

Particle Physics Challenges



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Is self-interacting dark matter with no light mediator viable?

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Self-interacting dark matter is a well-motivated solution to the core-vs-cusp and the too-big-to-fail problems of the Λ CDM model. In this scenario, a light particle mediating the self-interactions is typically invoked in order to achieve velocity-dependent effects. In this talk, I will argue that a light mediator is not the only possible way to do that. In particular, I will discuss two new ideas: dark matter scenarios with self-heating as well as dark matter resonant scattering.

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