

Mathematical representation of a nature of gravitation

© A.V.Rykov, Ph.D., Chief of Seismometry Lab of UIPE of the Russian Academy of Sciences, rykov@uipe-ras.scgis.ru

The review of all parities connected to gravitation is given below.

In a hypothesis about a nature of gravitation the important and interesting circumstance is revealed. Appeared, that in a hypothesis there are no any way entered and nothing proved parameters. Every, absolutely every parameters are already well-known from which follow a number of the values connected to vacuum and the theory of gravitation. This opening has stunned the author. All values and formulas on which there is a connection of new and known parameters in physics are given below.

1. $\alpha^{-1} = 137,035999$ - Return size of constant thin structure of radiation,
2. $\eta = \frac{1}{\mu} = 1,0000000028 \cdot 10^7 [a^2 m^{-1} kg^{-1} s^2]$ - A magnetic constant of vacuum,
3. $\xi = \frac{1}{\varepsilon} = 8,98755179 \cdot 10^9 [a^{-2} m^3 kg \cdot s^{-4}]$ - An electric constant of vacuum,
4. $e_0 = \pm 1,60217733 \cdot 10^{-19} [a \cdot s]$ - An elementary charge,
5. π - A geometrical constant of space.

The most fundamental constants of our world are above shown only. Derivative values from the specified fundamental parameters are given below.

1. $h = 2\pi e_0^2 \alpha^{-1} \sqrt{\xi/\eta} = 6.6260755 \cdot 10^{-34} [J \cdot s]$ - A Plank constant,
2. $c_0 = \sqrt{\eta \xi} = 2,99792458 \cdot 10^8 [m \cdot s^{-1}]$ - Speed of light under constant conditions of vacuum,
3. $c_g = c_0 \sqrt{1 - \left(\frac{\alpha^{-1}}{r}\right)^2 \frac{g}{4\pi E_\sigma S}}$ - Speed of light depending on acceleration from a gravity,
4. $E_\sigma = \sqrt{G \cdot \xi} = 0,77440512 [m^3 s^{-3} a^{-1}]$ - An anonymous constant,
5. $G = \frac{hc}{m_{pl}} = 6,67259 \cdot 10^{-11} [m^3 kg^{-1} s^{-2}]$ - A gravitational constant,
6. $S = \frac{\sigma}{(\Delta r)^2} = 6.254509137 \cdot 10^{43} [a s m^{-4}]$ - Factor of polarization of vacuum,
7. $\sigma = \alpha^{-2} \frac{e_0}{4\pi r^4} (\Delta r)^2 [a s m^{-2}]$ - Polarization of vacuum,
8. $r_q = \sqrt{\xi/\eta} = 29,97924 [Om]$ - The given electric resistance of vacuum (?),
9. $r = \frac{\alpha^{-1} \xi}{2\pi r_q v_{rb}} = 1,398763188 \cdot 10^{-15} [m]$ - dipole distance (a constant of a lattice) vacuum,
10. $v_{rb} = 2.4892126289 \cdot 10^{20} [Hz]$ - "Red" border for a photon forming a pair a electron-positron,
11. $\Delta r_{rb} = \frac{h v_{rb} r^2 \alpha}{e_0^2 \xi} = \alpha \cdot r = 1,020726874 \cdot 10^{-17} [m]$ - displacement of a dipole of vacuum,

12. $b = \xi \frac{e_0^2}{\Delta r_{rb} r^2} = 1,155406 \cdot 10^{19} [kg \cdot s^{-2}]$ - Factor of elasticity of one dipole,
13. $\rho = \sqrt{\frac{G}{\xi}} = 8,616486835 \cdot 10^{-11} [a \cdot s \cdot kg^{-1}]$ - The given specific charge of mass,
14. $e = e_0 \sqrt{\frac{2\pi G}{ch\alpha}} = 8,61648635 \cdot 10^{-11}$ - The specific charge of mass expressed through microparameters and macroparameters,
15. $g = 4\pi E_\sigma S (\Delta r_g)^2 [m \cdot s^{-2}]$ - Acceleration from a gravity depending on deformation of vacuum and, on the contrary,
16. $\Delta r = \sqrt{\frac{g}{4\pi E_\sigma S}} [m]$ - Deformation of vacuum depending on acceleration, as for a gravity, and any other acceleration,
17. $m_x = \frac{b}{\sqrt{4\pi E_\sigma S \cdot g_{max}}} = 1,859459 \cdot 10^{-9} [kg]$ - The unknown mass satisfying limiting acceleration,
18. $m_x = \sqrt{\alpha} m_{pl}$ - It appears, that x-mass is connected by a simple parity to Plank mass,
19. $e_0 = \rho m_x = 1,602177 \cdot 10^{-19}$ - An elementary charge which follows from unknown mass,
20. $n_{-+} = \frac{m_x}{2m_e} = 2.041257 \cdot 10^{21} [ps]$ - Number of elementary charges in unknown mass,
21. $\Delta e_0 = \frac{e_0}{n_{-+}} = 7.84896966 \cdot 10^{-41} [a \cdot s]$ - Difference on value of a charge of one sign from a charge of other sign,
22. $e_g = \rho m_{e-+} = 7,84897 \cdot 10^{-41} [a \cdot s]$ - The minimal gravitational charge of electron or a positron mass.
23. $i = \arccos\left(\frac{c_0}{R} \sqrt{1 - \frac{\alpha^{-2}}{r_e^2} \frac{1}{R^2} \frac{GM_s}{4\pi E_\sigma S}}\right) \cdot const \cdot 2,062648 \cdot 10^5 \text{ ''} = 1,75''$ - confirmation of fidelity of the offered nature of gravitation is in definition of a corner of a deviation of beams of electromagnetic waves by gravitation, where a constant for a concrete beam:
24. $const = \Delta t_{const} (MR_s^2 / M_s R^2) / (\pi \cdot \alpha^{-1})^2 [s]$, Where $\Delta t_{const} = 1[s]$, M_s, R_s - mass and radius of the Sun, M, R - mass and radius of any other object in space.

Value $\pi \cdot \alpha^{-1}$ is fundamental parameter of vacuum and enters into formula Compton length of a electron wave $4\pi \alpha^{-1} (r + \Delta r_{rb}) = 2.426310743 \cdot 10^{-12}$ m that differs from tabulated value in 8 mark on 5 units.

Have received in a result:

1. Difference in values of charges of the dipole, necessary for occurrence habitual to us gravitation.
2. Thus any voluntary parameter is not used. All conclusions are based on already existing and well-known values in physics.
3. It is possible to assert with the full basis on that that the offered hypothesis of a nature of gravitation is unique true and to the greatest degree answers the Nature.