Contribution ID: **247**
Type: **not specified**

Light Neutrinophilic Dark Matter from Scotogenic Model

Tuesday 9 May 2023 14:45 (15 minutes)

We present a minimal UV-complete model for sub-GeV thermal Dark Matter (DM) that primarily interacts with neutrinos and contributes to the generation of neutrino masses and mixings through quantum loop corrections at the one-loop level. In this configuration, DM can solely annihilate into SM neutrinos without affecting the Cosmic Microwave Background anisotropies. We find that the rate of neutrinoless double beta decay can be enhanced through loop corrections involving light-dark matter exchange. Moreover, we emphasize that detecting extra neutrino flux from dark matter annihilations with neutrino telescopes in the galaxy is the most effective means of testing the scenario.

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Session Classification: BSM XIV

Track Classification: BSM