General Relativity and Quantum Cosmology

Consistency of Equations for the Single Scalar Field Case in Second-order Gauge-invariant Cosmological Perturbation Theory

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We derived the second-order perturbations of the Einstein equations and the Klein-Gordon equation for a generic situation in terms of gauge-invariant variables. The consistency of all the equations is confirmed. This confirmation implies that all the derived equations of the second order are self-consistent and these equations are correct in this sense. We also discuss the physical implication of these equations.

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