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## TO THE QUESTION OF GRAVITATION

***Annotation:** The unite of the laws of nature implies a single of origin and structure of the world around. As the atomic-molecular structure is unified for matter, both the gravitational and electromagnetic fields must have a single structure, which differs in quantitative characteristics. The electromagnetic field differs from the gravitational field only by frequency indicators.*

***Key words:** Substance, field, gravitation, charge-particle, resonance, pressure.*

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## К ВОПРОСУ О ТЯГОТЕНИИ

***Аннотация:** Единство законов природы предполагает единую природу происхождения и устройства окружающего мира: как атомно-молекулярная структура является единой для вещества, так и электромагнитное и гравитационное поля должны иметь единую структуру, различающуюся количественными характеристиками. Гравитационное поле отличается от электромагнитного только частотными показателями.*

**Ключевые слова:** Поле, гравитация, заряженные частицы, резонанс, давление.

*The material world is based on the common set of phenomena, processes, initial material particles that comply with the same laws of nature. It is noted that gravity and electricity are much strongly connected than it seems /1/. Gravitational waves in accordance with Einstein's theory of gravity are compared with electromagnetic waves /2/, the unified theory of gravity and electromagnetism is considered as a natural form /3/.*

*The world is material: the space is filled with initial particles, the size of which is greatly, many trillions of times, less than the size of elementary particles. These basic particles make up fields and elementary particles, and, therefore, matters, bodies. Structured, complex-organized basic particles form elementary particles, both stable (proton, electron, photon, neutrino) and unstable, created under specific conditions and decaying upon conditions changes, having different lifetime.*

*The unite of the laws of nature implies a single nature of origin and structure of the world around. As the atomic- molecular structure is unified for matter, both the gravitational and electromagnetic fields must have a single structure, which differs in quantitative characteristics. The electromagnetic field differs from the gravitational field only by frequency indicators.*

*Free, not joined into elementary particles, initial particles make up fundamental forces. From the genesis point of view, elementary particles are composed of the original particles. Therefore, it is necessary to consider strong, weak and electromagnetic interactions as a kind of gravitational. Changing the quantitative characteristic – frequency - causes a change in the quality of the field, its properties. All the fundamental forces: strong, electromagnetic, weak, gravitational - are the kinds of the same force, acting in different conditions. Two forces, gravitational and electromagnetic, interact at a large, unlimited distance. In particular, an electrostatic force has a feature that is similar to the gravitational*

*force: the total work is equal to zero when the path is a closed loop /4, p.213/. The other two forces, strong and weak, are acting at a close distance, revealing only on nuclear level or during elementary particles transformations. The force acts as a transmitter of interaction between bodies.*

*The force conducts electric, magnetic and electromagnetic waves. Moving electric charges form magnetic field. A changing magnetic field generates an electric field. The existence of interconnected electric and magnetic fields reveals itself as an electromagnetic field /5, p.256/. The field is a cluster of charged initial particles: the smallest initial particles have electric charges and conduct themselves like waves. In particular, saturation of bodies, objects, with the initial charges-particles, or the impact of a force on bodies objects, charges them, (i.e. the Earth), and the rotation of the charged Earth forms its magnetic field.*

*According to de Broyle's theory, a wave is associated with each body (particle), reflecting the nature of its movement. The characteristics of waves associated with bodies are determined through the energy  $E$  and momentum  $p$  of the body:  $E=n \cdot h$  and  $p=h:l$  /4, p.367/. Calculating the wavelength of the proton, we get  $1,4 \text{ \AA}$  /4, p.369/, which corresponds to the frequency  $n$  of about  $10$  to a power of  $18$   $1/s$ . Since the frequency is proportional to the energy, and the energy of the gravitational field is 36 orders of magnitude less than the electromagnetic field, the frequency of the gravitational field will be approximately of about  $10$  to a power of  $55$   $1/s$ . However, the calculation according to the molecular kinetic theory shows vibration frequency of the particles that make up the gravitational field, approximately equal to  $10$  in the wall  $40$   $1/s$ . Apparently, the frequency band inherent in the gravitational field is located within the exponent of  $40-55$   $\pm$  %.*

*The smallest initial particles are in thermodiffusion motion, so they interact by elastic collisions of a large number of particles and create a specific pressure on the bodies. From a practical point of view, the gravitational field can be considered as a kind of electromagnetic field with a frequency of about  $10$  to a power of  $40-55$   $1/s$ . Moving charges- particles oscillate at an average frequency of  $10$  to  $40-55$   $1/s$ . The*

*effect on them with the same frequency will increase the intensity of their movement (amplitude, acceleration) and, therefore, pressure. In bodies and near them, the intensity of chaotic movement of oscillating charges-particles decreases and pressure decreases. Between bodies, the pressure of randomly moving charges-particles is lower than behind the external, opposite sides of the bodies, because of it the bodies are pushed towards each other, or, "attracts". By impacting locally on areas of space between bodies-object and the Earth, you can change the force of attraction of objects to the Earth.*

*When impacting on oscillating particle-charge with alternating external force of coinciding frequency- harmonic oscillations are occurring, establishing at frequency of external swinging force. The dependence of the amplitude of the steady oscillations from the frequency of external impact is resonant, because, it increases sharply when the external frequency approaches the own frequency of the oscillating particles /2, p.266/. Therefore, the pressure exerted by the particles increases. The effect of electromagnetic radiation of the coincident frequency on the initial particles-charges will cause an increase in the amplitude and acceleration of the initial particles-charges between bodies and will reduce or even exceed the pressure of the set of the initial particles on the external opposite sides of the bodies. Due to this, the attraction of bodies will be reduced or even their repulsion will occur.*

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