

JOINT TUFTS/MIT COSMOLOGY SEMINAR

KINDER Dark Matter

Patrick Fitzpatrick
MIT

In the conventional weakly-interacting massive particle (WIMP) paradigm the late-time density of dark matter (DM) is set by the rate of two-body annihilations, but there has been considerable recent interest in exploring alternative DM scenarios where other interactions control the final abundance. I will show that by fully exploring the parameter space of a simple, weakly-coupled dark sector, we can find a range of different mechanisms for obtaining the correct relic density. In particular, we can identify and characterize a general class of mechanisms in which the DM relic abundance is determined by processes controlling the thermal coupling of the DM and Standard Model (dubbed the KINetically DEcoupling Relic – KINDER), generalizing previously-studied special cases of this behavior.

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online

Massachusetts Institute of Technology