

Abstract Submitted  
for the APR21 Meeting of  
The American Physical Society

**Universality and Scaling in the Collapse of Spherical Scalar Fields in Loop Quantum Gravity** JORGE PULLIN, Louisiana State University, FLORENCIA BENTEZ, Instituto de Física, Facultad de Ingeniería, Universidad de la República, Montevideo, Uruguay, RODOLFO GAMBINI, Instituto de Física, Facultad de Ciencias, Universidad de la República, Uruguay, LUIS LEHNER, Perimeter Institute, Waterloo, Canada, STEVE LIEBLING, Long Island University, Long Island, NY — We study the collapse of a massless scalar field in spherically symmetric loop quantum gravity using the semi-classical effective equations of motion. In spite of the presence of a characteristic length (the Planck length), the phase transition from no black hole to black hole formation remains second order like in classical general relativity. We study several details of the behavior near criticality as a function of the polymerization parameter of loop quantum gravity.

Jorge Pullin  
Louisiana State University

Date submitted: 11 Jan 2021

Electronic form version 1.4