

Title: Coscattering: a fourth exception in the calculation of relic abundances

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Abstract: <p>I show that dark matter abundance can be set by the decoupling of inelastic scatterings instead of annihilations. Coscattering points to dark matter that is exponentially lighter than the weak scale and has a suppressed annihilation rate, avoiding constraints from indirect detection. The late decays of the states into which dark matter upscatters, can lead to observable distortions to the blackbody spectrum of the cosmic microwave background. </p>

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