus

The gravitational force between (3671) Dionysus and the so–called standard–copy of the mass of $1.0\ kg$ in SI of the body $F_{dio-1.0kg}$, located at the average distance of the squared radius (3671) Dionysus R_{dio} was determined by the formula (1)

$$F_{dio-sta} = G \times \frac{M_{dio} \times g_{sta} + M_{sta} \times g_{dio}}{R_{dio}^2} =$$
$$= 2.034 \times 10^{17}$$
$$\times \frac{1.491 \times 10^{12} \times 2.615 \times 10^{-22} + 1.0197 \times 3.824 \times 10^{-10}}{(7.150 \times 10^4)^2}$$
$$= 3.1027 \times 10^{-2}\ gcm/s^2. \qquad ( )$$

The centrifugal force of the so–called standard–copy of the mass of $1.0\ kg$ in SI of the body $F_{dio-1.0kg}$ was determined as the relation of the product of the mass of the so–called standard–copy of the mass of $1.0\ kg$ in SI of the body $M_{1.0kg}$ by the squared (3671) Dionysus first cosmic velocity $V_{dio-fcv}$ to the radius of (3671) Dionysus R_{dio} by the formula ( )

$$F_{dio-sta} = \frac{M_{sta} \times V_{dio-fcv}^2}{R_{dio}} = \frac{1.0197 \times 46.635^2}{7.150 \times 10^4} = 3.1016 \times 10^{-2}\ gcm/s^2 . ( )$$

The gravitational force between (3671) Dionysus and the so–called standard–copy of the mass of $1.0\ kg$ in SI of the body $F_{dio-1.0kg}$, located at the average distance between (3671) Dionysus and the so–called standard–copy of the mass of $1.0\ kg$ in SI of the body $R_{dio-1.0kg}$, equal to doubled gravitational constant G (the squared radius of the Earth) $R_{dio-sta}^2 = 2 \times G = 2 \times 2.034 \times 10^{17}\ cm^2 \approx R_{ear}^2 = (6.371 \times 10^8)^2\ cm^2$ was determined by the formula (1)

$$F_{dio-sta} = G \times \frac{M_{dio} \times g_{sta} + M_{sta} \times g_{dio}}{R^2_{dio-sta}} =$$

$$= 2.034 \times 10^{17}$$

$$\times \frac{1.491 \times 10^{12} \times 2.615 \times 10^{-22} + 1.0197 \times 3.824 \times 10^{-10}}{2 \times 2.034 \times 10^{17}}$$

$$= 3.899 \times 10^{-10}\ gcm/s^2. \quad ()$$

The gravitational force between (3671) Dionysus and the so–called standard–copy of the mass of 1.0 kg in SI of the body $F_{dio-1.0kg}$ was determined as the product of the mass of the so–called standard–copy of the mass of 1.0 kg in SI of the body $M_{1.0kg}$ by the gravity acceleration of (3671) Dionysus g_{dio}, equal to the relation of the constant of the gravitational field of the mass of (3671) Dionysus A^M_{dio} to the doubled gravitational constant G (the squared radius of the Earth R_{ear}) $2 \times G = 2 \times 2.034 \times 10^{17}\ cm^2 \approx R^2_{ear} = (6.371 \times 10^8)^2\ cm^2$ was determined by the formula ( )

$$F_{dio-sta} = M_{sta} \times g_{dio} = M_{sta} \times \frac{A^M_{dio}}{2 \times G} = 1.0197 \times \frac{1.555 \times 10^8}{2 \times 2.034 \times 10^{17}}$$

$$= 1.0197 \times 3.8225 \times 10^{-10} = 3.8978 \times 10^{-10}\ gcm/s^2. \quad ()$$

67P/Churyumov–Gerasimenko

The gravitational force between 67P/Churyumov–Gerasimenko and the so–called standard–copy of the mass of 1.0 kg in SI of the body $F_{67\mathrm{P}-1.0kg}$, located at the average distance of the squared radius 67P/Churyumov–Gerasimenko $R_{67\mathrm{P}-1.0kg}$ was determined by the formula (1)

$$F_{67\mathrm{P}-sta} = G \times \frac{M_{67P} \times g_{sta} + M_{sta} \times g_{67P}}{R^2_{67\mathrm{P}}} =$$

$$= 2.034 \times 10^{17}$$

$$\times \frac{1.038 \times 10^{13} \times 2.615 \times 10^{-22} + 1.0197 \times 2.662 \times 10^{-9}}{(1.722 \times 10^5)^2}$$

$$= 3.7236 \times 10^{-2}\ gcm/s^2. \quad ()$$

The centrifugal force of the so–called standard–copy of the mass of 1.0 kg in SI of the body $F_{67P-1.0kg}$ was determined as the relation of the product of the mass of the so–called standard–copy of the mass of 1.0 kg in SI of the body M_{sta} by the squared first cosmic velocity 67P/Churyumov–Gerasimenko $V_{67P-fcv}$ to the radius 67P/Churyumov–Gerasimenko R_{67P} by the formula ( )

$$F_{67P-sta} = \frac{M_{sta} \times V_{67P-fcv}^2}{R_{67P}} = \frac{1.0197 \times 79.304^2}{1.722 \times 10^5} = 3.724 \times 10^{-2}\ gcm/s^2\ . \text{( )}$$

The gravitational force between 67P/Churyumov–Gerasimenko and the so–called standard–copy of the mass of 1.0 kg in SI of the body $F_{67P-1.0kg}$, located at the average distance between of 67P/Churyumov–Gerasimenko and the so–called standard–copy of the mass of 1.0 kg in SI of the body $R_{67P-1.0kg}$, equal to the doubled gravitational constant G (the squared radius of the Earth R_{ear}) $R_{67P-1.0kg} = 2 \times G = 2 \times 2.034 \times 10^{17}\ cm^2 \approx R_{ear}^2 = (6.371 \times 10^8)^2\ cm^2$ was determined by the formula (1)

$$F_{67P-sta} = G \times \frac{M_{67P} \times g_{sta} + M_{sta} \times g_{67P}}{2 \times G} = \\ = 2.034 \times 10^{17} \\ \times \frac{1.038 \times 10^{13} \times 2.615 \times 10^{-22} + 1.0197 \times 2.662 \times 10^{-9}}{2 \times 2.034 \times 10^{17}} \\ = 2.714 \times 10^{-9}\ gcm/s^2. \qquad \text{( )}$$

The gravitational force between 67P/Churyumov–Gerasimenko and the so–called standard–copy of the mass of 1.0 kg in SI of the body $F_{67P-1.0kg}$ was determined as the product of the mass of the so–called standard–copy of the mass of 1.0 kg in SI of the body $M_{1.0kg}$ by the gravitational acceleration of 67P/Churyumov–Gerasimenko g_{67P}, equal to the relation of the constant of the gravitational field of 67P/Churyumov–Gerasimenko A_{67P}^M to the doubled gravitational constant G (the squared radius of the Earth R_{ear}) $2 \times G = 2 \times 2.034 \times 10^{17} cm^2 \approx R_{ear}^2 = (6.371 \times 10^8)^2 cm^2$ was determined by the formula ( )

$$F_{67P-sta} = M_{sta} \times g_{67P} = M_{sta} \times \frac{A_{67P}^M}{2 \times G} = 1.0197 \times \frac{1.083 \times 10^9}{2 \times 2.034 \times 10^{17}} \\ = 1.0197 \times 2.662 \times 10^{-9} = 2.714 \times 10^{-9}\ gcm/s^2. \qquad \text{( )}$$

