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Do the Dark Matter Halos of Dwarf Galaxies share a Universal Core Radius? LIYANG YU, CASET R. WATSON, Millikin University — Recent observations suggest that dark-matter-dominated Milky Way dwarf satellite galaxies contain a universal mass of $\sim 10^7$ $M_\odot$ within their innermost 300 pc. Additional observations suggest a universal, core dark matter (DM) surface density ($\mu_0 = r_0\rho_0$) for galaxies at all observed mass and luminosity scales. We demonstrate that the combination of these two results implies the existence of a universal DM halo core radius (r_0) for dwarf galaxies. To test this prediction, we compare the results of our calculations to existing dwarf galaxy data for Burkert and NFW DM density profiles.

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