Abstract Submitted
for the APR16 Meeting of
The American Physical Society

Recent Advances in Conformal Gravity JAMES O'BRIEN, SPASEN CHAYKOV, Wentworth Institute of Technology — In recent years, significant advances have been made in alternative gravitational theories. Although MOND remains the leading candidate among the alternative models, Conformal Gravity has been studied by Mannheim and O'Brien to solve the rotation curve problem without the need for dark matter. Recently, Mannheim, O'Brien and Chaykov have begun solving other gravitational questions in Conformal Gravity. In this presentation, we highlight the new work of Conformal Gravity's application to random motions of clusters (the original Zwicky problem), gravitational bending of light, gravitational lensing and a very recent survey of dwarf galaxy rotation curves. We will show in each case that Conformal Gravity can provide an accurate explanation and prediction of the data without the need for dark matter. Coupled with the fact that Conformal Gravity is a fully re-normalizable metric theory of gravity, these results help to push Conformal Gravity onto a competitive stage against other alternative models.

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Date submitted: 07 Jan 2016 Electronic form version 1.4