

Dark population transfer mechanism for sterile neutrino dark matter

Saturday 20 July 2024 12:15 (15 minutes)

In this talk, a mechanism for producing a cosmologically-significant relic density of one or more sterile neutrinos will be discussed. This scheme invokes two steps: First, a population of “heavy” sterile neutrinos is created by scattering-induced decoherence of active neutrinos; Second, this population is transferred, via sterile neutrino self-interaction-mediated scatterings and decays, to one or more lighter mass (~ 10 keV to ~ 1 GeV) sterile neutrinos that are far more weakly (or not at all) mixed with active species and could constitute dark matter. Dark matter produced this way can evade current electromagnetic and structure-based bounds, but may nevertheless be probed by future observations.

Alternate track

1. Neutrino Physics

I read the instructions above

Yes

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