Sagittarius A

The gravitational force between Sagittarius A and the so–called standard–copy of the mass of 1.0 kg in SI of the body $F_{sgra-1.0kg}$, located at the distance of the squared gravitation radius of Sagittarius A R_{sgra}^{c} was determined by the formula (1)

$$F_{sgra-sta} = G \times \frac{M_{sgra} \times g_{sta} + M_{sta} \times g_{sgra}}{R_{sgra}^{2}} =$$

$$= 2.034 \times 10^{17} \times \frac{(9.077 \times 10^{33} \times 2.615 \times 10^{-22} + 1.0197 \times 2.328 \times 10^{12})}{(1.0607 \times 10^{9})^{2}}$$

$$= 8.564 \times 10^{11}\ gcm/s^{2}. \qquad ( )$$

The centrifugal force of the so–called standard–copy of the mass of 1.0 kg in SI of the body $F_{sgra-1.0kg}$ was determined as the relation of the product of the mass of the so–called standard–copy of the mass of 1.0 kg in SI of the body $M_{1.0kg}$ by the squared first cosmic velocity Sagittarius A $V_{sgra-fcv}$ to gravitational radius of Sagittarius A R_{sgra}^{c} by the formula ( )

$$F_{sgra-sta} = \frac{M_{sta} \times V_{sgra-fcv}^{2}}{R_{sgra}} = \frac{1.0197 \times (2.998 \times 10^{10})^{2}}{1.0607 \times 10^{9}?}$$

$$= 8.5828 \times 10^{11}\ gcm/s^{2}. \qquad ( )$$

The gravitational force between Sagittarius A and the so–called standard–copy of the mass of 1.0 kg in SI of the body $F_{sgra-1.0kg}$, located at the average distance between of Sagittarius A and the so–called standard–copy of 1.0 kg in SI of the mass of the body, equal to the doubled gravitational constant G (the squared radius of the Earth) $R_{sgra-1.0kg} = 2 \times G = 2 \times 2.034 \times 10^{17}\ cm^{2} \approx R_{ear}^{2} = (6.371 \times 10^{8})^{2}\ cm^{2}$ was determined by the formula (1)

$$F_{sgra-sta} = G \times \frac{M_{sgra} \times g_{sta} + M_{sta} \times g_{sgra}}{2 \times G} =$$

$$= 2.034 \times 10^{17} \times \frac{9.077 \times 10^{33} \times 2.615 \times 10^{-22} + 1.0197 \times 2.328 \times 10^{12}}{2 \times 2.034 \times 10^{17}}$$

$$= 2.374 \times 10^{12}\ gcm/s^{2}. \qquad ( )$$

The gravitational force between Sagittarius A and the so–called standard–copy of the mass of 1.0 kg in SI of the body $F_{sgra-1.0kg}$ was determined as the product of the mass of the so–called standard–copy of the mass of 1.0 kg in SI of the body $M_{1.0kg}$ to the gravitational acceleration of Sagittarius A g_{sgra}, equal to relation of the constant of the gravitational field of the mass of Sagittarius A A^M_{sgra} to the doubled gravitational constant G (the squared radius of the Earth R_{ear}) $2 \times G = 2 \times 2.034 \times 10^{17} cm^2 \approx R^2_{ear} = (6.371 \times 10^8)^2 cm^2$ was determined by the formula ( )

$$F_{sgra-sta} = M_{sta} \times g_{sgra} = M_{sta} \times \frac{A^M_{sgra}}{2 \times G} = 1.0197 \times \frac{9.470 \times 10^{29}}{2 \times 2.034 \times 10^{17}}$$
$$= 1.0197 \times 2.3279 \times 10^{12} = 2.374 \times 10^{12}\ gcm/s^2. \qquad ( )$$

the Milky Way galaxy centre

The gravitational force between the Milky Way galaxy centre and the so–called standard–copy of the mass of 1.0 kg in SI of the body $F_{mwgc-1.0kg}$, located at the average distance of the squared radius of the Milky Way galaxy centre R_{mwgc} was determined by the formula (1)

$$F_{mwgc-sta} = G \times \frac{M_{mwgc} \times g_{sta} + M_{sta} \times g_{mwgc}}{R^2_{mwgc-sta}} =$$
$$= 2.034 \times 10^{17}$$
$$\times \frac{1.305 \times 10^{37} \times 2.615 \times 10^{-22} + 1.0197 \times 3.347 \times 10^{15}}{(3.0857 \times 10^{21})^2}$$
$$= 1.458 \times 10^{-10}\ gcm/s^2. \qquad ( )$$

The centrifugal force of the so–called standard–copy of the mass of 1.0 kg in SI of the body $F_{mwgc-1.0kg}$ was determined as the relation of the product of the mass of the so–called standard–copy of the mass of 1.0 kg in SI of the body $M_{1.0kg}$ by the squared first cosmic velocity of the Milky Way galaxy centre $V_{mwgc-fcv}$ to the squared radius of the Milky Way galaxy centre R_{mwgc} by the formula ( )

$$F_{mwgc-sta} = \frac{M_{sta} \times V^2_{mwgc-fcv}}{R_{mwgc}} = \frac{1.0197 \times (6.641 \times 10^5)^2}{3.0857 \times 10^{21}}$$
$$= 1.457 \times 10^{-10}\ gcm/s^2. \qquad ( )$$

The gravitational force between the Milky Way galaxy centre and the so–called standard–copy of the mass of $1.0\,kg$ in SI of the body $F_{mwgc-1.0kg}$, located at the average distance between the Milky Way galaxy centre and the so–called standard–copy of the mass of $1.0\ kg$ in SI of the body $R_{mwgc-1.0kg}$, equal to the doubled gravitational constant G (the squared radius of the Earth R_{ear}) $R_{mwgc-1.0kg} = 2 \times G = 2 \times 2.034 \times 10^{17}\ cm^2 \approx R_{ear}^2 = (6.371 \times 10^8)^2\ cm^2$ was determined by the formula (1)

$$F_{mwgc-sta} = G \times \frac{M_{mwgc} \times g_{sta} + M_{sta} \times g_{mwgc}}{2 \times G} =$$
$$= 2.034 \times 10^{17}$$
$$\times \frac{1.305 \times 10^{37} \times 2.615 \times 10^{-22} + 1.0197 \times 3.347 \times 10^{15}}{2 \times 2.034 \times 10^{17}}$$
$$= 3.4129 \times 10^5\ gcm/s^2. \qquad ()$$

The gravitational force between the Milky Way galaxy centre and the so–called standard–copy of the mass of $1.0\ kg$ in SI of the body $F_{mwgc-1.0kg}$ was determined as the product of the mass of the so–called standard–copy of the mass of $1.0\ kg$ in SI of the body $M_{1.0kg}$ by the gravity acceleration of the Milky Way galaxy centre g_{mwgc}, equal to relation of the constant of the gravitational field of the mass of the Milky Way galaxy centre A_{mwgc}^M to the doubled gravitational constant G (the squared radius of the Earth) $2 \times G = 2 \times 2.034 \times 10^{17} cm^2 \approx R_{ear}^2 = (6.371 \times 10^8)^2\ cm^2$ was determined by the formula ( )

$$F_{mwgc-sta} = M_{sta} \times g_{mwgc} = M_{sta} \times \frac{A_{mwgc}^M}{2 \times G} = 1.0197 \times \frac{1.361 \times 10^{33}}{2 \times 2.034 \times 10^{17}}$$
$$= 1.0197 \times 3.3456 \times 10^{15} = 3.4115 \times 10^{15}?\, gcm/s^2. \qquad ()$$

In the same way it is possible to determine the gravitational force between the first body and the second body F_{1-2} with the help of the parameters of the first body and the second body when the second body doesn't rotate around the first body, whey have different radii (gravitational radii) and other FPC in TGT in the Universe in accordance with FPC in TGT by the formula ( ).

