

Abstract Submitted
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Accumulation of Quantum Fluctuation Effects in a Time Dependent Spacetime¹ VICTOR PARKINSON, L.H. FORD, Tufts University — Certain observables in quantum gravity can be expressed as a double integral in time of a Riemann tensor correlation function. These observables include measures of angular blurring and spectral line broadening due to quantum fluctuations. On a flat background, these effects do not grow with increasing distance between a source and a detector, due to cancellation of anticorrelated fluctuations. We discuss the possibility that a time dependent background, such as a cosmological model with small oscillations in the scale factor, can upset these cancellations and lead to effects which grow with distance. This possibility will be illustrated with a simple analog model involving a charged particle oscillating near a mirror. In the quantum gravity context, noncancellation of fluctuations might lead to observable effects.

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