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Axisymmetric and spherical sources of Majumdar-Papapetrou type spacetimes

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By starting with a seed Newtonian potential-density pair we construct axisymmetric and spherical relativistic sources for a Majumdar-Papapetrou type conformastatic spacetime. As a first example, we consider a family of Plummer-Hernquist type relativistic spherical sources (G. García-Reyes, Gen. Relativ. Gravit. 49, 3, 1-13 (2017)), and as a second application we construct relativistic galaxies models from a Miyamoto-Nagai potential-density pair. The models also include dark matter. We study the equatorial circular motion of test particles around such configurations. Also the stability of the orbits is analyzed for radial perturbation using an extension of the Rayleigh criterion. The models considered satisfying all the energy conditions.

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