CIDMA CENTRO DE I&D EM MATEMÁTICA E APLICAÇÕES
CENTER FOR R&D IN MATHEMATICS AND APPLICATIONS

universidade de aveiro

Gravitational Geometry and Dynamics Group Seminar

Fri., June 13, 2025, at 11h00.

Room: 11.2.23 and **Zoom ID:** 955 4130 8539

(*Password: contact jnicoules@ua.pt*)

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Quantum fermion superradiance in charged black holes

In contrast to a classical charged bosonic field, a classical charged fermionic field does not exhibit superradiant scattering when placed in the background of a static charged black hole. However, we show that a quantum version of this effect does occur. We construct a quantum vacuum state for the fermionic field that contains no incoming particles from past null infinity, yet gives rise to a nonthermal particle flux at future null infinity. This state captures both the gradual loss of charge and energy by the black hole. We also examine how the physical interpretation of this quantum effect is influenced by the inherent ambiguities in choosing a vacuum state.

Based on: https://link.springer.com/article/10.1007/JHEP05(2025)118

More about Gr@v at: gravitation.web.ua.pt

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