Coexisting vacua in the CP conserving 2HDM: an one-loop study

The Two-Higgs-Doublet model (2HDM) is a simple and viable extension of the Standard Model with a scalar potential complex enough that two minima may coexist. In this contribution we investigate if the procedure to identify our vacuum as the global minimum by tree-level formulas carries over to the one-loop corrected potential. In the CP-conserving case, we identify two distinct types of coexisting minima the regular ones (moderate $\tan\beta$) and the non-regular ones (small or large $\tan\beta$) and conclude that the tree level expectation fails only for the non-regular type of coexisting minima. For the regular type, the sign of the soft-breaking term already precisely indicates which minima is the global one, even at one-loop.

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