Contribution ID: **19** Type: **not specified**

Imprint of the seesaw mechanism on FIMP dark matter and baryon asymmetry

We show that the type-I seesaw, responsible for generating the light neutrino mass, itself is capable of accommodating a freeze-in type of dark matter in the form of lightest right-handed neutrino (N1) where the required smallness of the associated coupling is controlled by the lightness of the (smallest) active neutrino mass. It turns out that dark matter is essentially produced from the decay of the W and Z bosons via the active-sterile neutrino mixing in the electroweak broken phase. In order to satisfy the correct relic density while maintaining its stability, the lightest neutrino mass is uniquely predicted to be in the pico electron-volt range. While the mass of the dark matter falls in the range 1 keV - 1 MeV in this scenario, a detailed study of leptogenesis incorporating flavor effects fixes the scale of two other right-handed neutrinos.

Primary author: SIL, Arunansu (IIT Guwahati, India)

Co-authors: Mr DATTA, Arghyajit (IIT Guwahati); Dr ROSHAN, Rishav (Postdoc)

Presenter: SIL, Arunansu (IIT Guwahati, India)

Session Classification: Parallel Session I.1