The determination of the gravitational force between the first body and the second body F_{1-2} according to FPC in TGT by the formulas of TGL

$F_{1-2} = G \times \frac{M_1 \times g_2 + M_2 \times g_1}{R_{1-2}^2}$ ( ) centrifugal force of the second body $F_{1-2} = \frac{M_2 \times V_2^2}{R_{1-2}}$ () and the so–called Newton's second law $F_{1-2} = M_2 \times g_1$ ( ) made it possible to formulate the following conclusions.

The coincidence of the values of the gravitational force between the first body and the second body F_{1-2} and the centrifugal force of the second body F_{1-2}, determined by the parameters of the first body and the second body and other FPC in TGT in the Universe according to FPC in TGT the formulas (1), ( ) shows their validity.

The gravitational force between the first body and the second body F_{1-2} decreases according to increasing of the squared average distance between them R_{1-2}^2. The gravitational force between the first body and of the second body F_{1-2} in the formulas ( ), ( ), ( ), ( ), ( ), becomes equal to the formula of the so–called Newtonian??? second law ($F_{1-2} = M_2 \times g_{1-2}$) when the average distance between them reaches $R_{1-2} \approx 2 \times 2.034 \times 10^{17}\ cm$. Then the gravitational force between the first body and the second body F_{1-2} decreases to $F_{1-2} = 0.00\, gcm/s^2$ according to squared increase of the squared average distance R_{1-2}^2 between them. It means that the formula of the so–called Newtonian second law ($F_{1-2} = M_2 \times g_{1-2}$) may be used to determine the gravitational force between the first body and the second body having the same radius $R_{1-2}^2 = 2 \times G = 2 \times 2.034 \times 10^{17} cm^2 \approx R_{ear}^2 = (6.371 \times 10^8)^2\ cm^2$.

According to the formula (1), (2) и (3) the gravitational force between the first body and the second body F_{1-2} (the weight of the second body on the surface of the first body) is equal to the sum of two forces, and the formula $F_{1-2} = M_2 \times g_1$ ( ) is only a single force. That’s why the determination of the gravitational force between the first body (the Sun, the Moon, Mars, etc., having a larger or a shorter radius that of the Earth) and of the second body ($M_{sta} = 1.0\, kg$ in SI ($M_{sta} = 1.0197\, g$ in TGT) F_{1-2} (the weight of the second body on the surface of the first body) can be determined only by the formulas (1), (2) and (3).

The determination of the gravitational force between various bodies in the Universe according to FPC in TGT showed that the so–called Newtonian second law

$F_{1-2} = M_2 \times g_1$ ( ) acts on the surface of the Earth but doesn't act on the surface of the Sun, the Moon, Mars, etc.

The determination of the gravitational force between various bodies in the Universe according to FPC in TGT showed that TGL acts not only the Earth surface but also on the surface of the Moon, Mars, Jupiter, etc., внутри the Earth, the Moon, Mars, Jupiter, etc. as well as in the space.

Our calculations according to FPC in TGT showed that Archimedes principle acts not only on the Earth surface but also on the surface of the Moon, Mars, Jupiter, etc., as well as in the space.

The determination of the gravitational force between different bodies in the Universe according to FPC in TGT showed that the results obtained with the help of the so–called Newtonian second law coincide with the results obtained with the help of TGL, it is accounted for the coincidence of the squared radius of the Earth and the doubled gravitational constant G $R_{1-2}^2 = 2 \times 2.034 \times 10^{17} cm^2 \approx R_{ear}^2 = (6.371 \times 10^8)^2\ cm^2$.

It means that on the surface of two first bodies having the same weight, mass, gravitational acceleration, etc. but different radii, the weight of the so–called standard–copy of the mass of $1.0\ kg$ in SI of the body, etc. ($P_{sta} = 1000.0\ gcm/s^2$ in TGT, $M_{sta} = 1.0197\ g$ in TGT, etc.) will be different.

9. Summary

The results of the determination of FPC in TGT, characterizing the gravitational field of the body, the mass of the body, the gravitational acceleration of the body, the gravitational radius of the body, the average orbital velocity of the body, the weight of the body, density (specific gravity) of the body, the gravitational force of the body, pressure of the gravitational force of the body and the energy of the body was placed to the table. 1.

Fundamental Physical Constants (FPC) in accordance with Tsiganok gravitational theory (TGT)

№	Quantity	Symbol	Value	Unit
	FPC, characterizing the gravitational field of the body			
1.	The constant of the gravitational field of the mass of 1.0 g of the body	$A_{1.0}^{M}$	1.04324×10^{-4}	cm^3/gs^2
2.	The gravitational constant	G	2.034×10^{17}	cm^2
	FPC, characterizing of the mass of the body			
1.	The constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body	$M_{1.0}^{A}$	9585.522	gs^2/cm^3
2.	The constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body	$M_{1.0}^{g}$	3.8994×10^{21}	gs^2/cm
3.	The constant of the mass of the gravitational radius of 1.0 cm of the body	$M_{1.0}^{R}$	8.615467×10^{24}	g/cm

FPC, characterizing of the gravitational acceleration of the body				
1.	The constant of the gravitational acceleration of the mass of 1.0 g of the body	$g_{1.0}^{M}$	2.5645×10^{-22}	cm/gs^2
2.	The constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body	$g_{1.0}^{A}$	2.4582×10^{-18}	$1/cm^2$
3.	The constant of the gravitational acceleration of the gravitational radius of 1.0 cm of the body	$g_{1.0}^{R}$	2209.43656	$1/s^2$
4.	Standard acceleration of gravity (adopted values)	g_{sta}	980.665	cm/s^2
FPC, characterizing of the gravitational radius of the body				
1.	The constant of the gravitational radius of the mass of 1.0 g of the body	$R_{1.0}^{M}$	$1.16070316 \times 10^{-25}$	cm/g
2.	The constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body	$R_{1.0}^{g}$	4.52604×10^{-4}	s^2
FPC, characterizing velocity of the body				
1.	Speed of light in vacuum	c	29979245800.0	cm/s
FPC, characterizing the weight of the body				
1.	The constant of the weight of the gravitational radius of 1.0 cm of the body	$P_{1.0}^{R}$	1.903×10^{28}	g/cms^2
FPC, characterizing the density (specific gravity) of the body				

1.	The constant of the density (specific gravity) of the gravitational radius of 1.0 cm of the body	$\rho_{1.0}^{R}$	4.543×10^{27}	g/cm^4s^2
FPC, characterizing the gravitational force of the body				
1.	The constant the gravitational force of 1.0 cm of the body	$F_{sta-sta}$	1.04324×10^{-4}	gcm/s^2
FPC, characterizing pressure of the body				
1.	The constant pressure of the gravitational force of 1.0 cm of the body	$p_{1.0}^{M}$	2.5645×10^{-22}	g/cms^2

The determination of FPC in TGT using the parameters of the first body and the second body when the second body rotates (doesn't rotate) around the first body, they have different radii (gravitational radii) and other FPC in TGT in the Universe according to FPC in TGT as well as experiment the determination of the centrifugal force with the help of a dynamometer, a rope a bottles made of plastics filled with water [23] made it possible to formulate the following conclusions.

