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., January 21, 2026, at 11h00.

**Room:** Sala Sousa Pinto and **Teams ID:** 394 684 319 783 72

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Tamanna Jain

LPENS


## Binary Boson stars in Strong Field: Post-Minkowskian, Effective-one-body formalism, and Numerical Relativity


In this talk, I will present our recent work on scattering of two boson stars by taking into account three effects: point-mass gravitational, tidal, and short-range scalar-field interactions. We first derive the analytical expressions of the scattering angle using PM-EFT techniques, providing the first analytical treatment of boson stars as a two-body problem. We then compare analytic results to the scattering angle extracted from four sequences of numerical-relativity simulations at fixed energy and varying impact parameter. The very good agreement exhibits the attractive (repulsive) effect of in-phase (out-of-phase) binaries. For small impact parameters, where the stars approach more closely before separating to infinity, the short-range scalar-field interaction is found to dominate.


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


The Gr@v Seminars are supported in part by the FCT – Portuguese Foundation for Science and Technology, through projects 2022.04560.PTDC and 2024.05617.CERN and through CIDMA – Center for Research and Development in Mathematics and Applications, under the Portuguese Foundation for Science and Technology (FCT, https://ror.org/00snfqn58) Multi-Annual Financing Program for R&D Units, grants UID/4106/2025 and UID/PRR/4106/2025 (https://doi.org/10.54499/UID/04106/2025).

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