The Relationship between the Speed of Light and Cosmic Background Potential

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Abstract : In this paper, the effect of Cosmic Background Gravitational Potential (CBGP) was discussed. It is helpful to reveal the equivalence of gravitational and inertial mass, and to understand the origin of inertia. The derivation is similar to the classic approach adopted by Landau in the book 'Classical Theory of Fields'.The main differences are that we used CBGP = Lambda^2 instead of c^2, and used CBGP energy E = m*Lambda^2 instead of kinetic energy E = (1/2)m*v^2 as initial assumptions (where Lambda has the same units for measuring velocity). It showed that Lorentz transformation, rest energy and Newtonian mechanics are all affected by $CBGP$, and the square of the speed of light is equal to CBGP too. Finally, the top value of cosmic mass density and cosmic radius were discussed.