The coincidence of FPC in TGT determined by the parameters of the first body and the second body and other FPC TGT in the Universe according to FPC in TGT by the formulas (), () show their validity.

The determination of FPC in TGT showed that only GF ( ) speed of light in vacuum c may be assumed to be valid.

It follows from the determination of FPC in TGT that the gravitational acceleration of the first body (standard acceleration of gravity) g_1 and the gravitational acceleration of the second body (standard acceleration of gravity) g_2 are not FPC. The gravitational acceleration of the first body (standard acceleration of gravity) g_1 and the gravitational acceleration of the second body (standard acceleration of gravity) g_2 were included into the list of FPC in TGT ??как adopted values (Tabl. 1).

The first of FPC in TGT given in table.1 isn't complete. In order to determine such FPC in TGT as the atomic weight, atomic mass, atomic gravitational acceleration, electron mass, neutron mass, proton mass, atomic mass constant, elementary charge, etc. it is necessary to complete the work of the consortium of the International Avogadro Coordination on the creation of the international standard–copy of the so–called kilogram 1.0 kg (in SI) [27] and the results of some other experiment according to TGT.

The complete list of FPC in TGT that will be determined by the formulas (1), (2), (3), GF ( ) of the equations ( ), ( ) and the number of the corresponding experiments will be limited.

The determination of FPC in TGT showed that they are similar to the mathematical constant.

It follows from the formula of the determination π number that when the length of the circumference (the nominator of the formula) increases (decreases), the diameter of the circumference (the denominator of the formula) increases at the same time, in the result, π number doesn't change, etc.

It follows from the formula of the determination of the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ ( ) that with the increasing (decreasing) of the mass of the first body M_1 (the denominator of the formula) and in the result the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ doesn't change.

The determination of FPC in TGT showed that all the known systems of measurement (Centimetre–gram–second system of units (CGS), International System of Units (SI), Imperial an US customary units etc.) don't correspond the modern requirement and must be replaced.

TUS must be replaced all these insufficiently grounded systems of the measurement. TUS must be based on the standard–copies having constant regulated parameters and convenient for usage in the practical activity of a great number of the people living on our planet the Earth. TUS must act within the limits of all the Universe but not within the limits of some states or brances on the Earth. In TUS the weight of the standard–copy of the weight for each star, planet, asteroid, comet, black hole, etc., as well as in the space will be different. The weight of the standard–copy of the weight on the surface of these bodies and in the space is determined by the gravitational acceleration of the surface of these bodies and their radii. In TUS the mass of the standard–copy of the mass on the surface of each star, planet, asteroid, comet, black hole, etc. and in the space will be the same. The mass of the standard–copy of the mass on the surface of these bodies and in the space isn't determined by gravitational acceleration on the surface of these bodies and their radii.

The usage of the known so–called standard–copy of mass $1.0\,kg$ in SI $M_{1.0kg}$ as the standard–copy of weight in TUS for: the other space $P_{1.0kg} = 2.615 \times 10^{-22}\,gcm/s^2$ in TGT, the Earth $P_{1.0kg} = 1000.0\,gcm/s^2$ in TGT, the Sun $P_{1.0kg} = 2.7996 \times 10^4\,gcm/s^2$ in TGT, the Moon $P_{sta} = 263.684\,gcm/s^2$ in TGT, etc. means the simultaneous usage of the standard–copy of mass equal to $M_{1.0kg} = 1.0197g$ in TGT ($1.0\,kg$ in SI) для the Earth $M_{1.0kg} = 1.0197g$ in TGT, для the Sun $M_{1.0kg} = 1.0197g$ in TGT, the Moon $M_{1.0kg} = 1.0197g$ in TGT, measured not by an integer, means some difficulties in etc.

The usage of the standard–copy of mass $1.0\,kg$ in SI $M_{1.0kg}$ as the mass standard-copy $M_{1.0kg} = 1.0197g$ in TGT ($1.0\,kg$ in SI), determined by an integer means the absence of the difficulties in practical usage of this standard–copy within the limits of the Earth, the outer space and the whole Universe.

Using the new standard-copy weight $P_{1.0g} = 980.665\,gcm/s^2$ in TGT ($0.980665\ kg$ in SI) for open space $P_{1.0g} = 2.5645 \times 10^{-22}\,gcm/s^2$ in TGT, for the Earth $P_{1.0g} = 980.665\,gcm/s^2$ in TGT, for the Sun $P_{1.0g} = 2.7957 \times 10^4\,gcm/s^2$ in TGT, the Moon $P_{1.0g} = 263.681\,gcm/s^2$ in TGT, etc. It means the simultaneous use of standard-copy weight $M_{1.0g} = 1.0\,g$ in TGT ($0.980665\ kg$ in SI) для открытого космоса $M_{1.0g} = 1.0\ g$ in TGT ($0.980665\ \ kg$ in SI), the Earth $M_{1.0g} = 1.0\ g$ in TGT, the Sun $M_{1.0g} = 1.0\ g$ in TGT, the Moon $M_{1.0g} = 1.0\ g$ in TGT, etc.

It is reasonable to equite the new standard–copy of weight $P_{1.0g} = 980.665\ gcm/s^2$ in TGT ($0.980665\ \ kg$ in SI) with a certain number atoms of silicon 28Si according to the project of International Avogadro Coordination [25].

The adoption of new standard–copies of weights and mass will result in the change of FPC in TGT and all the physical parameters simultaneously.

Adopting the new standard–copies of weight and mass it is necessary to take into account to possibilities of different countries.

On completing the creation of TUS there must be coined a medal with the known motto of Condorcet "A tous les temps, à tous les peuples".

Our calculations showed that the insufficiently exact determination of one of FPC in TGT may lead to insufficiently exact determination of other FPC in TGT and all other parameters in physics.

It is considered that the so–called Maxwell equations characterize the electromagnetic field [28].

In 1867 Maxwell united electricity and magnetism into one theory, and a century later physicists discovered the electromagnetic field and the field that spreads weak nuclear force (forces responsible for radioactive disintegration) may be united.

Our calculations according to TGT showed that all the known fundamental interactions (gravitational, electromagnetic, strong nuclear, and weak nuclear) are the fundamental interaction at different distance according to the formulas (1), (2) and (3).

It is considered that the doubtful Newton gravitation theory acts at the velocities that are less that speed of light in vacuum [ ], and the doubtful Einstein gravitation theory (so–called General relativity) at speed of light in vacuum [ ].

Our calculations of FPC in TGT showed that the doubtful Newtonian gravitation theory and the so-called General relativity (GR) don’t act both in the state of rest and at any velocity.

Our calculations of FPC in TGT showed that TGT acts in the state of rest a speed of light in vacuum at any velocity and at the speed of light in vacuum as well.

