

**Adler, Ronald J.; Chen, Pisin; Santiago, David I.**

**The generalized uncertainty principle and black hole remnants.** (English) Zbl 1003.83020  
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Summary: In the current standard viewpoint small black holes are believed to emit black body radiation at the Hawking temperature, at least until they approach Planck size, after which their fate is open to conjecture. A cogent argument against the existence of remnants is that, since no evident quantum number prevents it, black holes should radiate completely away to photons and other ordinary stable particles and vacuum, like any unstable quantum system. Here we argue the contrary, that the generalized uncertainty principle may prevent their total evaporation in exactly the same way that the uncertainty principle prevents the hydrogen atom from total collapse: the collapse is prevented, not by symmetry, but by dynamics, as a minimum size and mass are approached.

**MSC:**

**83C57** Black holes

**81T20** Quantum field theory on curved space or space-time backgrounds

Cited in **169** Documents

**Keywords:**

[black holes](#); [uncertainty principle](#); [quantum number](#)

**Full Text:** [DOI](#) [arXiv](#)

**References:**

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