

Quantum gravit (X + = Y-) a mass field

Elements quantum гравит (X + = Y-) a mass field follow from the General Theory of the Relativity. Speech about a difference relativistic dynamics in two (1) and (2) points риманового spaces, as to mathematical true tensor Einstein. (G. Korn, T. Korn, с.508). Here

$g_{ik}(1) - g_{ik}(2) \neq 0$, $e_k e_k = 1$, on conditions $e_i(Y-) \perp e_k(X-)$, Fundamental тензор $g_{ik}(x^n) = e_i e_k$ Riemannian spaces in (x^n) system of coordinates.

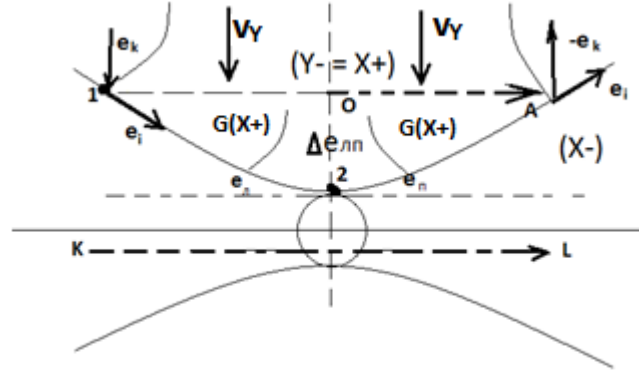


Fig 1. Quantum гравит (X + = Y-) a mass field.

The principle of equivalence of inert and gravitational weight is physical properties gravity (X + = Y-) a mass field. This equality of acceleration $a = v_Y * M(Y-)$ of mass trajectories and acceleration $g = G(X+)$ of a field of gravitation $v_Y * M(Y-) = a = g = G(X+)$, in space of speeds $e_i(X-) = e_i(x^n = X, Y, Z) = v_X \left[\frac{K}{T} \right]$, $e_k(Y-) = e_k(x^n = X, Y, Z) = v_Y \left[\frac{K}{T} \right]$ of local basic vectors. For example, in "the falling" lift acceleration $(g - a) = 0$ is absent, and the weight $P = m(g - a) = 0$, is equal to zero.

The point (2) is led by Euclidean to sphere space, where $(e_i \perp e_k)$ and $e_i * e_k = 0$. Therefore in a vicinity of a point (2) it is allocated parallel vectors (e_l) and (e_n) and we take average value $\Delta e_{lm} = \frac{1}{2}(e_l + e_n)$. Accepting $(e_n = e_k)$ and $g_{ik}(1) - g_{ik}(2) \neq 0$.

$$\Delta e_{lm} = \frac{1}{2}(e_l + e_k) = \frac{1}{2} e_k \left(\frac{e_l}{e_k} + 1 \right), \text{ we will receive:}$$

$$g_{ik}(1)(X+) - g_{ik}(2)(X+) = \kappa T_{ik}(Y-),$$

$$g_{ik}(1) - \frac{1}{2} e_i e_k \left(\frac{e_l}{e_k} + 1 \right) (2) = \kappa T_{ik}, \quad \left(\frac{e_l}{e_k} = R \right).$$

From here the equation of the General Theory of the Relativity in a full kind follows:

$$R_{ik} - \frac{1}{2} R g_{ik} - \frac{1}{2} g_{ik} = \kappa T_{ik}.$$

Average value of a local basic vector Riemannian spaces (Δe_{lm}) , is defined as a principle of uncertainty of mass $(Y-)$ trajectories, but for all length of a wave $KL = \lambda(X+)$ of a gravitational field. Here accelerations $G(X+) = v_Y M(Y-)$ of mass trajectories. This uncertainty in the form of a piece $(2 * OA = 2r)$, as wave function $2\psi_Y(Y-)r = \lambda(X+)$ of a mass $M(Y-)$ trajectory of quantum $(Y\pm)$ in $G(X+)$ the Interaction gravitational field. Here $2\psi_Y$, , backs $(\downarrow\uparrow)$ of a quantum field $\lambda(X+)$ of gravitation. The projection of a mass $(Y-)$ trajectory of quantum, to a circle plane (πr^2) gives the area of probability $(\psi_Y)^2$ of hit of a mass $M(Y-)$ trajectory of quantum $(Y\pm)$, in a quantum $G(X+)$ gravitational field of Vzaimo $(Y- = X+)$ of action.

