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Enhancing fits of SMEFT Wilson coefficients in the top-quark sector

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Over the last years, various efforts were made for interpreting measurements of top-quark observables in the context of the Standard Model Effective Field Theory (SMEFT). In this talk, we point out aspects for enhancing fits constraining Wilson coefficients of dimension-six operators that should be considered when aiming towards a global fit of SMEFT coefficients in the top-quark sector.
On the one hand, we discuss the importance of taking into account correlations between the uncertainties of measurements by demonstrating the impact correlations can have on the constraints of Wilson coefficients. On the other hand, we discuss the advantages of combining measurements from top-quark and B physics for constraining top-quark couplings. Considering $\sigma(t\bar{t}\gamma)$ together with BR($\bar{B} \to X_s\gamma$) as an example, we present the steps necessary for including observables from different energy scales in a combined fit and highlight the benefits of this approach.

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