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

Wed., February 04, 2026, at 14h00.

Room: Sala Sousa Pinto and **Teams ID:** 315 549 228 668 23

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Classical and Quantum Radiation from Compact Objects

In this talk, we investigate two radiation phenomena around compact objects.
On the quantum side, we consider Hawking radiation around black holes from the perspective of particle pair production in strong electric fields (Schwinger effect). We propose a common formulation in a worldline/path-integral approach, connect to the canonical quantization approach, and comment on the effect of backreaction.
On the classical side, we demonstrate an effect helping to test quantum extensions of general relativity. For definiteness, we investigate actions extending the Einstein-Hilbert term by terms quadratic in curvature, as they naturally appear in the low-energy limit of quantum gravity proposals. Apart from the Schwarzschild solution, the phase space of static, spherically symmetric, and asymptotically flat solutions is dominated by naked singularities and wormholes. Focusing on the former and considering analytical as well as GRMHD models of accretion, we show physical signatures of these objects in radio (for the Event Horizon Telescope) and further parts of the electromagnetic spectrum which are absent for Schwarzschild.

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

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