General Relativity and Quantum Cosmology

Expanding Universe and its manifestations beyond the General Relativity

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It has been demonstrated that a modern stage of the Universe expansion may be described in accordance with the observations within the scope of the space-time conformal geometry. The clock synchronization procedure in SR has been generalized to the case of the expanding space. It has been found that a universal local manifestation of the cosmological expansion is a background acceleration, the value of which is determined by Hubble constant. The formulae defining an explicit red-shift dependence of the cosmological distance and expressions for Hubble law have been obtained in a pure kinematic way from the conformal group transformation, providing a quantitative representation of the Pioneer anomaly and of the effect associated with the experimentally revealed Metagalaxy transition to its accelerated expansion

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