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## EFT-naturalness: an effective field theory analysis of Higgs naturalness

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Assuming the presence of physics beyond the Standard Model with a characteristic scale  $M \sim O(10 \text{ TeV})$ , we investigate the naturalness of the Higgs sector at scales below  $M$  using an effective field theory (EFT) approach.

We obtain the leading 1-loop EFT

contributions to the Higgs mass with a Wilsonian-like hard cutoff, and determine the constraints on the corresponding operator coefficients for these effects to alleviate the *little hierarchy problem*

up to the scale of the effective action  $\Lambda < M$ ; a condition we denote by “*EFT-naturalness*”.

We also discuss the types of physics that can lead to *EFT-naturalness* and obtain the current experimental constraints on the relevant operator coefficients; it is shown that these types of new physics are best probed in vector-boson and multiple-Higgs production.

### additional information

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