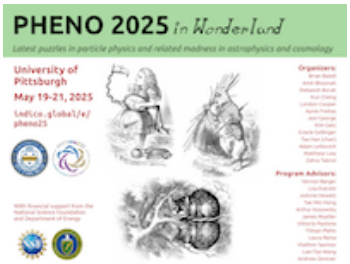

Contribution ID: **109** Type: **not specified**

On Gauge Theories of Neutrino Masses and Dark Matter

Monday 19 May 2025 15:45 (15 minutes)

We discuss the predictions in the simplest theory for neutrino masses based on the spontaneous breaking of local lepton number. This theory provides a simple theoretical framework to understand the possible relation between the origin of neutrino masses and the nature of the dark matter. In this theory, one of the fields needed for anomaly cancellation is a dark matter candidate and the local lepton number is broken at the low scale. We discuss in great detail the dark matter properties showing the allowed parameter space by the relic density bounds and the predictions for direct detection.
The predictions for gamma and neutrino lines from dark matter annihilation are investigated. In the case of Dirac neutrinos, the bound on the effective number of relativistic degrees of freedom plays an important role and the predictions for gamma lines could be tested in the near future. We discuss the predictions in the case of Majorana neutrinos where the dark matter candidate has extra annihilation channels and compare all the predictions to the case with Dirac neutrinos.

Mini Symposia (Invited Talks Only)

Plenary (Invited talks only)

Authors: DEBNATH, Hridoy; Prof. FILEVIEZ PEREZ, Pavel (Case Western Reserve University)

Presenter: DEBNATH, Hridoy

Session Classification: Dark Matter