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Does the Observed Phase Space Density of Dwarf Galaxies Indicate a Consistent Value for the Mass of the Dark Matter Particle? JOSEPH CHEENEY, CASEY WATSON, Millikin University — Recent studies have suggested that the phase space densities (Q) of Milky Way dwarf satellite galaxies imply a keV-scale dark matter particle mass. To go beyond this order-of-magnitude estimate, we examine trends in the phase space density data and consider their implications for the relationship between the primordial Q (Q_P), which depends directly on the dark matter particle mass, and the presently observed values of Q (Q_0). We then determine whether the application of a consistent Q_P-Q_0 relationship to the Q_0 data yields a consistent and more well-defined value of the dark matter particle mass.

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