



Contribution ID: 279

Type: **Parallel talk**

## Loop-mediated Dark Matter-neutrino interactions

*Thursday 31 August 2023 14:45 (15 minutes)*

The nature of Dark Matter is an ongoing and relevant object of study in astroparticle physics. Despite our best efforts to identify its possible particle properties, the results have been null, which has led to a plethora of models describing viable connections to the Standard Model. In particular, loop models of Dark Matter, like the scotogenic model, have received attention in the last decade but their phenomenology in regard to Dark Matter interactions with neutrinos has not been widely studied in a global analysis. We aim to explore whether parameters of a one-loop model of scalar Dark Matter-neutrino interactions such as the DM mass, the mediators' masses, and the couplings can be constrained by performing a Bayesian and a frequentist analysis using data on the DM relic abundance, BBN and  $N_{\text{eff}}$ , the lightest neutrino mass, and meson decays.

### Submitted on behalf of a Collaboration?

No

**Primary author:** MACIAS CARDENAS, Karen (Instituto de Fisica Teorica (UAM-CSIC))

**Co-authors:** VINCENT, Aaron (Queen's University); MOHLABENG, Gopolang (University of California, Irvine)

**Presenter:** MACIAS CARDENAS, Karen (Instituto de Fisica Teorica (UAM-CSIC))

**Session Classification:** Dark matter and Neutrino

**Track Classification:** Neutrino physics and astrophysics