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# Quantum gravity of dust collapse

*Wednesday 19 June 2024 09:30 (30 minutes)*

I will present a study on the quantum gravitational collapse of spherically symmetric pressureless dust. Using an effective equation derived from a polymer quantization in the connection-triad phase space variables of general relativity, numerics show, for a variety of initial dust configurations, that (i) trapped surfaces form and disappear as an initially collapsing density profile evolves into an outgoing shockwave; (ii) black hole lifetime is proportional to the square of its mass; and (iii) there is no mass inflation at inner apparent horizons. These results provide a substantially different view of black hole formation and subsequent evolution than found from semiclassical analyses.

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