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Quantum Cosmology of Quadratic f(R) Theories with a FRW Metric.

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Content

We study the quantum cosmology of a quadratic f(R) theory with a FRW metric, via one of its equivalent Horndeski type actions, where the dynamic of the scalar field is induced. The classical equations of motion and the Wheeler-DeWitt equation, in their exact versions, are solved numerically. There is a free parameter in the action from which two cases follow: inflation + exit and inflation alone. The numerical solution of the Wheeler-DeWitt equation depends strongly on the boundary conditions, which can be chosen so that the resulting wave function of the universe is normalizable and consistent with Hermitian operators.

Summary

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