Contribution ID: **29** Type: **Poster**

Stability of Compact Stellar Anisotropic Objects in Modified Theory of Gravity

Friday, 15 December 2023 15:21 (1 minute)

The main objective of this paper is to examine the viability and stability of anisotropic compact stellar objects adopting the Karmarkar condition in energy-momentum squared gravity. For this purpose, we take a static spherical metric in the inner and Schwarzschild spacetime in the outer region of the stars. The values of unknown parameters are found by the observational values of mass and radius of the considered compact stars. We consider a particular model of this theory to investigate the behavior of energy density, pressure components, anisotropy, equation of state parameters and energy bounds in the inner region of the proposed stellar objects. The equilibrium state of the stellar models is examined via the Tolman-Oppenheimer-Volkoff equation and their stability is analyzed by causality condition, Herrera cracking approach and adiabatic index. We find that Karmarkar solutions in this modified theory are physically viable and stable for anisotropic stellar objects.

Primary author: SHARIF, Muhammad

Presenter: SHARIF, Muhammad

Session Classification: Poster