An overview of new dark matter constraints from strong gravitational lensing probes.

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Strong gravitational lensing can provide direct insight into the nature of dark matter and the structures it forms on small scales. In a strong gravitational lens, multiple images of a background source appear due to deflection by foreground massive structures. In galaxy and cluster-scale strong gravitational lenses, low-mass perturbations due to small-scale structure such as low-mass dark matter halos can significantly distort and shift the lensed images providing direct insight into underlying matter distribution and thereby leading to novel constraints on the physical properties of dark matter. Analyses of strong gravitational lenses have yielded some of the strongest constraints to date on a range of dark matter models including fuzzy dark matter, primordial black hole dark matter, warm dark matter and self-interacting dark matter. I will give an overview of recent results in this field from teams using a variety of complementary techniques.

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