

## From the EFT to the UV: the complete SMEFT one-loop dictionary

*Tuesday 3 June 2025 10:10 (15 minutes)*

Effective field theories (EFTs) offer an efficient framework for the search of heavy physics beyond the Standard Model, using the so-called bottom-up and top-down approaches. However, the vastness of possible UV scenarios makes the connection between the two approaches challenging in practice, especially at loop-level. UV/IR dictionaries fill precisely this gap, readily connecting the EFT with the UV.

In this work we present the complete one-loop dictionary for the Standard Model EFT at dimension six for completions with heavy fermions and scalars. Our results are included in the package SOLD, as well as several new functionalities. In this new form, SOLD is prepared to serve as an important guiding tool for systematic and complete phenomenological studies. As an example, we use the package to explore possible explanations for the tension on the measurement of  $\mathcal{B}(B \rightarrow K^*)$ .

**Authors:** GUEDES, Guilherme (DESY); OLGOSO, Pablo

**Presenter:** OLGOSO, Pablo

**Session Classification:** Geometry / Matching