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Investigating Higgs decays at one-loop in the Standard Model Effective Field Theory

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We investigate flavour-conserving and flavour-violating Higgs decays at tree-level and at one-loop in the dimension-six SMEFT. We conduct a full NLO calculation for h->bb and h->tau tau in the case of two non-zero Wilson coefficients. Using on-shell renormalisation for the physical parameters and the MS-bar scheme for the chosen Wilson coefficients, divergent bare amplitudes are made finite for real Wilson coefficients in the R-xi gauge. Simple constraints are then made on the Wilson coefficients and their off-diagonal elements at tree-level. We discuss the validity of the method and its application to Higgs sector measurements at current and future collider experiments.

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