



Contribution ID: 1059

Type: **Parallel Talk**

Dark Matter annihilation to neutrinos: New limits and future prospects

Tuesday 5 May 2020 17:30 (15 minutes)

Neutrinos can escape dense environments, otherwise opaque to photons, and travel cosmic distances unscathed by background radiation or magnetic fields. While ideal cosmic messengers, they present a unique opportunity to test physics beyond the Standard Model, especially dark matter. There is a distinct possibility that the principal portal through which the dark matter interacts with the Standard Model is via the neutrino sector. In this talk, we will discuss new opportunities offered by high-energy neutrinos and provide new model-independent limits on dark matter annihilation into neutrinos based on measurements of neutrinos in a wide energy range. We present the most up-to-date and comprehensive results on dark matter annihilation into neutrinos using the most recently available data from neutrino telescopes. Finally, we will present the projections for next-generation neutrino experiments.

Summary

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Session Classification: Neutrinos III

Track Classification: Neutrinos