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2l+MET signature from two-component dark matter at the LHC

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The talk will cover an exploration on the dilepton plus missing transverse energy (MET) signature from LHC to search for two-component scalar Dark Matter (DM). The model discussed in this work is a 3-Higgs Doublet Model (3HDM) where two of the doublets are inert from the Standard Model (SM) and the other one is active and also the SM Higgs doublet, hence a I(2+1)HDM. Each inert sector will provide a scalar DM particle with a discrete symmetry of Z2xZ2 applying on the doublets, and therefore the model will provide two-component DM. The work studies the model parameter space on the masses of two DM particles and the mass differences between the DMs and the next-to-lightest neutral states in each dark sector. Despite the numerical analysis is performed within the I(2+1)HDM for illustrative purposes, this approach makes our essentially largely model-independent and thus suitable for interpretations in other two-component scalar DM scenarios giving rise to the dilepton plus MET signature.

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