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The SMEFT One Loop Dictionary

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Effective Field Theories provide an ordering criterion to classify all the possible new physics models, depending on the size of their contributions. At any fixed order in operator dimension and loop expansion, this classification can be organized in the form of UV/IR dictionaries, giving an efficient access to which operators are generated by a certain model and which models can generate a specific operator.

We present the complete classification of renormalizable extensions of the Standard Model with new scalars and fermions that can contribute to the dimension six SMEFT up to one loop. The results are encoded in a mathematica package called SOLD (SMEFT One Loop Dictionary), that provides extra functionalities to facilitate the calculation of the complete one-loop matching of any relevant model via Matchmakereft.

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