

## Light exotic Higgs bosons at the LHC

Most models of new physics contain extended Higgs sectors with multiple Higgs bosons. One of these Higgs bosons should have properties consistent with the Standard Model (SM)-like one discovered recently at the Large Hadron Collider (LHC). At the same time, the remaining ones should be consistent with the negative searches corresponding to a wide range of their probable masses at the Large Electron-Positron (LEP) collider, the Tevatron and the LHC so far. In some simple extensions of the SM, like the 2-Higgs Doublet Model (2HDM) and the Next-to-Minimal Supersymmetric SM (NMSSM), these additional Higgs bosons can be rather light and still escape detection at colliders, owing to their highly reduced couplings to the SM particles. Therefore, at the LHC, in addition to the searches based on their conventional production channels, new possible search modes need to be investigated in order to establish their signatures. Such modes can include their pair production in the decays of one of the heavier Higgs bosons or even electroweak production, which is generally assumed to be insignificant. We analysed some of these search modes for points in the parameter spaces of the Type-I 2HDM and the NMSSM, that yield such light Higgs bosons while satisfying the existing experimental constraints from a variety of sources, and found promising results.

### I intend to submit my contribution for the proceedings

Yes

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