VISUAL APPEARANCE OF A BLACK-BOUNCE/TRAVERSABLE WORMHOLE SPACETIME

Haroldo C. D. Lima Junior[1], Pedro V. P. Cunha[2,3], Carlos A. R. Herdeiro[3] and Luís C. B. Crispino[1]

[1]Programa de Pós-Graduação em Física, Universidade Federal do Pará, 66075-110, Belém, Pará, Brasil.
[2]Departamento de Física da Universidade de Aveiro and CIDMA, Campus de Santiago, 3810-183 Aveiro, Portugal.
[3]Centro de Astrofísica e Gravitação – CENTRA, Departamento de Física, Instituto Superior Técnico – IST,Universidade de Lisboa – UL, Avenida Rovisco Pais 1, 1049-001 Lisboa, Portugal.

We study the behavior of null geodesics in a black-bounce/traversable wormhole spacetime. This spacetime interpolates between a Schwarzschild spacetime, a regular black hole, and a traversable wormhole. The visualization of this spacetime is obtained via backward ray-tracing methods. The images generated using this method are useful in order to understand the gravitational lensing effects in the black-bounce/traversable wormhole geometry.