## Théorie, Univers et Gravitation - TUG



ID de Contribution: 7

Type: Talk

## New post-Newtonian results in general relativity and scalar-tensor theory

jeudi 7 novembre 2024 14:30 (30 minutes)

In the first part of the talk, I review the recent computation (in general relativity) of the radiation-reaction sector of the equations of motion at 4.5PN [1]. In particular, I will discuss novel hereditary terms arising from the passage to the center-of-mass frame. In the second part of the talk, I will discuss the study of gravitational waves generated by compact binaries on elliptic orbits in scalar-tensor theories. I will first review the quasi-Keplerian parametrization for scalar-tensor theories [2]. Then, I will review the computation of the flux at 1.5PN order [3], which includes: instantaneous terms, tails, memory, and the same novel hereditary terms that we found in GR. Finally, I obtain the secular evolution of the frequency and eccentricity, which is the main observable for gravitational wave observatories.

[1] Blanchet, Faye and Trestini (2024), arXiv:2407.18295

[2] Trestini, Phys. Rev. D 109, 104003 (2024), arXiv:2401.06844

[3] Trestini (2024), arXiv:2410.12898

Author: TRESTINI, David (IAP et LUTH) Orateur: TRESTINI, David (IAP et LUTH)