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Lattice investigation of the general 2HDM with SU(2) gauge fields

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In this investigation we study the most general two Higgs doublet model with SU(2) gauge fields on the lattice.
The phase space is probed through the computation of gauge-invariant global observables serving as proxies for order parameters.
In each phase, the spectrum of the theory is analysed for different combinations of bare couplings and different symmetry breaking patterns.
The scale setting and calculation of the gauge running coupling are done through the Wilson flow computation of the action density.
The computation of the renormalised gauge coupling for the Higgs theory is first tested in a single doublet model for various values of the cutoff on a line of constant physics within the Higgs phase of the theory.

Topical area

Particle Physics Beyond the Standard Model

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