

Mass-radius bounds in massive gravity models

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The mass-radius ratio bounds of spherically symmetric static compact objects were considered in the ghost-free dRGT massive gravity. In this type of modified general relativity, the graviton has a non-zero mass leading to the naturally generated cosmological constant term. Therefore, this may bring about to an explanation for the late-time accelerated expansion of the Universe without any dark energy. The hydrostatic equilibrium (TOV) equation in this theory was derived to describe the structure of a spherical object such a star. In this work, the generalized Buchdahl inequalities, providing the upper and lower limits of mass-radius ratio for high density compact objects, were obtained together with their crucial constraints. Finally, for theoretical testing these results may be proved in the context of astrophysical observations.

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