These are initial elements quantum $G(X+) = v_Y M(Y-)$ mass gravity fields. They follow from the equation of the General Theory of the Relativity. We will allocate here dimensions of

uniform Kriteriv of Evolution of space-matter in a kind. Speed $v_Y \left[\frac{K}{T} \right]$; potential $(\Pi = v_Y^2) \left[\frac{K^2}{T^2} \right]$; acceleration $G(X+) \left[\frac{K}{T^2} \right]$; mass $m = \Pi K(Y- = X+)$ fields and charging $q = \Pi K(X- = Y+)$ fields, their density $\rho \left[\frac{\Pi K}{K^3} \right] = \left[\frac{1}{T^2} \right]$; force $F = \Pi^2$; energy $\mathcal{E} = \Pi^2 K$; an impulse $P = \Pi^2 T$; action $\hbar = \Pi^2 K T$ and so on.

Let's designate $(\Delta e_{mn} = 2\psi e_k)$, $T_{ik} = \left(\frac{\mathcal{E}}{P} \right)_i \Delta \left(\frac{\mathcal{E}}{P} \right)_{mn} = \left(\frac{\mathcal{E}}{P} \right)_i 2\psi \left(\frac{\mathcal{E}}{P} \right)_k = 2\psi T_{ik}$ in a kind tensor energy $(\mathcal{E}) - (P)$ - an impulse with wave function (ψ) . The equation From here follows:

$$R_{ik} - \frac{1}{2} R e_i \Delta e_{mn} = \kappa \left(\frac{\mathcal{E}}{P} \right)_i \Delta \left(\frac{\mathcal{E}}{P} \right)_{mn} \quad \text{Or}$$

$$R_{ik}(X+) = 2\psi \left(\frac{1}{2} R e_i e_k(X+) + \kappa T_{ik}(Y-) \right) \quad \text{and} \quad R_{ik}(X+) = 2\psi \left(\frac{1}{2} R g_{ik}(X+) + \kappa T_{ik}(Y-) \right).$$

This equation of quantum Gravitational potential with dimension $\left[\frac{K^2}{T^2} \right]$ of potential $(\Pi = v_Y^2)$ and спином (2ψ) . In brackets of this equation, a member of equation of the General Theory of the Relativity in the form of a potential $\Pi(X+)$ field of gravitation.

In field theories (Smirnov, т.2, с.361), acceleration of mass $(Y-)$ trajectories $(X+)$ in the field of gravitation of uniform $(Y-) = (X+)$ space-matter is presented divergence a vector field:

$$\text{div} R_{ik}(Y-) \left[\frac{K}{T^2} \right] = G(X+) \left[\frac{K}{T^2} \right], \quad \text{With acceleration } G(X+) \left[\frac{K}{T^2} \right] \text{ and}$$

$$G(X+) \left[\frac{K}{T^2} \right] = \text{grad}_l \Pi(X+) \left[\frac{K}{T^2} \right] = \text{grad}_n \Pi(X+) * \cos \varphi_x \left[\frac{K}{T^2} \right].$$

The parity $G(X+) = \text{grad}_l \Pi(X+)$ is equivalent $G_x = \frac{\partial G}{\partial x}$; $G_y = \frac{\partial G}{\partial y}$; $G_z = \frac{\partial G}{\partial z}$ to representation.

Here full differential: $G_x dx + G_y dy + G_z dz = d\Pi$. It has integrating multiplier of family of surfaces $\Pi(M) = C_{1,2,3,\dots}$, with a point of M , orthogonal to vector lines of a field of mass $(Y-)$ trajectories $(X+)$ in the field of gravitation. Here $e_i(Y-) \perp e_k(X-)$. The quasipotential field from here follows:

$$t_T (G_x dx + G_y dy + G_z dz) = d\Pi \left[\frac{K^2}{T^2} \right] \quad \text{and} \quad G(X+) = \frac{1}{t_T} \text{grad}_l \Pi(X+) \left[\frac{K}{T^2} \right].$$

Here $t_T = n$ for a quasipotential field. Time $t = nT$, n - is quantity of the periods T of quantum dynamics. $n = t_T \neq 0$. From here follow by quasipotential surfaces of quantum gravitational fields with the period T and acceleration: $G(X+) = \frac{\psi}{t_T} \text{grad}_l \Pi(X+) \left[\frac{K}{T^2} \right]$.

