Contribution ID: **15** Type: **not specified**

Dark Matter searches at neutrino telescopes in effective theories

Monday, 7 October 2019 16:20 (25 minutes)

Neutrino telescopes search for neutrinos produced by the annihilation of Dark Matter (DM) particles which accumulated at the centre of the Sun and of the Earth over the past 4.5 billion years. The present null result implies an upper bound on the rate at which DM can be captured by the two celestial bodies, and therefore on the strength with which DM couples to nuclei. In this talk, I will present a reanalysis of this null result, modelling the DM-nucleus coupling within the non-relativistic effective theory of DM-nucleon interactions. Within the same theoretical framework, I will also discuss the prospects for DM identification at next generation neutrino telescopes, focusing on PINGU as a benchmark detector.

Summary

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