

Gravitational Geometry and Dynamics Group Seminar

Wed., October 29, 2025, at 14h00.

Room: Online only and Teams ID: 339 418 355 085 5

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at: gravitation.web.ua.pt



Photon rings and shadows of Kerr black holes immersed in a swirling universe

We discuss the existence and locations of light rings in the spacetime of a Kerr black hole immersed in a swirling universe– in other words, the immersion of a rotating black hole into a rotating background. As the spin-spin interaction between the black hole and the background breaks the upper-lower hemisphere symmetry, it allows for interesting new features. Particularly, we highlight that up to three light rings can exist for suitable choices of the black hole spin and the swirling parameter, respectively.

Furthermore, we also discuss the corresponding black hole shadow, which becomes twisted due to the presence of the swirling background.