$$G(X+) \left[\frac{K}{T^2} \right] = \frac{\psi}{t_T} \left(\text{grad}_n (R g_{ik}) (\cos^2 \varphi_{x_{MAX}} = G) \left[\frac{K}{T^2} \right] + (\text{grad}_l (T_{ik})) \right).$$

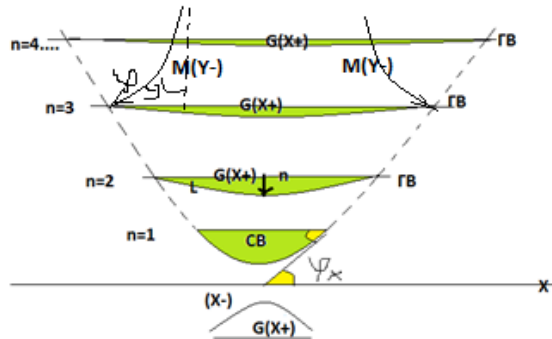


Fig. 2. Quantum gravitational fields.

This chosen direction of a normal fixed in section $n \perp l$. In dynamical space-matter, it is a question of dynamics $\text{rot}_x G(X+) \left[\frac{K}{T^2} \right]$ of fields on the closed $\text{rot}_x M(Y-)$ trajectories. Here l - a line along quasipotential surfaces Riemannian spaces, with normal $n \perp l$. The limiting corner of parallelism of mass $(Y-)$ trajectories $(X+)$ in the field of gravitation, gives a gravitational constant

$(\cos^2 \varphi(X-)_{MAX} = G = 6.67 * 10^{-8})$. Here $t_T = \frac{t}{T} = n$, an order of quasipotential surfaces, and $(\cos \varphi(Y-)_{MAX} = \alpha = \frac{1}{137.036})$.

$$G(X+) \left[\frac{K}{T^2} \right] = \frac{\psi * T}{t} (G * grad_n Rg_{ik}(X+) + \alpha * grad_n T_{ik}(Y-)) \left[\frac{K}{T^2} \right].$$

This general equation quantum gravity $(X+ = Y-)$ a mass field already **accelerations** $\left[\frac{K}{T^2} \right]$, and wave ψ - function, and also T - the period of dynamics of quantum $\lambda(X+)$, with спином $(\downarrow \uparrow)$, (2ψ) .

Fields of accelerations, as it is known, it already force fields. And this equation differs from the equation of gravitational **potentials** of the General Theory of the Relativity.

For $n = 1$, (fig. 2) the gravitational field $G(X+) \left[\frac{K}{T^2} \right] = \frac{\psi * T}{\Delta t} G * grad_n (Rg_{ik})(X+) \left[\frac{K}{T^2} \right]$ of a source of gravitation, is $G(X+)$ field SI $(X+)$ - Strong Interaction. Quantum dynamics in time Δt within dynamics period T is represented a parity:

$$G(X+) = \psi * T * G \frac{\partial}{\partial t} grad_n Rg_{ik}(X+) \quad \text{Where } T = \frac{\hbar}{\varepsilon = U^2 \lambda}, \text{ the period quantum dynamics.}$$

The formula for accelerations $\left[\frac{K}{T^2} \right]$ SI $(X+)$ - of a field of Strong Interaction takes a form:

$$G(X+) \left[\frac{K}{T^2} \right] = \psi \frac{\hbar}{\Pi^2 \lambda} G \frac{\partial}{\partial t} grad_n Rg_{ik}(X+) \left[\frac{K}{T^2} \right], \quad grad_n = \frac{\partial}{\partial Y}.$$

Here $G = 6.67 * 10^{-8}$, $\hbar = \Pi^2 \lambda T$ a stream of quantum energy $\varepsilon = \Pi^2 \lambda = \Delta m c^2$ of a field of inductive weight (Δm) of exchange quantum $(Y- = \frac{p}{n})$ of Strong Interaction, and also $(Y- = 2n)$ nucleons $(p \approx n)$ of a atomic nuclei. The inductive weight $\Delta m(Y- = X+)$ is represented indissoluble quark models $\Delta m(Y-) = u$ and $\Delta m(X+) = d$ quarks. This one $(Y- = X+)$ indissoluble space-matter. Decisions of the equations of quantum fields of Strong Interaction, their presence indissoluble $(Y- = u)(X+ = d)$ quarks models of uniform $(Y- = X+)$ space-matter assumes. These are exchange quantum, inductive mass $(Y- = X+)$ fields mesons. The uniform equations assume presence in a kernel closed (rot_Y) (vortical) in core shells, $(X- = p^+)$ magnetic fields of protons in quanta $(Y- = p/n)$ and vortical (rot_X) mass $(Y-)$ trajectories of exchange quanta мезонов, them quark models. These are fields of Strong Interaction of nucleons of a kernel in them electro $(Y+ = X-)$ magnetic (charging) and gravity $(X+ = Y-)$ mass interaction. In integrated decisions such the equations are available $(C_1, C_2, C_3 \dots)$ various specific energy of communication of nucleons in kernel covers. Various structures of products of disintegration of elementary particles give various generations $(Y- = u)(X+ = d)$ of quarks, as models. Here to quanta $(Y- = p/n)$, $(Y- = 2n)$ Strong Interaction of nucleons $(p \approx n)$ of a cores, there corresponds the equation:

