

Alternative Gravity and Gravastars

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This work explores the effects of charge on a peculiar stellar object, recognized as gravastar, under the influence curvature-matter coupling gravity. The gravastar is also known as an alternative to a black hole and is expressed by three distinct domains named as (i) the interior domain, (ii) the intermediate shell and (iii) the exterior domain. We analyze these domains for a specific modified gravity model conceding the conformal Killing vectors. In the interior domain, we assume that pressure is equal to negative energy density which leads to the existence of repulsive force on the spherical shell. The intermediate shell consists of ultra-relativistic plasma and pressure which shows a direct relation with energy density and counterbalances the repulsive force applied by the interior domain. The exterior vacuum spherical domain is taken to be the de Sitter spacetime illustrated by the Reissner-Nordstrom metric.

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