General Relativity and Quantum Cosmology

Dark Matter and Charged Exotic Dust

Gerald E. Marsh

(Submitted on 1 Jul 2011)

The density profiles of dark matter halos are often modeled by an approximate solution to the isothermal Lane-Emden equation with suitable boundary conditions at the origin. It is shown here that such a model corresponds to an exact solution of the Einstein-Maxwell equations for exotic charged dust. It is also shown that, because of its necessarily very small charge to mass ratio, the fact that the particles are charged does not necessarily rule out such material as a candidate for dark matter.

Comments: 11 pages, 2 figures

Subjects: **General Relativity and Quantum Cosmology (gr-qc)**; Cosmology and Extragalactic Astrophysics (astro-ph.CO)

Cite as: **arXiv:1107.0315v1 [gr-qc]**

Submission history

From: Gerald Marsh [view email]

[v1] Fri, 1 Jul 2011 01:21:08 GMT (564kb)

Which authors of this paper are endorsers?