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Dynamics of Disk and Elliptical Galaxies in Refracted Gravity

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We test Refracted Gravity (RG) [1] by investigating the dynamics of disk galaxies in the Disk Mass Survey (DMS) [2,3,4] and of three elliptical E0 galaxies in the SLUGGS survey [3,4,5] without the aid of dark matter. RG reproduces the rotation curves, the vertical velocity dispersions, and the observed Radial Acceleration Relation (RAR) of DMS galaxies and the root-mean-square (RMS) velocity dispersions of stars, and blue and red globular clusters in the E0 galaxies. Our results show that RG can compete with other theories of gravity to describe the gravitational dynamics on galaxy scale. References: [1] Matsakos, T., & Diaferio, A., 2016, ArXiv e-prints [arXiv:1603.04943] [2] Cesare, V., Diaferio, A., Matsakos, T., & Angus, G., 2020, A&A, 637, A70 [3] Cesare V., 2021, Phys. Sci. Forum, 2(1), 34 [4] Cesare V., 2023, Universe, 9(1), 56 [5] Cesare V., Diaferio, A., & Matsakos, T., 2022, A&A, 657, A133

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