It is considered that classical mechanics describes the bodies large dimensions well: galaxies, stars, planets, etc., and can’t describe small bodies: molecules, atoms, electrons, photons, etc. That’s why the so–called quantum mechanics can describe small bodies: molecules, atoms, electrons, photons, etc. in the nanoscopic scale where the action takes place on the order of the so-called Planck constant.

There are different known methods of the determination of the average distance between the first body (atomic nucleus, etc.) and the second body (electron, etc.). The validity of these methods don’t cause any doubts. However, for example, to determine the average distance between the first body with the help of these methods is very difficult. The results of our research showed that the known so–called parameters FPC (Bohr radius, classical electron radius, electron mass, neutron mass, proton mass, etc.) don’t correspond the facts. It is possible to determine parameters: the weight, mass, gravitational acceleration and other only with the help of FPC in TGT.

Использование FPC in TGT позволит отказаться от использования так называемого Heisenberg's uncertainty principle [ ].

Our calculations according to FPC in TGT showed that TGT acts in all the points of the Universe: on the surface of stars, planets, planetary satellites, asteroids, asteroids satellites, comets, molecules, atoms, ions, atomic nuclei inside thes bodies in the space, etc.

Our calculations according to FPC in TGT showed that TGT acts with regard to substances in different aggregate states: solid, liquid, gas, and plasma.

The results of our investigation confirmed high professionalism of Ole Christensen Rømer and the lack of it when we speak about Planck, Einstein, Schwarzschild, etc.

10. Conclusions

The results of our investigation make it possible to state the following:

1. – the definition of FPC in TGT;

2. – the definition of the gravitational field was given;

3. – the gravitational formula (GF) was deduced;

4. – the constant of the gravitational field of the mass of 1.0 g of a body $A_{1.0}^{M}$ was defined and determined;

5. – the constant of the gravitational field of the mass of the first body A_{1}^{M} was defined and determined;

6. – the gravitational constant G was defined and determined;

7. – the constant of the mass of the gravitational field 1.0 cm/s^2 of the body $M_{1.0}^{A}$ was defined and determined;

8. – the constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body $M_{1.0}^{g}$ was defined and determined;

9. – the constant of the mass of the gravitational radius 1.0 cm of the body $M_{1.0}^{R}$ was defined and determined;

10. – the constant of the gravitational acceleration of the mass of 1.0 g of the body $g_{1.0}^{M}$ was defined and determined;

11. – the constant of the gravitational acceleration of the gravitational field of the 1.0 cm^3/s^2 of the body $g_{1.0}^{A}$ was defined and determined;

12. – the constant of the gravitational acceleration of the gravitational radius 1.0 cm of the body $g_{1.0}^{R}$ was defined and determined;

13. – standard acceleration of gravity g_{sta} was defined and determined;

14. – the constant of the gravitational radius of the mass of 1.0 g of the body $R_{1.0}^{M}$ was defined and determined;

15. – the constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body $R_{1.0}^{g}$ was defined and determined;

16. – the gravitational radius of the first body R_{1}^{c} was defined and determined;

17. – speed of light in vacuum c was defined and determined;

18. – the constant of the weight of the gravitational radius of 1.0 cm of the body $P_{1.0}^{R}$ was defined and determined;

19. – the constant of the density (specific gravity) of the gravitational radius of 1.0 cm of the body $\rho_{1.0}^{R}$ was defined and determined;

20. – the constant of gravitation force $F_{sta-sta}$ was defined and determined;

21. – the gravitational force in the so-called Cavendish experiment $F_{bal-bal}$;

22. – the constant of the pressure of the gravitational force of the 1.0 g of the body $p_{1.0}^{M}$ was defined and determined;

23. – the validity of the existence of more than 300 FPC wasn't confirmed either theoretically and experimentally;

24. – the indissoluble interconnection of all the FPC in TGT as well as with the rest of the parameters in physics wasn't confirmed either theoretically or experimentally;

25. – the validity of the known average distances between different bodies (stars, planets, dwarf planets, asteroids and their satellites, galaxies, accumulation (conglomeration)? clusters of galaxies, etc.) wasn't confirmed either theoretically or experimentally;

26. – the validity of the known gravitational radii of different bodies (stars, planets, dwarf planets, asteroids and their satellites, galaxies, ?clusters of galaxies etc.) wasn't confirmed either theoretically or experimentally;

27. – the validity of the parameters obtained according to the doubtful Newton gravitational theory (stars, planets, dwarf planets, asteroids and sattelites, galaxies, clusters of galaxies etc.) wasn't confirmed either theoretically or experimentally;

28. – the validity of the formulas of the doubtful Newton gravitational law, doubtful Newton gravitational theory and its mathematical apparatus wasn't confirmed either theoretically or experimentally;

29. – the validity of the statement that the dimensions of a parameter in physics must characterize the physical essence of the phenomenon or the process it characterizes wasn't confirmed either theoretically or experimentally;

30. – the validity of the statement that the value of FPC in TGT and the parameters in physics must be the same in all the sections of physics wasn't confirmed either theoretically or experimentally;

31. – the validity of measuring the so–called Cavendish gravitational constant of from the doubtful Newtonian gravitational law in cm^3/gs^2;

32. – the possibility of the determination of FPC with the help of the doubtful Newtonian gravitation law and doubtful Newtonian gravitation theory wasn't confirmed either theoretically or experimentally;

33. – the existence of the strong, weak, electromagnetic and gravitational interactions (all these interactions are only one interaction according to formulas (), () and () at different distances between the bodies) wasn't confirmed either theoretically or experimentally;

34. – the validity of the formulas of FPC in TGT wasn't confirmed either theoretically or experimentally;

35. – the validity of Tsiganok gravitational law (TGL) and its mathematical apparatus was confirmed both theoretically and experimentally.

Abbreviations

TGL Tsiganok gravitational law
TGT Tsiganok gravitational theory
FPC Fundamental physical constant
TUS Tsiganok unit system
GF gravitational formula

Nomenclature

Name	Description	Units	First appears
Fundamental physical constants (FPC) in Tsiganok gravitational theory (TGT), characterizing the gravitational field of the body			
$A_{1.0}^{M}$	The constant of the gravitational field of the mass 1.0 g of the body	cm^3/gs^2	3.
G	The gravitational constant	cm^2	3.
Physical constants (FPC) in Tsiganok gravitational theory (TGT), characterizing the gravitational field of the body			
A_{1}^{M}	The constant of the gravitational field of the mass of the first body	cm^3/s^2	3.
$A_{1.0g}^{M}$	The constant of the gravitational field of the mass 1.0 g of the body	cm^3/s^2	5.
$A_{1.0cm^3/s^2}^{M}$	The constant of the gravitational field of the mass 1.0 cm^3/s^2 of the body	cm^3/s^2	5.
$A_{1.0cm/s^2}^{M}$	The constant of the gravitational field of the mass 1.0 cm/s^2 body	cm^3/s^2	5.
A_{sun}^{M}	The constant of the gravitational field of the Sun	cm^3/s^2	7.1.1.
A_{ear}^{M}	The constant of the gravitational field of the Earth	cm^3/s^2	7.1.1.
A_{moo}^{M}	The constant of the gravitational field of the Moon	cm^3/s^2	7.1.1.
A_{dio}^{M}	The constant of the gravitational field of (3671) Dionysus	cm^3/s^2	7.1.1.
A_{67P}^{M}	The constant of the gravitational field of 67P/Churyumov–Gerasimenko	cm^3/s^2	7.1.1.
A_{sgra}^{M}	The constant of the gravitational field of Sagittarius A	cm^3/s^2	7.1.1.
A_{mwgc}^{M}	The constant of the gravitational field of the Milky	cm^3/s^2	7.1.1.

