

Pullin vacuum

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The quantum state of the flat Ashtekar-Barbero connection is quite well defined in Loop Quantum Gravity theory as an element of the dual space to cylindrical functions. This state is not pathological at all, as Jorge Pullin noticed many years ago, and it can be treated as vacuum. From Pullin's vacuum, other states can be generated using LQG operators. It is easy to construct from them partial solutions of the vector constraints as well as the subspace preserved by the action of the quantum scalar constraint. Pullin's vacuum becomes Minkowski vacuum when we take the original, self-dual Ashtekar variables as the starting point. This opens up a new path to LQG in complex self-dual variables.

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