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## Electroweak Phase Transition in the N2HDM

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The generation of the observed matter-antimatter asymmetry in the universe through baryogenesis cannot be explained in the Standard Model. We therefore investigate the possibility of a strong first order electroweak phase transition in the Next-to-Two-Higgs Doublet model (N2HDM) where we extended the CP-conserving Two-Higgs-Doublet model with an additional real singlet. The type I and II of the N2HDM are considered where one of the three neutral CP-even Higgs bosons can be the SM-like Higgs boson. After imposing theoretical and experimental constraints, the requirement of the strong phase transition leads to testable implications for the searches at the LHC. We find preferred mass configurations for the non SM-like Higgs bosons and show the implications on the signal rates of the SM-like Higgs boson decay channels. We also use our results to investigate the interplay between a strong phase transition and the size of the trilinear Higgs self-couplings.

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