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Conformal Gravity Approach to the SPARC Dataset MARK FALCONE, MUHANNAD ALQURASHI, JORDAN CARTER, JAMES O'BRIEN, Wentworth Inst of Tech — The SPARC database (Spitzer Photometry and Accurate Rotation Curves) is a diverse set of 175 galaxies with reliable, well studied rotation curve data. Recently, Conformal Gravity (CG) has fit the remainder of the SPARC database galaxies, encompassing 30 galaxies not previously studied by CG. Adding these 30 galaxies to the list of galaxies modeled by CG furthers the assertion that CG not only successfully fits galaxies but it does so universally. The greatest notable difference between CG and other alternative theories of gravitation is the fact that CG is a fourth order theory that is a completely re-normalizable, metric theory of gravity. The quadratic potential present in CG allows the rotation curves to neither infinitely rise nor remain forever flat. In this work, we show how these 30 galaxies can be fit by CG without the need for dark matter and now brings the theory to over 250 galaxies fit in a universal manner.

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