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## Testing the THDMS

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The 2HDMS is based on the CP-conserving 2HDM extended by a complex singlet field. We impose an additional  $Z_3$  symmetry on the potential. This leads to a Higgs-sector similar to the Next-to-Minimal Supersymmetric SM (NMSSM), while having fewer symmetry conditions compared to supersymmetric models. We introduce the theoretical background of this model and set it up for phenomenological studies. For this we study theoretical constraints including tree-level perturbative unitarity, boundedness from below conditions and vacuum stability constraints. Furthermore we look at experimental constraints from direct searches for BSM Higgs bosons at colliders. The impact on the phenomenology of a future linear collider will be incorporated.

### Time Zone

Europe/Africa/Middle East

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