



TIDAL FORCES IN BARDEEN SPACETIMES

Haroldo C. D. Lima Junior¹ and Luís C. B. Crispino¹

¹ Faculdade de Física, Universidade Federal do Pará, 66075-110, Belém, Pará, Brasil.

Abstract

We analyze the tidal forces in regular black hole spacetimes. We consider the Bardeen spacetime, which is associated to a regular black hole (free of curvature singularities). We show that the radial tidal force changes sign and vanishes in two different points along the radial coordinate. This contrasts with the Schwarzschild case (for which the radial tidal force does not vanish along the radial coordinate), and also with the Reissner-Nordström case (for which the radial tidal force vanishes in only one point along the radial coordinate). We also show that the angular tidal force vanishes once between the inner horizon and the event horizon, similarly to the Reissner-Nordström case.