



Contribution ID: 53

Type: Oral presentation using Zoom

## Searching for Lepton Portal Dark Matter at Linear Colliders

*Wednesday, 27 October 2021 14:00 (20 minutes)*

In this talk, I discuss the phenomenology of a minimal model for GeV-scale Majorana dark matter (DM) coupled to the standard model lepton sector via a charged scalar singlet. The theoretical framework extends the Standard Model by two  $SU(2)_L$  singlets: one charged Higgs boson and a singlet right-handed fermion. The latter plays the role of the DM candidate. We show that there is an anti-correlation between the spin-independent DM-Nucleus scattering cross-section ( $\sigma_{SI}$ ) and the DM relic density for parameters values allowed by various theoretical and experimental constraints. Moreover, we find that even when DM couplings are of order unity,  $\sigma_{SI}$  is below the current experimental bound but above the neutrino floor. Furthermore, we show that the considered model can be probed at High Energy lepton colliders using e.g. the mono-Higgs production and same-sign charged Higgs pair production.

### 1st preferred time slot for your oral presentation

13:00-15:00 JST (6:00-8:00 CEST, 0:00-2:00 EDT, 21:00-23:00 PDT)

### 2nd preferred time slot for your oral presentation

19:00-21:00 JST (12:00-14:00 CEST, 6:00-8:00 EDT, 3:00-5:00 PDT)

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**Session Classification:** H-1: BSM particle production

**Track Classification:** Parallel sessions: Topical Groups: Session H: BSM particle production