	Way galaxy centre		
A_{mer}^{M}	The constant of the gravitational field of Mercury	cm^3/s^2	7.1.1.
A_{ven}^{M}	The constant of the gravitational field of Venus	cm^3/s^2	7.1.1.
A_{mar}^{M}	The constant of the gravitational field of Mars	cm^3/s^2	7.1.1.
A_{jup}^{M}	The constant of the gravitational field of Jupiter	cm^3/s^2	7.1.1.
$\mathrm{A}_{2.0g}^{\mathrm{M}}$	The constant of the gravitational field of the mass 2.0 g of the body	cm^3/s^2	8.1.
$A_{3.0g}^{M}$	The constant of the gravitational field of the mass 3.0 g of the body	cm^3/s^2	8.1.
$A_{1.0g}^{M}$	The constant of the gravitational field of the mass 1.0 g of the body	cm^3/s^2	8.1.
$\mathrm{A}_{2.0g+2.0g}^{\mathrm{M}}$	The sum of the constants of the gravitational field of the mass 2.0 g of the body and the constant of the gravitational field of the mass 2.0 g of the body	cm^3/s^2	8.1.
$A_{3.0g+1.0g}^{M}$	The sum of the constants of the gravitational field of the mass 3.0 g of the body and the constant of the gravitational field of the mass 1.0 g of the body	cm^3/s^2	8.1.
Fundamental physical constants (FPC) in Tsiganok gravitational theory (TGT), characterizing the mass of the body			
$M_{1.0}^{A}$	The constant of the mass of the gravitational field of 1.0 cm^3/s^2 of the body	gs^2/cm^3	3.
$M_{1.0}^{g}$	The constant of the mass of the gravitational acceleration of 1.0 cm/s^2 of the body	gs^2/cm	3.
$M_{1.0}^{R}$	The constant of the mass of the gravitational radius of 1.0 cm of the body	g/cm	3.
The mass of the body			
M_1	The mass of the first body	g	4.1.
M_2	The mass of the second body	g	4.1.
$M_{1.0g}$	The mass of 1.0 g of the body	g	5.

$M_{1.0cm^3/s^2}$	The mass of 1.0 cm^3/s^2 of the body	g	5.
$M_{1.0cm/s^2}$	The mass of 1.0 cm/s^2 of the body	g	5.
$M_{1.0cm}$	The mass of 1.0 cm of the body	g	5.
M_{sun}	The mass of the Sun	g	5.
M_{ear}	The mass of the Earth	g	5.
M_{moo}	The mass of the Moon	g	5.
M_{dio}	The mass of (3671) Dionysus	g	7.1.1.
M_{67P}	The mass of 67P/Churyumov–Gerasimenko	g	7.1.1.
M_{sgra}	The mass of Sagittarius A	g	7.1.1.
M_{mwgc}	The mass of the Milky Way galaxy centre	g	7.1.1.
$\mathrm{M}_{2.0g}$	The mass of 2.0 g of the body	g	8.1.
$\mathrm{M}_{3.0g}$	The mass of 2.0 g of the body	g	8.1.
$\mathrm{M}_{1.0g}$	the mass of 2.0 g of the body	g	8.1.
$\mathrm{M}_{2.0g+2.0g}$	The sum of the mass of 2.0 g of the body and the mass of 2.0 g of the body	g	8.1.
$M_{3.0g+1.0g}$	The sum of the mass of 3.0 g of the body and the mass of 1.0 g of the body	g	8.1.
M_{bal}	The mass of 1.0 g the ball in the so–called Cavendish experiment	g	7.8.1.
M_{sta}	The mass of the weight of the standard–copy 1000.0 gcm/s^2 in TGT (1.0 kg in SI)	g	
Fundamental physical constants (FPC) в Tsiganok gravitation theory (TGT), characterizing the gravitational acceleration of the body			
$g_{1.0}^{M}$	The constant of the gravitational acceleration of the mass of 1.0 g of the body	cm/gs^2	3.
$g_{1.0}^{A}$	The constant of the gravitational acceleration of the gravitational field of 1.0 cm^3/s^2 of the body		3.
$g_{1.0}^{R}$	The constant of the gravitational acceleration of the	$1/s^2$	3.

	gravitational radius of 1.0 cm of the body		
g_{1sta}	The gravitational acceleration of the first body (standard acceleration of gravity)	cm/s^2	3.
g_{2sta}	The gravitational acceleration of the second body (standard acceleration of gravity)	cm/s^2	3.
The gravitational acceleration of the body			
g_1	The gravitational acceleration of the first body	cm/s^2	4.1.
g_2	The gravitational acceleration of the second body	cm/s^2	4.1.
$g_{1.0g}$	The gravitational acceleration of 1.0 g of the body	cm/s^2	4.1.
$g_{1.0cm^3/s^2}$	The gravitational acceleration of 1.0 cm^3/s^2 of the body	cm/s^2	5.
$g_{1.0cm/s^2}$	The gravitational acceleration of 1.0 cm/s^2 of the body	cm/s^2	5.
$g_{1.0cm}$	The gravitational acceleration of 1.0 cm) of the body	cm/s^2	5.
g_{sun}	The gravitational acceleration of the Sun	cm/s^2	5.
g_{ear}	The gravitational acceleration of the Earth	cm/s^2	5.
g_{moo}	The gravitational acceleration of the Moon	cm/s^2	5.
g_{dio}	The gravitational acceleration of (3671) Dionysus	cm/s^2	7.1.1.
g_{67P}	The gravitational acceleration of 67P/Churyumov–Gerasimenko	cm/s^2	7.1.1.
g_{sgra}	The gravitational acceleration of Sagittarius A	cm/s^2	7.1.1.
g_{mwgc}	The gravitational acceleration of the Milky Way galaxy centre	cm/s^2	7.1.1.
g_{bal}	The gravitational acceleration of a ball in the so-called Cavendish experiment	cm/s^2	7.8.1.
$g_{2.0g}$	The gravitational acceleration of 2.0 g of the body	cm/s^2	8.1.
$g_{3.0g}$	The gravitational acceleration of 3.0 g of the body	cm/s^2	8.1.
Fundamental physical constants (FPC) в Tsiganok gravitational theory (TGT),			

characterizing the gravitational radius of the body			
$R_{1.0}^{M}$	The constant of the gravitational radius of the mass of 1.0 g of the body	cm/g	3.
$R_{1.0}^{g}$	The constant of the gravitational radius of the gravitational acceleration of 1.0 cm/s^2 of the body	s^2	3.
The average distance between the first body and the second body			
R_{1-2}	The average distance between the first body and the second body	cm	4.1.
$R_{1.0g-2}$	The average distance between 1.0 g of the body and the second body	cm	7.1.1.
$R_{1.0\ cm^3/s^2-2}$	The average distance between 1.0 cm^3/s^2 of the body and the second body	cm	7.1.1.
$R_{1.0cm/s^2-2}$	The average distance between 1.0 cm/s^2 of the body and the second body	cm	7.1.1.
$R_{1.0cm-2}$	The average distance between 1.0 cm of the body and the second body	cm	7.1.1.
$R_{sun-ear}$	The average distance between the Sun and the Earth	cm	7.1.1.
$R_{ear-moo}$	The average distance between the Earth and the Moon?	cm	7.1.1.
$R_{dio-3671}$	The distance average between (3671) Dionysus and S/1997(3671)1	cm	7.1.1.
$R_{67P-ros}$	The average distance between 67P/Churyumov–Gerasimenko and S/1997(3671)1	cm	7.1.1.
$R_{sgra-s2}$	The average distance between Sagittarius A and star S2	cm	7.1.1.
$R_{mwgc-sun}$	The average distance between the Milky Way galaxy centre and the Sun	cm	7.1.1.
$R_{sta-sta}$	The average distance between the 1.0 g of the body	cm	7.8.1.

