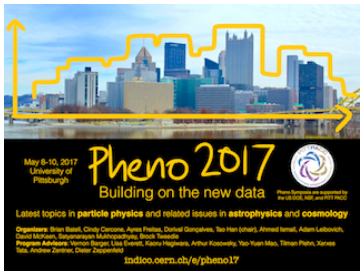

Contribution ID: **345** Type: **parallel talk**

Boosted Dark Matter at the Deep Underground Neutrino Experiment

Tuesday, 9 May 2017 17:45 (15 minutes)

We investigate the detection prospects of a non-standard dark sector in the context of boosted dark matter. We consider a scenario where two stable particles have a large mass difference and the heavier particle accounts for most of dark matter in our current universe. The heavier candidate is assumed to have no interaction with the standard model particles at tree-level, hence evading existing constraints. Although subdominant, the lighter dark matter particles are efficiently produced via pair-annihilation of the heavier ones in the center of the Galaxy or the Sun. The large Lorentz boost enables detection of the non-minimal dark sector in large volume terrestrial experiments via exchange of a light dark photon with electrons or nuclei. Various experiments designed for neutrino physics and proton decay are examined in detail, including Super-K and Hyper-K. In this study, we focus on the sensitivity of the far detector at the Deep Underground Neutrino Experiment for boosted dark matter produced in the center of the Sun.

Summary

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