

Abstract Submitted
for the APR17 Meeting of
The American Physical Society

Comparison of Alternative Gravity Models in Dwarf Galaxy Rotation Curves JUSTIN HARRINGTON, TAYLOR SAINTABLE, JAMES O'BRIEN, Wentworth Institute of Technology — Galactic rotation curves have proven to be the testing ground for dark matter bounds in spiral galaxies of all morphologies. Dwarf Galaxies serve as an increasingly interesting testing ground of rotation curve dynamics due to their increased stellar formation and typically rising rotation curve. These galaxies usually are not dominated by typical stellar structure and mostly terminate at small radial distances. This, coupled with the fact that Cold Dark Matter theories such as NFW (CDM) struggle with the universality of galactic rotation curves, allow for exclusive features of alternative gravitational models to be analyzed. Here, we present a thorough application of alternative gravitational models (conformal gravity and MOND) to a 2010 dwarf galaxy sample from Swaters et al. An analysis and discussion of the results of the fitting procedure of the two alternative gravitational models are explored. We posit here that both the Conformal Gravity and MOND can provide an accurate description of the galactic dynamics without the need for copious dark matter.

Justin Harrington
Wentworth Institute of Technology

Date submitted: 30 Sep 2016

Electronic form version 1.4