QUINTESSENCE AND PHANTOM ENERGY INHOMOGENEITIES AT LATE STAGES OF UNIVERSE EVOLUTION

Alvina Burguzli, Maxim Eingorn, Alexander Zhuk
Department of Theoretical Physics Astronomical Observatory Odessa National University

As if directly follows from the theory of scalar perturbations, applied to late stages of evolution of the Universe, filled with dark energy, nonrelativistic matter and, possibly, quintessence or phantom energy, the last two components can not be homogeneous. Therefore, if we follow other authors and include such components in the homogeneous cosmological background (for example, as an alternative to the cosmological constant, but not necessarily), we should take into account their essentially inhomogeneous distribution, possibly, related strictly to that of other inhomogeneities (such as galaxies).

We demonstrate that -1/3 is the only admissible negative parameter in the non-vacuum equation of state, determine the corresponding gravitational potentials and discuss their main properties.