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The cosmological constant in Loop Quantum Cosmology revisited

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The current acceleration of our Universe leads to the question of a possible origin of a cosmological constant. Within loop quantum cosmology a recent proposal yields an effective model including a behavior corresponding to it which origin lies in the relative weight of two pieces entering the Hamiltonian constraint, Euclidian and Lorentzian. Matching with the observations essentially fixes such relative weight. However, this analysis does not take into account the selfadjoint character of the Hamiltonian constraint. In this work, we take a first step in this direction. Previous, selfadjointness results developed for the purely Euclidian term are here extended to incorporate it with the Lorentzian one. The ensuing effective dynamics is studied together with its possible consistency with observations.

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