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Mapping the SMEFT to discoverable models

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The Standard Model Effective Field Theory (SMEFT) has proved a suitable framework to study extensions of the Standard Model in a bottom-up approach. \\ In this project we focus on minimal extensions of the SM that will generate certain 4-fermion operators in the SMEFT and use constraints on the Wilson coefficients to derive bounds on the particle masses in said extensions.\\ However, only a finite number out of these in theory infinitely many models will be phenomenologically interesting. Allowing only for models that provide an interplay between direct and indirect search and avoid charged Dark Matter leads to a bunch of restrictions that make a classification of these models non-trivial. \\ At this stage we use the \textit{ModelGenerator}, a tool built in Mathematica, for a systematic approach to classify these interesting models.

Abstract

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