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Explaining the Observed Relationships between the Dark Matter Halo Parameters and Half-Light Radii of Galaxies. BENJAMIN WOODALL, CASEY WATSON, HUNTER SOMERS, ZECH MILLER, Millikin University — We consider the relationships between the half-light radii and best-fit, Burkert dark matter halo parameters, which hold for Milky Way dwarf spheroidal galaxies (dSphs) as well as dwarf disks, spirals, and ellipticals over many orders of magnitude in galaxy size, mass, and luminosity. We report on possible mechanisms that could link the luminous and dark matter distributions of such a wide range of galaxy masses and types, and lie at the heart of these relationships.

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