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The Inert Doublet Model in the light of LHC and astrophysical data

Content :

We discuss the parameter space of the Inert Doublet model, a two Higgs doublet model with a dark matter candidate. An extensive set of theoretical and experimental constraints on this model is considered, where both collider as well as astroparticle data limits are taken into account. We discuss the effects of these constraints on the models parameter space. The combination of all constraints leads to relatively strong mass hierarchy in the dark scalar sector, and to a minimal scale for the dark scalar masses. We propose benchmark points and benchmark planes for dark scalar pair-production for the current LHC run.

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