

# 26th International Conference on Supersymmetry and Unification of Fundamental Interactions (SUSY2018)



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## Two scalar singlet Higgs Portal and the Anomaly-cancellation on a leptophobic $Z'$ -mediator with axially coupled DM

*Tuesday 24 July 2018 18:00 (20 minutes)*

Di-lepton production at the LHC and Direct Detection (DD) limits put strong constraints on simplified DM models where the DM particle is a fermion, coupled to the SM through an extra  $U(1)'$  gauge boson,  $Z'$ . The first problem can be avoided by demanding vanishing  $Y'$ -charges for leptons (leptophobia). Then, the requirement of anomaly cancellation imposes strong and non-trivial constraints on the spectrum of the dark sector. On the other hand, DD limits can be avoided by requiring an axial coupling between the DM and the  $Z'$ . We classify the (very few) possibilities fulfilling both requirements simultaneously, and explore their phenomenology.

### Parallel Session

Dark Matter, Astroparticle Physics

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