

Hawking Radiation from Spherically Symmetrical Gravitational Collapse to an Extremal R-N Black Hole for a Charged Scalar Field

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Abstract: Si-Jie Gao has recently investigated Hawking radiation from spherically symmetrical gravitational collapse to an extremal R-N black hole for a real scalar field. Especially he estimated the upper bound for the expected number of particles in any wave packet belonging to H_{out} spontaneously produced from the state $|0\rangle_{\text{in}}$, which confirms the traditional belief that extremal black holes do not radiate particles. Making some modifications, we demonstrate that the analysis can go through for a charged scalar field.

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Key words: Hawking radiation, extremal R-N black holes, charge scalar field

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