HAMILTONIAN UNIFICATION OF GENERAL RELATIVITY AND STANDARD MODEL

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Abstract

The Hamiltonian approach to the General Relativity and the Standard Model is studied in the context of its consistency with the Newton law, the Higgs effect, the Hubble cosmological evolution and the Cosmic Microwave Background radiation physics.

The version of the Higgs potential is proposed, where its constant parameter is replaced by the dynamic zeroth Fourier harmonic of the very Higgs field. In this model, the extremum of the Coleman–Weinberg effective potential obtained from the unit vacuum–vacuum transition amplitude immediately predicts mass of Higgs field and removes tremendous vacuum cosmological density.

We show that the relativity principles unambiguously treat the Planck epoch, in the General Relativity, as the present-day
one. It was shown that there are initial data of the Electro-Weak epoch compatible with supposition that all particles in the Universe are final products of decays of primordial Higgs particles and W-, Z-vector bosons created from vacuum at the instant treated as the ”Big-Bang”.