

Phenomenology 2020 Symposium



Contribution ID: 883

Type: **Parallel Talk**

Dodelson-Widrow Mechanism in the Presence of Self-Interacting Neutrinos

Tuesday, 5 May 2020 16:45 (15 minutes)

keV-scale gauge-singlet fermions, when allowed to mix with the active neutrinos, are elegant dark matter (DM) candidates. They are produced in the early Universe via the Dodelson-Widrow mechanism and can be detected as they decay very slowly, emitting x-rays. In the absence of new physics, this hypothesis is virtually ruled out by astrophysical observations. Here, we show that new interactions among the active neutrinos allow these sterile neutrinos to make up all the DM while safely evading all current experimental bounds. The existence of these new neutrino interactions may manifest itself in next-generation experiments, including DUNE.

Summary

Primary authors: DE GOUVEA, Andre (Northwestern University); SEN, Manibrata; TANGARIFE, Walter (Loyola University Chicago); Prof. ZHANG, Yue (Carleton University)

Presenter: TANGARIFE, Walter (Loyola University Chicago)

Session Classification: Neutrinos III

Track Classification: Neutrinos