Abstract Submitted
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Dark Matter-Baryonic Matter Radial Acceleration Relationship
EDWARD GREEN, University of North Georgia — Pandres has developed a theory which extends the geometrical structure of a real four-dimensional space-time via a field of orthonormal tetrads with an enlarged covariance group. This new group, called the conservation group, contains the group of diffeomorphisms as a proper subgroup. Using the curvature vector, C_μ, we find a free-field Lagrangian density $C^\mu C_\mu \sqrt{-g}$. Spherically symmetric solutions for both the free field and the field with sources have been derived. The field equations require nonzero stress-energy tensors in regions where no source is present and thus may bring in dark matter and dark energy in a natural way. A simple model for a galaxy is given which satisfies our field equations. This model includes flat rotation curves. We compare our results with recently reported results of McGaugh, Lelli and Schombert which exhibit a new law between the observed radial acceleration and the baryonic radial acceleration. We find a slightly different model which relates these accelerations. In conjunction with our model, the McGaugh, Lelli and Schombert relation imply a new critical baryonic acceleration. This critical baryonic acceleration may be used to predict the radial velocity curve value by using the radius of the bulge.

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