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## The Next to Minimal Two Higgs Doublet Model, Entropy Production and Stochastic Gravitational Waves

This study undertakes a reconsideration of the potential for a first-order electroweak phase transition, focusing on the next-to-minimal two Higgs doublet model (N2HDM). Our exploration spans diverse parameter spaces associated with the phase transition, with a particular emphasis on examining the generation of stochastic Gravitational Waves (GW) resulting from this transition. The obtained results are meticulously compared against data from prominent gravitational wave observatories, and the possibility of their detection in the future GW observations have been established. In passing by we analyse the strength of the phase transition through the production of entropy during the electroweak phase transition.

## **Field of contribution**

Phenomenology

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