



Contribution ID: 334

Type: **Talk in the parallel session**

Supergravity in LQG

Wednesday, 7 July 2021 10:30 (25 minutes)

This talk is devoted to the quantization of supergravity in a formulation in which (part of) supersymmetry manifests itself in terms of a gauge symmetry. Applications we have in mind are supersymmetric black holes and loop quantum cosmology.

We will derive the Holst variant of the MacDowell-Mansouri action for $\mathcal{N} = 1$ and $\mathcal{N} = 2$ supergravity in $D = 4$ for arbitrary Barbero-Immirzi parameters. We will show that these actions provide unique boundary terms that ensure local supersymmetry invariance at boundaries. The chiral case is special. The action is invariant under an enlarged gauge symmetry, and the boundary theory is a super Chern-Simons theory. The action also implies boundary conditions that link the super electric flux through, and the super curvature on, the boundary.

We will also study chiral symmetry reduced models with local supersymmetry. The enlarged gauge symmetry of the chiral theory is essential as it allows for nontrivial fermionic degrees of freedom even if one imposes spatial isotropy.

Primary author: EDER, Konstantin (Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU))

Presenter: EDER, Konstantin (Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU))

Session Classification: Loop Quantum Gravity

Track Classification: Quantum Gravity: Loop Quantum Gravity