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The role of dimension-8 operators in an EFT for the 2HDM

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The Standard Model effective field theory (SMEFT) is a standard tool for parametrizing the effects of new physics. The ordinary approach to SMEFT is to use the truncation at dimension-6, which would typically be the leading contribution beyond the Standard Model. We perform the matching to dimension-8 in the two-Higgs-doublet model (2HDM) and critically examine the dimension-6 and dimension-8 truncations. We find that the dimension-6 truncation fails to capture important physics contributions in the 2HDM.

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