

The Next Higgs Bosons in E_6 Inspired Supersymmetric Models with CP Violation

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We investigate the effect of CP violation in the Higgs sector of the $U(1)'$ -extended MSSM. We are particularly interested in the mass and decay dependence of the second lightest neutral Higgs boson, in the presence of CP violating phases for μ_{eff} . The masses of the neutral Higgs bosons are calculated at the one-loop level by taking into account the contributions from top and bottom scalar quark sectors. We study the production and decay channels of the second lightest neutral Higgs boson for a set of benchmark points consistent with the current experimental constraints. We then implement the model into standard packages and perform a detailed and systematic analysis of production and decay modes at the HE-LHC with 27 TeV.

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