

Abstract Submitted
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The loop quantum gravity black hole JORGE PULLIN, Louisiana State University, RODOLFO GAMBINI, Universidad de la Republica Oriental del Uruguay — We study the quantization of vacuum spherically symmetric spacetimes. We use variables adapted to spherical symmetry but do not fix the gauge further. One is left with a diffeomorphism constraint and a Hamiltonian constraint. Rescaling the latter turns the constraint algebra into a true Lie algebra and allows to implement the Dirac quantization procedure. We find exactly the physical states annihilated by all constraints using loop quantum gravity techniques. The spacetime metric can be recovered as an evolving constant of the motion in terms of Dirac observables. The singularity is resolved as was anticipated in previous semiclassical studies. The quantum theory has new observables with respect to the classical theory that may play a role in discussions of “firewalls” during black hole evaporation.

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