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Towards automatizing Higgs decays in BSM models at one-loop in the decoupling renormalization scheme

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High-precision calculations of Higgs boson observables can be used to constrain models of Beyond the Standard Model (BSM) physics. Motivated by the non-observation of light BSM particles at the LHC, I will discuss a renormalization scheme that enables precise predictions of Higgs boson decays in the presence of moderately heavy BSM physics at the one-loop level. I will outline the basics of the decoupling renormalization scheme and present the renormalization conditions for a generic model. Furthermore, I will demonstrate its application to a specific model to explore its effects. This calculation is implemented in the FlexibleSUSY spectrum-generator generator and will be automatically applied to any user-defined BSM model in the future.

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