$$G(X+) = \psi \frac{\hbar \lambda}{\Delta m^2} G \frac{\partial}{\partial t} grad_n Rg_{ik}(X+) .$$

Weight $m = p = 938.28 \text{ MeV}$ of a proton. These $(Y-)$ quanta are connected by inductive weight $\Delta m(Y-) = 2\alpha * p = 13,69 \text{ MeV}$, exchange quantum meson in quark its models. Here = $\cos \varphi(Y-)_{MAX} = \frac{1}{137.036}$, with the minimum specific energy of communication $6,85 \text{ MeV}$ of nucleons of a cores.

In uniform $(Y- = X+)$ quantum space-matter of a kernel there are density equations $\left[\frac{1}{T^2} \right]$ mass $(X+ = Y-)$ gravity and $(Y+ = X-)$ electromagnetic water

$$\frac{1}{r} G(X+) = c * rot_x M(Y-) - \varepsilon_2 \frac{\partial G(X+)}{\partial t} \quad \text{and} \quad \frac{1}{r} E(X+) = c * rot_x B(X-) - \varepsilon_2 \frac{\partial E(X+)}{\partial t}.$$

Such equations of quantum fields are considered in each specific case.

In the most general case, dynamics $rot_x M(Y-)$ of inductive mass fields («the latent weights») is caused by dynamics of a source of gravitation.

$$c * rot_x M(Y-) = \frac{1}{r} G(X+) + \varepsilon_2 \frac{\partial G(X+)}{\partial t}.$$

For $n \neq 1$, and $n = 2, 3, 4 \dots \rightarrow \infty$, we receive quasipotential $G(X+)$ fields of accelerations $G(X+)$ of a quantum gravitational field, as gravitation source $\frac{\psi}{t^r} G * grad_n \left(\frac{1}{2} R g_{ik} \right) (X+)$, with limiting $(\cos \varphi(X-)_{MAX} = G)$ - a corner of parallelism of a quantum $G(X+)$ field of Strong Interaction in this case and the period $T = \frac{\lambda}{c}$ of quantum dynamics. Quasipotential $G(X+)$ fields of a quantum gravitational field of accelerations, on distances $c * t = r$ look like:

$$G(X+) = \frac{\psi * \lambda}{r} \left(G * grad_n \left(\frac{1}{2} R g_{ik} \right) (X+) + \alpha * grad_n (T_{ik}) (Y-) \right), \quad r \rightarrow \infty.$$

This equation of a quantum gravitational field **of accelerations** $G(X+) = v_Y M(Y-)$, mass trajectories with a principle of equivalence of inert and gravitational weight. It has a basic difference with the equation of gravitational **potentials** of the General Theory of the Relativity.

Component of a gravitational quasipotential $G(X+) = v_Y M(Y-)$, field, тензор energy - an impulse (T_{ik}) concern inductive mass fields in physical vacuum. In brackets we have a gradient of potentials gravity $(X+ = Y-)$ a mass field.

$$G * grad_n \left(\frac{1}{2} R g_{ik} \right) (X+) + \alpha * grad_n (T_{ik}) (Y-) = G * \alpha * grad_\lambda \frac{1}{2} \Pi(X+ = Y-).$$

$$\text{From here follows } G(X+) = \frac{\psi(\lambda=1)}{r} * G * \alpha * grad_\lambda \left(\frac{1}{2} \Pi(X+ = Y-) \right).$$

The general gravitational potential $\Pi(X+ = Y-)$ in a general view, includes also potential of a source of gravitation $\left(\frac{1}{2} R g_{ik} \right) (X+)$ and quasi potential $(T_{ik}) (Y-)$ fields of inductive weights. These are mathematical trues of the uniform equations of uniform $(Y\mp = X\pm)$ space-matter.

