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A singularity theorem for evaporating black holes ELENI-ALEXANDRA KONTOU, BEN FREIVOGEL, University of Amsterdam, DIMITRIOS KROMMYDAS, University of Leiden — 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 in 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 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. Based on: arXiv:2012.11569

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