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Exploring the Nature of Dark Matter with Cosmology

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There is a substantial effort in the physics community to understand the particle nature of dark matter and to search for, in particular, dark matter interactions with the Standard Model of particle physics. Sizable scattering between dark matter and baryons can lead to significant energy and momentum exchange in the early Universe, altering the evolution of cosmological perturbations. The resulting impact on structure formation enables a broad search for dark matter interactions using cosmological observations in a parameter space that is complementary to that of direct detection experiments. In this talk, I will describe the effect scattering has throughout cosmic history, show current constraints, and discuss the importance of future observations.