Spanish and Portuguese Relativity Meeting



Contribution ID: 45

Type: not specified

Ridges due to latent heat in rotating neutron stars, in GR and f(R) gravity

Wednesday 24 July 2024 15:30 (15 minutes)

We discuss "ridges" in macroscopic properties of rotating neutron stars as tell-tale signatures of first order phase transitions in the matter therein. The intensity of the nonanaliticity in the various observables angular momentum/angular frequency/ moment of inertia/ mass/ major and minor radii is proportional to the latent heat in the phase transition, and these signals could be found when the respective diagrams are well populated.

We study the changes respect to General Relativity when working with a family of modified-gravity theories which includes quadratic f(R). Interestingly, the Seidov limit (maximum latent heat in such a phase transition due to gravitational collapse) is substantially modified.

Based on Annals Phys. 459 (2023) 169487, 2307.15366 and upcoming work.

Authors: LLANES-ESTRADA, Felipe J.; LOPE-OTER, Eva (Univ. Complutense Madrid); NAVARRO MORENO, Pablo; WOJNAR, Aneta (Complutense University of Madrid)

Presenter: NAVARRO MORENO, Pablo

Session Classification: Parallel session 9 (Neutron Stars)