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Non-commutative geometry inspired charged black holes. (English) Zbl 1256.83014
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Summary: We find a new, non-commutative geometry inspired, solution of the coupled Einstein-Maxwell field equations describing a variety of charged, self-gravitating objects, including extremal and non-extremal black holes. The metric smoothly interpolates between de Sitter geometry, at short distance, and Reissner-Nordström geometry far away from the origin. Contrary to the ordinary Reissner-Nordström spacetime there is no curvature singularity in the origin neither “naked” nor shielded by horizons. We investigate both Hawking process and pair creation in this new scenario.

MSC:

83C57 Black holes

83C65 Methods of noncommutative geometry in general relativity

Cited in **54** Documents

Keywords:

non-commutative geometry; coupled Einstein-Maxwell field equations

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

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