

Physik-Combo



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Towards a manifestly supersymmetric formulation of loop quantum supergravity

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We study the idea to quantize supergravity in the framework of loop quantum gravity in a way such that the resulting theory still reflects, at least partially, the underlying supersymmetry. Therefore, following the approach of D'Aurea and Fre, we consider supergravity as super Cartan geometry and derive a super analog of Ashtekar's connection. This sets the stage for a quantisation of the theory that might lead to a unified description of both, gravity and matter degrees of freedom. We will then apply this approach to symmetry reduced models and will then see that this leads in a very elegant way to a quantum theory in accordance with the standard state space of loop quantum cosmology in presence of fermionic matter fields.

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