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Quantum-gravity footprints in the inflationary power spectrum

A framework to obtain quantum-gravity corrections to the inflationary power spectrum will be presented. The geometrodynamical quantization of an inflationary universe will be performed. The wave function will then be decomposed into its infinite set of moments. In order to implement a semiclassical approximation, the infinite set of equations and constraints obeyed by these basic variables will be truncated at second order. In the next step the scale factor of the universe will be chosen as an adequate internal time variable. Finally, this general framework will be applied to a de Sitter model, which will allow us to solve explicitly the evolution equations of the fluctuations and correlations of different variables and to obtain the specific quantum-gravity corrections for the power spectrum. In particular, it will be shown that these corrections are more relevant for large scales.

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