Contribution ID: **9** Type: **not specified**

Frame dragging effect around slowly rotating stars in modified gravity theories

Thursday 15 September 2022 14:25 (25 minutes)

We study the frame-dragging effect in the context of slowly rotating stars in Horndeski theory (HT) and Generalized Proca theory (GPT). The frame-dragging effect occurs when a rotating compact object distorts spacetime and inertial observers are dragged along when they are infree fall from infinity. James Hartle developed a methodology to study this effect for slowly rotating stars in the context of General Relativity (GR) through a perturbative treatment of the GR's field equations in powers of Ω^2 , Ω being the angular velocity of the star. Applying the same methodology, we find that deviations from GR are very tiny in HT; these results holds for both the interior and exterior regions of the star. For the GPT, we find constraints in the relevant modified gravity coupling; moreover, deviations from GR play an important role for the predictions regarding frame dragging. These deviations, which make the GPT quite distinguishable from GR, depend on both the vector field configuration and the value of the coupling constant.

Authors: MAURICIO NIETO GUERRERO, Carlos; RODRÍGUEZ GARCÍA, Yeinzon; JAIMES, william

Presenter: JAIMES, william