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Confronting dark fermion with a doubly charged Higgs in the left-right symmetric model

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We consider a fermionic dark matter (DM) in the left-right symmetric framework by introducing a pair of vector-like (VL) doublets in the particle spectrum. The stability of the DM is ensured through an unbroken Z2 symmetry. We explore the parameter space of the model compatible with the observed relic density and direct and indirect detection cross sections. The presence of charged dark fermions opens up an interesting possibility for the doubly charged Higgs signal at LHC and ILC. The signal for the doubly charged scalar decaying into the dark sector is analyzed in multilepton final states for a few representative parameter choices consistent
with DM observations.

Session

Beyond the Standard Model

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