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Astrophysical Probes of Self-Interacting Dark Matter

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Models of the cosmological dark matter featuring strong non-gravitational particle-particle interactions have received significant attention, as they may help alleviate, or even explain away, tensions between the standard cold dark matter paradigm and observations, including the observed diversity of galactic rotation curves. Self-interacting dark matter (SIDM) models give a number of testable predictions, including changing the inner density profiles and shapes of dark matter halos and potentially leading to the formation of black holes as a result of the gravothermal collapse. I will review a set of observational projects giving constraints on SIDM models.

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