

The Exterior Spacetime of Relativistic Stars in scalar-Gauss-Bonnet Gravity

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The spacetime around compact objects is an excellent playground to study gravity in the strong, non-linear regime, where Solar System tests cannot account for the effects of large curvature. In this talk, I will present an analytical, closed-form solution for the exterior spacetime of a non-rotating neutron star in scalar-Gauss-Bonnet gravity. This exterior metric depends only on the mass of the star and the coupling strength of the theory, and not on any integrated charge related to the scalar dilaton field. I will also present analytic scalar-Gauss-Bonnet corrections to the location of innermost stable circular orbit, Kepler's third law, and the epicyclic frequencies (for a test particle in orbit around a neutron star), as well as corrections to the visible fraction of a neutron star that emits photons from a hot spot on its surface.