Nonlinear quantum inflaton fluctuations in the early universe[1]

BOJAN LOSIC, University of British Columbia — The significance of nonlinear quantum fluctuations in a massless, minimally coupled, inflaton is studied in the limit of very slow roll. In particular we examine their effect, to linear order, on the metric fluctuations they induce by consistently solving the regularized Einstein equations. We find that the quantum state describing these flucuations must be $SO(4,1)$ invariant if perturbation theory is to be consistent to second order.

[1]Work done in collaboration with W.G. Unruh at UBC

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