THE DISCOVERY OF GLOBAL ANISOTROPY OF PHYSICAL SPACE AND NEW NON-GAUGE INTERACTION: FUNDAMENTAL EXPERIMENTS, THEORETICAL DESCRIPTION AND PRACTICAL APPLICATION

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An experimental studies of attraction of very weak paramagnetic (WP) probes located inside high current solenoids with strong uniform fields (B up to 15 T), using torsional and high noise-stability piezoresonance weights, showed that the WP material in certain regions of the solenoid is not attracted to it, but is repelled. Such repulsion zone moves over the aperture of the solenoid with a speed of 15°–18° per hour. These experiments, carried out from 1987 to 1994 at the experimental bases IAE named after I.V. Kurchatov and IOFRAN, using the direction of the vector potential of the solenoids in the zone of repulsion, allowed to unveil for the first time the anisotropy of physical space, which the one from coauthors identified with the direction of the cosmological vector potential A_g – a new fundamental vectorial constant, introduced in [1]. The analysis these experiments created a theory of byuon [2]. That is a theory of "life' of special discrete objects (byuons) from which the surrounding space and the world of ultimate particles form. The expression of byuons includes the vector A_g (astronomical coordinates in the second equatorial system: $\alpha \approx 293° \pm 10°$, $\delta \approx 36° \pm 10°$ where α is the right ascension and δ is the declination).This theory created a basing of new force nature because part of ultimate particles mass is proportional to modulus summary potential A_Σ ($|A_\Sigma| \leq |A_g|$). The present report is devoted the universal anisotropic property of global anisotropy of physical space and new interaction in nature in a wide range of dimensions based on analyzing fluctuations in the intensity of the β- decay (10^{-17}cm) [3,4], α-decay of radioactive elements (10^{-13} cm) [5], motion of pulsars [5] (size of our Galaxy (10^{22}cm) and anisotropy of cosmic rays up to ultrahigh energies [5] (size of our Universe 10^{28} cm). The report is devoted a practical using of new force for motion in space too. The one-year long experiment carried out in Italy (2012–2013) to study the use of a new force of nature in the form of thrust for a spherical ship (model of spacecraft), identified a direction in the physical space with the coordinates $\alpha \approx 300°$–$310°$, which is very close to the earlier results. The results of the experiments are on the order of ten times greater than the experimental error [6].

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