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

Gravitational Geometry and Dynamics (GGD) Group Seminar

Gravitational waves from spontaneously scalarized black holes

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Certain scalar-tensor theories remain viable despite stringent observational constraints from the Solar System due to a Z_2 symmetry that keeps the scalar field dormant in the weak-field regime. However, extreme-gravity environments can trigger a phase transition that promotes the spontaneous growth of the scalar field around compact objects like black holes and neutron stars. This is the phenomenon of spontaneous scalarization. In this talk, I will discuss how we can construct cheap, approximate models of the gravitational waveforms emitted by binary systems in certain scalar-tensor-Gauss-Bonnet theories that allow for the spontaneous scalarization of black holes. We will then confront these waveforms with existing data from the LIGO Scientific, Virgo, and KAGRA Collaborations to establish some of the first constraints on this class of theories.

Wednesday, June 29th 2022, 14H30 || Sala Sousa Pinto

More information about the GGD group and seminars in gravitation.web.ua.pt

The GGD seminars are supported in part by the Portuguese Foundation for Science and Technology (FCT - Fundação para a Ciência e a Tecnologia), through CIDMA - Center for Research and Development in Mathematics and Applications, within project UIDB/04106/2020 and UIDP/04106/2020

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