Theoretical Physics Seminar

Probing Inert Higgs model with Jet-substructure

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From: Physical Research Laboratory, Ahmedabad

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Place: Room No. 469

The Inert Higgs doublet model (IDM) is a theoretically well-motivated model among the Minimal Consistent Dark Matter (MCDM) models and provides many interesting signatures at the LHC. For hierarchical IDM scalar spectrum, the usual searches at the LHC are not efficient enough. In this ongoing work, we propose a new signature (2 Fat-jet + MET) to search for this interesting parameter space of this model. We choose the benchmark points by performing the parameter scan which satisfies all the theoretical and experimental constraints. We perform our analysis for light DM scenarios with the mass of 50-70 GeV, where we probe both the charged and the CP-odd Higgs in 300-700 GeV mass range. We exploit the characteristics of the jet substructure techniques which can lead to the discovery of the 2 fatjet + MET signal with the integrated luminosity of 3000 fb^{-1} at the 13 TeV LHC.

All are welcome