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Diagrammatica: Systematic deconstruction of EFT operators

Thursday 12 January 2023 10:45 (35 minutes)

The matching of specific new physics scenarios onto the standard model effective field theory (SMEFT) framework is a well-understood procedure. The inverse problem, the matching of the SMEFT to UV scenarios, is more difficult and requires the development of new methods to perform a systematic exploration of models. In this talk I discuss a diagrammatic technique to construct in an automated way a complete set of possible UV models that can produce specific groups of SMEFT operators. The simplest example for an application of these techniques is the Weinberg operator (which yields Majorana neutrino mass models), but the method is much more general. As a demonstration, I will present results of this approach for (d=6) four-fermion operators at 1-loop level.

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