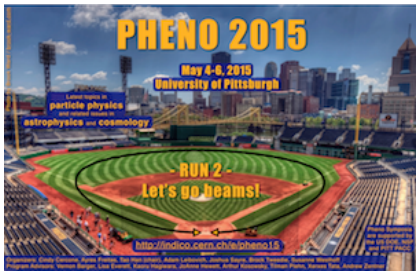

Contribution ID: **213** Type: **parallel talk**

Boosted Dark Matter enhanced with self-interactions

Monday 4 May 2015 18:00 (15 minutes)

We explore detection prospects of a non-standard dark sector in the context of boosted dark matter, which could be detected as visible Cherenkov light in large volume neutrino detectors. In models with multiple candidates, self-interaction of dark matter particles is naturally utilized in the assisted freeze-out mechanism and is corroborated by various cosmological studies such as N-body simulations of structure formation. We show that self-interaction of the secluded (heavier) dark matter greatly enhances the capture rate in the Sun and results in promising signals at current and future experiments. We perform a detailed analysis of the boosted dark matter events for Super-K, Hyper-K and PINGU.

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