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On the viability of regular black holes

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Regular models of black holes replace the central singularity with a nonsingular spacetime region, in which an effective classical geometric description is available. It has been argued that these models provide an effective, but complete, description of the evaporation of black holes at all times up to their eventual disappearance. However, I will show that known models fail to be self-consistent: the regular core is exponentially unstable against perturbations with a finite timescale, while the evaporation time is infinite, therefore making the instability impossible to prevent.

Summary

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