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Title:	Decoding infrared imprints of quantum origins of black holes
Authors:	Lochan, K. (/jspui/browse?type=author&value=Lochan%2C+K.)
Keywords:	Analyze Spectrum Emission
Issue Date:	2019
Publisher:	Elsevier
Citation:	Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 789, pp. 276-286.
Abstract:	We analyze the emission spectrum of a (fundamentally quantum) black hole in the Kerr–Newman family by assuming a discretization of black hole geometry and the holographic entropy–area relation. We demonstrate that, given the above structure of black hole entropy, a macroscopic black hole always has non-continuously separated mass states and therefore they descend down in discrete manner. We evaluate the step size of the discrete spectrum, which vanishes in the extremal limit, leading to a continuum spectrum as expected from thermal nature of black holes. This further reveals an interesting relation, in each class, between the dynamic and kinematic length scales for all black holes belonging to the Kerr–Newman family, pointing towards a possible universal character across the class, dependent only on black hole mass. Further, we have presented the computation of maximum number of emitted quanta from the black hole as well as an estimation of its lifetime. We also argue the independence of these features from the presence of additional spacetime dimensions.
Description:	Only IISERM authors are available in the record.
URI:	https://www.sciencedirect.com/science/article/pii/S0370269318309559 (https://www.sciencedirect.com/science/article/pii/S0370269318309559) http://hdl.handle.net/123456789/2219 (http://hdl.handle.net/123456789/2219)
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