

Gravitational Geometry and Dynamics Group Seminar

Wed., Jun. 13th, 2024, at 11h00.

Room: Sousa Pinto and Zoom ID: 989 6252 0928

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at: gravitation.web.ua.pt



Probing spacetime, accretion and emission model for the Galactic Center: Comparison of Kerr and dilaton black hole shadows

In the vicinity of black holes, the influence of strong gravity, plasma physics, and emission processes govern the behavior of the system. Since horizon-scale observations are not yet able to unambiguously constrain models for astrophysical and gravitational properties, it is imperative to explore the accretion models, particle distribution function, and description of the spacetime geometry.

We explore a number of combinations of accretion and emission models in a Kerr- and a non-Kerr spacetime, performing general relativistic magnetohydrodynamic and radiative transfer simulations. By choosing a Kerr solution to general relativity and a dilaton solution to Einstein-Maxwell-dilaton-axion gravity as exemplary black hole spacetimes, we aim to investigate the influence of MAD and SANE accretion models, as well as non-thermal emission models on the ability to distinguish black holes in two theories of gravity.