

## On Gravidynamic Forces.

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It was proposed in papers [1] and [2] to describe gravidynamic field with the help of Maxwell type equations in which first time derivative is changed with the second one. Such field is characterized by a certain constant which has dimension of acceleration.

It characterizes gravidynamic field just in the same sense as light velocity characterizes electrodynamic field. One can say that electricity is the field of velocities and gravity is the field of accelerations.

In order to describe interaction of two gravidynamic fields a formula can be proposed similar to generalized formula for electrodynamic fields proposed in [3]. This formula shows that two masses interaction depends not only on distance but on accelerations and third and fourth time derivatives in general. This is also similar to electric charge interaction which depends on velocities and accelerations. In static case this formula naturally comes to Newton gravity law. Dynamic version of gravitational interaction predicts planets perihelium displacement, gravitational “red shift”, differential rotation of the Sun and gasliquid planets, additional force in galaxies which today is interpreted as “dark mass”. On the Earth this formula predicts continental drift, explains observed character of ocean and atmosphere currents, changes in the velocity of own Earth rotation and some other.

In the framework of this approach electron model as a massive torus is proposed. The mass drawing this torus performs two curling movement: in equatorial and meridional planes of the torus. Equatorial rotation defines charge and meridional rotation defines electron spin.

Experiment shows that the force of electric repulsion of two electrons is  $4,17 \cdot 10^{42}$  times bigger than the force of their gravitational attraction. This helps to find angular velocity of electron

equatorial rotation. It is  $8,145 \cdot 10^{20} \frac{rad}{s}$ . It coincides with De-Broglie frequency of electron in

rest and radius of the greater circumference defining torus coincides with its Compton Wave length. If  $\omega$  is angular velocity of electron equatorial rotation then

$$2\pi\omega^2 = 4,17 \cdot 10^{42} \quad (1)$$

Electron charge

$$m\omega = 7,4 \cdot 10^{-10} \frac{K^2}{c} \quad (2)$$

Here  $m$  is electron mass also gained from electrodynamic reasoning and coinciding with experimental value, i.e.  $m = 9,1 \cdot 10^{-31} kg$ . Charge sign is defined by the screw which angular velocity of equatorial rotation constitutes with angular velocity of meridional rotation: it is right or left. If correlation (2) is established one can express all electrodynamic quantities in mechanic terms [4]. In particular dielectric constant  $\epsilon_0$  has dimension of mass density and magnetic constant  $\mu_0$  has dimension of compressibility of a certain medium which fills the space. Physical text books usually call it “physical vacuum”. The author does not use this term because of its logic and aesthetic ugliness and prefers term “ether”. Any “apriori” qualities are not prescribed to this term except those which are consequences of the experiments and proposed theories. In particular this means that light velocity in free ether is just speed of the sound in it and

$$c^2 = \frac{1}{\epsilon_0 \mu_0} \quad (3)$$

## References.

- [1]. J.G. Klyushin, “On the Maxwell Approach to Gravity”, Report in seminar of St. Petersburg Physical Society, St. Petersburg, Russia, 1995.
- [2]. J.G. Klyushin, “Electro – and Gravidynamics”, NPA conference, Storrs, Connecticut, 2003.
- [3]. J.G. Klyushin, “A Field Generalization for the Lorentz Force Formula”, “Galilean Electrodynamics”, v11, №5, p83
- [4]. J.G. Klyushin, “Mechanical Dimensions for Electrodynamical Quantities”, “Galilean Electrodynamics”, v11, №5, p90

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