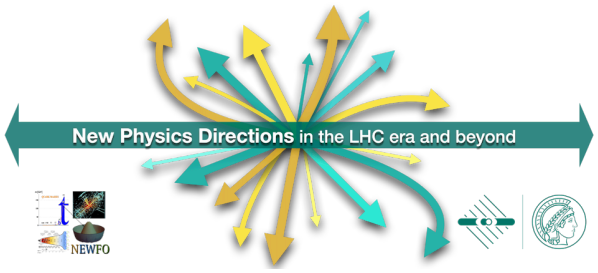

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A global analysis of the SMEFT under the minimal MFV assumption

Monday 22 April 2024 15:30 (3 minutes)

The Standard Model Effective Field Theory (SMEFT) stands as a crucial tool in exploring physics beyond the Standard Model. As New Physics (NP) signals remain elusive, there is a growing importance to derive constraints on SMEFT Wilson coefficients. This investigation confronts the complexity arising from a high number of parameter space directions to be constrained, making global analyses particularly challenging. In this talk, I present comprehensive global fits of the SMEFT under the minimal Minimal Flavour Violation (MFV) hypothesis, i.e. assuming that only the flavour-symmetric and CP-invariant operators are relevant at the high scale. The considered operator set is determined by theory rather than the used datasets. Global limits on these Wilson coefficients are established using leading order and next-to-leading order SMEFT predictions for electroweak precision observables, Higgs, top, flavour and dijet data as well as measurements from parity violation experiments and lepton scattering. This investigation reveals an intriguing crosstalk among different observables, underscoring the importance of combining diverse observables from various energy scales in global SMEFT analyses.

Authors: BIEKOETTER, Anke (JGU Mainz); BARTOCCI, Riccardo; HURTH, Tobias (Johannes Gutenberg Universitaet Mainz (DE))

Presenter: BARTOCCI, Riccardo

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