Examples.

For angular speed $\left(\omega = \frac{2\pi r}{T} = \frac{1^r}{t} \right) \left[\frac{r}{s} \right]$ of inductive mass $M(Y-)$ trajectories in orbits (r) round the Sun in its $G(X+)$ field of gravitation, is вращение this field.

$$rot_y G(X+) = -\mu_2 * \frac{\partial N(Y-)}{\partial t} = -\frac{\partial M(Y-)}{\partial t} \quad \text{or} \quad rot_y G(X+) = \omega M(Y-).$$

For Merkurija, in перигелии $r_M = 4,6 * 10^{12}$ см, at average rate $4,736 * 10^6$ см/с there is a centrifugal acceleration $a_M = \frac{(v_M)^2}{r_M} = \frac{(4,736 * 10^6)^2}{4,6 * 10^{12}} = 4,876$ см/с². The weight of the

Sun $M_S = 2 * 10^{33}$ г, and Sun radius $r_0 = 7 * 10^{10}$ см, create acceleration $G(X+)$ a field of gravitation with $(\psi = 1)$ in a kind.

$$g_M = G(X+) = \frac{1 * (\lambda=1)}{r_M} * G * \frac{M_S}{2r_0} * \alpha, \quad \text{or} \quad g_M = \frac{6,67 * 10^{-8} * 2 * 10^{33}}{2 * 4,6 * 10^{12} * 7 * 10^{10} * 137} = 1,511 \text{ см/с}^2.$$

From the relation $R_{ik}(X+) = 2\psi \left(\frac{1}{2} R g_{ik}(X+) + \kappa T_{ik}(Y-) \right)$, analogue parities in space of accelerations, inductive mass $M(Y-)$ trajectories round the Sun of the space-matter on average radius $r_M = 5,8 * 10^{12}$ см in a kind follow.

$$a_M(X+) - g_M(X+) = \Delta(Y-) = 4,876 - 1,511 = 3,365 \text{ см/с}^2.$$

From the equation $(X+ = Y-)$ mass gravity fields $rot_y G(X+) = \omega M(Y-)$, follows $\frac{\Delta(Y-)}{\sqrt{2}} = \frac{2\pi r}{T} M(Y-)$, turn perihelion Merkurija in time (T) . For 100 years = $6,51 * 10^{14}$ seconds, this turn of mass $M(Y-)$ trajectories makes $\frac{\Delta(Y-) * 6,51 * 10^{14}}{r_M * 2\pi \sqrt{2}} (57,3^0) = 42,5''$. Similarly

For the Earth, on distance of an orbit of the Earth and speed of the Earth $v_3 = 3 * 10^6$ см/с in an orbit $r_3 = 1,496 * 10^{13}$ см, centrifugal acceleration is equal

$$a_3 = \frac{(v_3)^2}{r_3} = \frac{(3 * 10^6)^2}{1,496 * 10^{13}} = 0,6 \text{ см/с}^2.$$

Acceleration $G(X+)$ a field of gravitation of the Sun $r_0 = 7 * 10^{10}$ см, , with weight (M_s) and ($\psi = 1$), is available

$$g_3 = G(X+) = \frac{1}{r_3} * G * \frac{M_s}{2r_0} * \alpha = \frac{6.67*10^{-8}*2*10^{33}}{2*1.496*10^{13}*7*10^{10}*137} = 0.465 \text{ см/с}^2 .$$

Similarly $a_3(X+) - g_3(X+) = \Delta(Y-) = 0,6 - 0,465 = 0,135 \text{ см/с}^2$. From this acceleration of inductive mass $M(Y-)$ trajectories space-matter round the Sun, turn perihelion orbits of the Earth follows, by analogy and makes $\frac{\Delta(Y-)*6.51*10^{14}}{r_3*2\pi} (57,3^0) = 5,8''$.