	and the 1.0 g of the body		
$R_{bal(SI)-bal(SI)}$	The average distance between the first ball and the second ball in the so–called Cavendish experiment	cm	7.8.1.
$\mathrm{R}^2_{\mathrm{2.0g-2.0g}}$	The average distance between of 2.0 g of the body and of 2.0 g of the body	cm	8.1.
$R^2_{3.0g-1.0g}$	The average distance between of 3.0 g of the body and of 1.0 g of the body	cm	8.1.
h	The altitude of the location of the centre of the first body above the arbitrarily chosen zero level	cm	7.10.2.
h_2	The altitude of the location of the centre of the second body above the arbitrarily chosen zero level	cm	7.10.2.
The radius of the body			
R_{sun}	The radius of the Sun	cm	7.1.1.
R_{ear}	The radius of the Earth	cm	8.2.
R_{moo}	The radius of the Moon	cm	8.2.
R_{dio}	The radius of (3671) Dionysus	cm	8.2.
R_{67P}	The radius of 67P/Churyumov–Gerasimenko	cm	8.2.
R_{mwgc}	The radius of the Milky Way galaxy centre	cm	8.2.
The gravitational radius of the body			
R^c_1	The gravitational radius of the first body	cm	5.
$R^c_{1.0g}$	The gravitational radius of 1.0 g of the body	cm	7.2.3.
$R^c_{1.0cm^3/s^2}$	The gravitational radius of 1.0 cm^3/s^2 of the body	cm	7.2.3.
$R^c_{1.0cm/s^2}$	The gravitational radius of 1.0 cm/s^2 of the body	cm	7.2.3.
$R^c_{1.0cm}$	The gravitational radius of 1.0 cm of the body	cm	5.
R^c_{sun}	The gravitational radius of the Sun	cm	7.2.3.
R^c_{ear}	The gravitational radius of the Earth	cm	7.2.3.
R^c_{moo}	The gravitational radius of the Moon	cm	7.2.3.
R^c_{sun}	The gravitational radius of the Sun	cm	7.2.3.

R^c_{dio}	The gravitational radius of a (3671) Dionysus	cm	7.2.3.
R^c_{67P}	the gravitational radius of a 67P/Churyumov–Gerasimenko	cm	7.2.3.
R^c_{sgra}	The gravitational radius of a Sagittarius A	cm	7.2.3.
R^c_{mwgc}	The gravitational radius of a Milky Way galaxy centre	cm	7.2.3.
Fundamental physical constants (FPC) в Tsiganok gravitational theory (TGT), characterizing velocity of the body			
c	Speed of light in vacuum	cm/s	3.
The average orbital velocity of the body			
V_2	The average orbital velocity of the second body	cm/s	5.
$V_{1.0g}$	The average orbital velocity of 1.0 g of the body	cm/s	5.
$V_{1.0cm/s^2}$	The average orbital velocity of 1.0 cm/s^2 of the body	cm/s	
V_{sun}	The average orbital velocity of the Sun	cm/s	7.1.1.
V_{ear}	The average orbital velocity of the Earth	cm/s	7.1.1.
V_{moo}	The average orbital velocity of the Moon	cm/s	7.1.1.
V_{3671}	The average orbital velocity of S/1997(3671)1	cm/s	7.1.1.
V_{ros}	The average orbital velocity of Rosetta	cm/s	7.1.1.
V_{s2}	The average orbital velocity of star S2	cm/s	7.1.1.
$V_{ear-fcv}$	The first cosmic velocity of the Earth	cm/s	6.
$V_{sta(1.0cm/s^2)-fcv}$	First cosmic velocity of the so–called standard–copy of 1.0 kg in SI of the body	cm/s	8.2.
$V_{sta(1.0cm)-fcv}$	First cosmic velocity of the so–called standard–copy of 1.0 kg (in SI) of the body	cm/s	8.2.
$V_{sun-fcv}$	The first cosmic velocity of the Sun	cm/s	8.2.

$V_{ear-fcv}$	The first cosmic velocity of the Earth	cm/s	8.2.
$V_{moo-fcv}$	The first cosmic velocity of the Moon	cm/s	8.2.
$V_{dio-fcv}$	The first cosmic velocity of (3671) Dionysus	cm/s	8.2.
$V_{67P-fcv}$	The first cosmic velocity of 67P/Churyumov–Gerasimenko	cm/s	8.2.
$V_{sgra-fcv}$	The first cosmic velocity of Sagittarius A	cm/s	8.2.
$V_{mwgc-fcv}$	The first cosmic velocity of the Milky Way galaxy centre	cm/s	8.2.
Fundamental physical constants (FPC) в Tsiganok gravitation theory (TGT), characterizing the weight of the body			
$P_{1.0}^{R}$	The constant of the weight of the gravitational radius of 1.0 cm of the body	g/cms^2	3.
The weight of the body			
P_1	The weight of the first body	gcm/s^2	
P_2	The weight of the second body	gcm/s^2	
P_{sta}	The weight of the weight of the standard–copy weight	gcm/s^2	
$P_{moo-ear}$	The Moon weight taking into account the gravity acceleration of the Earth	gcm/s^2	
$P_{1.0cm}$	The weight of 1.0 cm of the body	gcm/s^2	
P_{sun}	The weight of the Sun	gcm/s^2	6.
P_{ear}	The weight of the Earth	gcm/s^2	6.
P_{dio}	The weight of (3671) Dionysus	gcm/s^2	6.
P_{67P}	The weight of 67P/Churyumov–Gerasimenko	gcm/s^2	6.
P_{sgra}	The weight of Sagittarius A	gcm/s^2	6.
P_{mwgc}	The weight of the Milky Way galaxy centre	gcm/s^2	6.
P_{bal}	The weight of the 1.0 g ball	gcm/s^2	7.8.1.
Fundamental physical constants (FPC) в Tsiganok gravitational theory (TGT),			

characterizing the density (specific gravity) of the body			
$\rho^{R}_{1.0}$	The constant of the density (specific gravity) of the gravitational radius of 1.0 cm of the body	g/cm^4s^2	3.
ρ_1	The average density (specific gravity) of the first body	g/cm^2s^2	3.
$\rho_{1.0cm}$	The average density (specific gravity) of 1.0 cm body	g/cm^2s^2	5.
ρ_{ear}	The average density (specific gravity) of the Earth	g/cm^2s^2	6.
ρ_{dio}	The average density (specific gravity) of (3671) Dionysus	g/cm^2s^2	6.
ρ_{67P}	The average density (specific gravity) of 67P/Churyumov–Gerasimenko	g/cm^2s^2	6.
ρ_{sgra}	The average density (specific gravity) of Sagittarius A	g/cm^2s^2	6.
ρ_{mwgc}	The average density (specific gravity) of the Milky Way galaxy centre	g/cm^2s^2	6.
Fundamental physical constants (FPC) в Tsiganok gravitational theory (TGT), characterizing the gravitational force of the body			
$F_{sta-sta}$	The constant of gravitational force of the mass of 1.0 cm of the body	gcm/s^2	3.
The gravitational force between the first body and the second body			
F_{1-2}	The gravitational force between the first body and the second body	gcm/s^2	4.1.
$F_{1.0g-sta}$	The gravitational force between of 1.0 g of the body and the so–called standard–copy of the mass of 1.0 kg (in SI) of the body	gcm/s^2	
$F_{1.0cm^3/s^2-sta}$	The gravitational force between of 1.0 cm^3/s^2 of the body and the so–called standard–copy of the mass of 1.0 kg (in SI) of the body		

