

Boosted Dark Matter at Neutrino Experiments

Thursday 28 July 2016 15:45 (15 minutes)

Summary

In this talk, I present a new class of dark matter models in which decays/annihilations in the present universe produce a highly boosted dark matter component. This “boosted dark matter” can interact with the standard model via electron scattering and produce signals at neutrino experiments, which resemble those from atmospheric neutrinos. I will carefully study a simple realization of such a model, and show the reach of Cherenkov experiments in the viable parameter space. I will then discuss how liquid argon detectors can be used to improve these bounds, and perform a more general analysis of boosted dark matter scenarios.

Based on (arXiv number)

1405.7370 as well as upcoming work

Primary author: NECIB, Lina (MIT)

Co-authors: CONRAD, Janet (Massachusetts Institute of Technology); MOON, Jarrett (Massachusetts Institute of Technology); THALER, Jesse (Massachusetts Institute of Technology); AGASHE, Kaustubh (University of Maryland); CUI, Yanou (Perimeter Institute for Theoretical Physics)

Presenter: NECIB, Lina (MIT)

Session Classification: Indirect Dark Matter Detection

Track Classification: Indirect Dark Matter Detection