Future measurements of the nature of dark matter with strong lensing

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Abstract

The relative brightnesses of gravitationally lensed quasar images are directly sensitive to the presence of low-mass dark matter halos at cosmological distances. Measurements of these systems have enabled some of the strongest constraints to date on a variety of dark matter models. I will summarize recent results using data from JWST, HST, and ground based telescopes to place constraints on a broad range of dark matter models including self-interacing, fuzzy, warm, and primordial black hole dark matter. I will discuss future prospects for this science in the era of extremely large, and extremely high precision telescopes.

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