$F_{1.0cm/s^2-sta}$	The gravitational force between of 1.0 cm/s^2 of the body and the so–called standard–copy of the mass of 1.0 kg (in SI) of the body	gcm/s^2	8.2.
$F_{1.0cm-sta}$	The gravitational force between of 1.0 cm of the body and the so–called standard–copy of the mass of 1.0 kg (in SI) of the body	gcm/s^2	8.2.
$F_{sun-sta}$	The gravitational force between the Sun and the weight of the standard–copy	gcm/s^2	8.2.
$F_{ear-sta}$	The gravitational force between the Earth and the weight of the standard–copy	gcm/s^2	8.2.
$F_{moo-sta}$	The gravitational force between the Moon and the weight of the standard–copy	gcm/s^2	8.2.
$F_{dio-sta}$	The gravitational force between (3671) Dionysus and the weight of the standard–copy	gcm/s^2	8.2.
$F_{67P-sta}$	The gravitational force between 67P/Churyumov–Gerasimenko and the weight of the standard–copy	gcm/s^2	8.2.
$F_{sgra-sta}$	The gravitational force between Sagittarius A black hole and the weight of the standard–copy	gcm/s^2	8.2.
$F_{mwgc-sta}$	The gravitational force between the Milky Way galaxy centre and the weight of the standard–copy	gcm/s^2	8.2.
$F_{bal(SI)-bal(SI)}$	The gravitational force between the first ball the mass of $M_1 = 1.0\ g$ and the second ball the mass of $M_2 = 1.0\ g$ the so-called Cavendish experiment	gcm/s^2	6.
$F_{2.034\times10^{17}g-2.034\times10^{17}g}$	The gravitational force between of $2.034 \times 10^{17}g$ of the body ($M_1 = 2.034 \times 10^{17}g$) and of $2.034 \times 10^{17}g$ of the body ($M_2 = 2.034 \times 10^{17}g$)	gcm/s^2	8.3.
$F_{1.0cm^3/s^2-1.0cm^3/s^2}$	The gravitational force between 1.0 cm^3/s^2 of the body and 1.0 cm^3/s^2 of the body	gcm/s^2	8.3.
$F_{1.0g-1.0g}$	The gravitational force between 1.0 g of the body	gcm/s^2	8.3.

	and of 1.0 g of the body		
$\mathrm{F}_{2.0g-2.0g}$	The force of gravitation between of 2.0 g of the body and of 2.0 g of the body	gcm/s^2	8.1.
$F_{3.0g-1.0g}$	The force of gravitation between of 3.0 g of the body and of 1.0 g of the body	gcm/s^2	8.1.
F_{1-2}	The centrifugal force of the second body	gcm/s^2	8.1.
F_{1-2}	The centrifugal force of the second body M_2 ($M_2 = 2.034 \times 10^{17} g$)		
$F_{1.0cm^3/s^2-1.0cm^3/s^2}$	The centrifugal force of 1.0 cm^3/s^2 of the body		
$F_{1.0g-sta}$	The centrifugal force of the so–called standard–copy of the mass of 1.0 kg (in SI) of the body		
$F_{1.0cm^3/s^2-sta}$	The centrifugal force of the so–called standard–copy of the mass of 1.0 kg (in SI) of the body		
$F_{1.0cm/s^2-sta}$	The centrifugal force of the so–called standard–copy of the mass of 1.0 kg (in SI) of the body	gcm/s^2	8.2.
$F_{1.0cm-sta}$	The centrifugal force of the so–called standard–copy of the mass of 1.0 kg (in SI) of the body	gcm/s^2	8.2.
$F_{sun-sta}$	The centrifugal force of the so–called standard–copy of the mass of 1.0 kg (in SI) of the body	gcm/s^2	8.2.
$F_{ear-sta}$	The centrifugal force of the so–called standard–copy of the mass of 1.0 kg (in SI) of the body	gcm/s^2	8.2.
$F_{moo-sta}$	The centrifugal force of the so–called standard–copy of the mass of 1.0 kg (in SI) of the body	gcm/s^2	8.2.
$F_{dio-sta}$	The centrifugal force of the so–called standard–copy of the mass of 1.0 kg (in SI) of the body	gcm/s^2	8.2.
$F_{67P-sta}$	The centrifugal force of the so–called standard–copy of the mass of 1.0 kg (in SI) of the body	gcm/s^2	8.2.
$F_{sgra-sta}$	The centrifugal force of the so–called standard–copy of the mass of 1.0 kg (in SI) of the body	gcm/s^2	8.2.

$F_{mwgc-sta}$	The centrifugal force of the so–called standard–copy of the mass of 1.0 kg (in SI) of the body	gcm/s^2	8.2.
$F_{sun-ear}$	The centrifugal force of the Earth	gcm/s^2	
$F_{ear-moo}$	The centrifugal force of the Moon	gcm/s^2	
$F_{sta-sta}$	The centrifugal force of the first body	gcm/s^2	7.8.1.
$F_{sta-sta}$	The centrifugal force of 1.0 g of the body?	gcm/s^2	7.8.1.
$F_{2.034\times10^{17}g-2.034\times10^{17}g}$	The centrifugal force of $2.034\times10^{17}g$ of the body?	gcm/s^2	8.3.
$F_{1.0cm^3/s^2-1.0cm^3/s^2}$	The centrifugal force of 1.0 cm^3/s^2 of the body	gcm/s^2	8.3.
$F_{1.0g-1.0g}$	The centrifugal force of 1.0 g of the body	gcm/s^2	8.3.
Fundamental physical constants (FPC) в Tsiganok gravitation theory (TGT), characterizing the pressure of the body			
$p_{1.0}^M$	The constant of the pressure of the gravitational force of the mass of 1.0 g of the body	g/cm^2s^2	3.
The pressure of the body			
p_1	The pressure of the first body	g/cms^2	3.
The energy of the body			
E_1	The energy of the first body	gcm^2/s^2	7.10.2.
E_{K1}	The kinetic energy of the first body	gcm^2/s^2	7.10.2.
E_{P1}	The potential energy of the first body	gcm/s^2	7.10.2.
E_{P2}	The potential energy of the second body	gcm/s^2	7.10.2.
$E_{1.0g}$		gcm^2/s^2	7.10.2.
The volume of the body			
$\mathrm{V}_{1.0}$	The volume of 1.0 cm of the body	cm^3	5.

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