For Venus, under the same scheme of calculation, turn перигелия Venus $r_B = 1.08 * 10^{13}$ см, and speeds $v_B = 3,5 * 10^6$ см/с, centrifugal acceleration of Venus in an orbit makes

$$a_B = \frac{(v_B)^2}{r_B} = \frac{(3,5*10^6)^2}{1.08*10^{13}} = 1,134 \text{ см/с}^2 .$$

Similarly, the acceleration $G(X+)$ of the solar gravitational field in the orbit of Venus is.

$$g_B = G(X+) = \frac{1}{r_B} * G * \frac{M_s}{2r_0} * \alpha = \frac{6.67*10^{-8}*2*10^{33}}{2*1.08*10^{13}*7*10^{10}*137} = 0.644 \text{ см/с}^2 .$$

Accelerations of inductive mass $M(Y-)$ trajectories of space-matter round the Sun,

$$a_B(X+) - g_B(X+) = \Delta(Y-) = 1,134 - 0.644 = 0,49 \text{ см/с}^2 .$$

From here turn perihelion Venus follows: $\frac{\Delta(Y-)*6.51*10^{14}}{r_3*\pi} (57,3^0) = 9,4''$ seconds for 100 years.

Such design values are close to observable values. Essentially that from Einstein's formula for displacement перигелия Меркурија,

$$\delta\varphi \approx \frac{6\pi GM}{c^2 A(1-\varepsilon^2)} = 42,98'', \text{ for 100 years,}$$

$$c^2 A(1-\varepsilon^2) * \delta\varphi \approx 6\pi GM, \quad (c^2 A - c^2 A\varepsilon^2)\delta\varphi \approx 6\pi GM.$$

It is not visible the reasons of such displacement, except as space curvatures from the equation General Theory of Relativity.

Actually, it is a question of presence of inductive mass $M(Y-)$ fields of space-matter, and their rotation round the Sun, as the reasons, according to dynamics equations.

For the same reasons, we will consider movement of the Sun round the Galaxy kernel. The initial data. Speed of the Sun in the Galaxy $v_s = 2,3 * 10^7$ см/с, weight of a cores of the Galaxy $M_{\text{я}} = 4,3$ млн. $M_s = 4,3 * 10^6 * 2 * 10^{33}$ г, distance to the centre of the Galaxy 8,5 кпк or $r = 2,6 * 10^{22}$ см. Centrifugal acceleration of the Sun in a galactic orbit:

$$a_s = \frac{(v_s)^2}{r} = \frac{(2,3*10^7)^2}{2,6*10^{22}} = 2 * 10^{-8} \text{ см/с}^2 .$$

Исползую this technology of calculation, we will estimate core radius of our Galaxy $r_{\text{я}}$. In exactly this formula of calculation we will receive ($r_{\text{я}}$) core radius of our Galaxy $g_s = G(X+)$.

$$a_s = G(X+) = \frac{1}{r} * G * \alpha * \frac{M_{\text{я}}}{2r_{\text{я}}}, \quad \text{whence}$$

$$r_{\text{я}} = \frac{1}{r} * G * \alpha * \frac{M_{\text{я}}}{2a_s} = \frac{6.67*10^{-8}*4,3*10^6*2*10^{33}\text{г}}{2*137*2,6*10^{22}*2*10^{-8}} = 4 * 10^{15} \text{ см} \approx 267 \text{ a. e.,}$$

1a. e. = $r = 1,496 * 10^{13}$ см or 1пк = $3 * 10^{18}$ см, , then $r_{\text{я}} \approx 1,3 * 10^{-3}$ пк. Such radius in our Galaxy corresponds to a gradient of all mass fields of a source of gravitation,

$$G(X+) = \frac{\psi(\lambda=1)}{r} * G * \alpha * \text{grad}_{\lambda}(\frac{1}{2}\Pi(X+=Y-)), \text{ with radius } r_{\text{я}} \approx 1,3 * 10^{-3} \text{ пк.}$$

Limits of the measured radius $r_{0\text{я}} \approx 10^{-4}$ пк. Their parity gives a parity of their weights.

$$\frac{r_{0\text{я}}}{r_{\text{я}}} * 100\% = \frac{10^{-4}}{1,3*10^{-3}} * 100\% = 7,69 \%$$

It means that the weight of a kernel of the Galaxy makes 7,69 % the latent mass $M(Y-)$ fields.

Thus, decisions of the equations of quantum gravitational fields yield results within the measured.

CONCLUSIONS.

Quantum gravitation follows from properties of dynamical space, as matters. Such quantum гравитмассовые fields, look like quasipotential quantum fields. They contain mass fields of a source of gravitation and inductive mass fields of physical vacuum, with their rotation round a gravitation source. Quantum gravitational fields and fields of Strong Vzaimodejstivija of a source of gravitation, are presented in one mathematical true.

Literature.

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