

Gravitational Geometry and Dynamics Group Seminar

Wed., Oct. 25th, 2023, at 16h00.

Online, Zoom ID: 989 6252 0928 (Password: contact_graposo@ua.pt)

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Neutron stars as laboratories for testing extreme gravity

Due to their high compactness and strong gravitational field, neutron stars offer us natural astrophysical laboratories to test extreme gravity. In this talk, I will explain such tests with binary pulsars and multimessenger observations of neutron stars.

For the first part, I will first explain a general formalism to test gravity through the orbital decay rate, followed by specific examples in scalar-tensor and vector-tensor theories.

For the second part, I will focus on using universal relations among neutron star observables that do not depend sensitively on the equations of state and how such relations allow us to perform strong-field tests of gravity without being biased by uncertainties in nuclear physics.