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A singularity theorem for evaporating black holes

Wednesday, 7 July 2021 09:00 (10 minutes)

The classical singularity theorems of General Relativity rely on energy conditions that are easily violated by quantum fields. In this talk I will provide motivation for an energy condition obeyed by semiclassical gravity: the smeared null energy condition (SNEC), a proposed bound on the weighted average of the null energy along a finite portion of a null geodesic. I will then present the proof of a semiclassical singularity theorem using SNEC as an assumption. This theorem extends the Penrose theorem to semiclassical gravity and has interesting applications to evaporating black holes.

The talk is based on arXiv:2012.11569

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