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What if quantum vacuum fluctuations are virtual gravitational dipoles?

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The hypothesis stated in the title might be the basis for a new model of the Universe. According to the new model, the only content of the Universe is the known Standard Model matter (i.e. matter made from quarks and leptons interacting through the exchange of gauge bosons) immersed in the quantum vacuum "enriched" with virtual gravitational dipoles. Apparently, what we call dark matter and dark energy, can be explained as the local and global effects of the gravitational polarization of the quantum vacuum by the immersed baryonic matter. Further, the hypothesis leads to a cyclic model of the Universe with cycles alternatively dominated by matter and antimatter; with each cycle beginning with a macroscopic size and the accelerated expansion. Consequently, there is no singularity and there is an elegant explanation of the matter-antimatter asymmetry in the universe: our universe is dominated by matter because the previous cycle of the Universe was dominated by antimatter. The forthcoming experiments (AEGIS, ALPHA, GBAR ⋯) will reveal if particles and antiparticles have gravitational charge of the opposite sign, while study of orbits of tiny satellites in trans-Neptunian binaries (e.g. UX25, Eris-Dysnomia⋯) can be a reasonable test of some astronomical predictions of the theory.

Primary author: HAJDUKOVIC, Dragan (Institute of Physics, Astrophysics and Cosmology; Cetinje, Montenegro)

Presenter: HAJDUKOVIC, Dragan (Institute of Physics, Astrophysics and Cosmology; Cetinje, Montenegro)

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