

New physics effects at colliders via HEFT

Tuesday 3 December 2024 15:02 (12 minutes)

Due to the lack of direct evidence in the search for new physics (NP), the Effective Field Theory (EFT) framework offers an indirect and model-independent approach to parameterize NP effects. In this talk, I will focus on the non-linear EFT framework, also known as Higgs Effective Field Theory (HEFT), and include next-to-leading order (NLO) bosonic operators to study Higgs-related processes at current and future colliders. First, using the Higgs propagator corrections, I will revisit the measurement of off-shell Higgs boson contribution in massive gauge boson pair production. Then, by including radiative corrections within HEFT, I will discuss the sensitivity of single-Higgs data to quartic Higgs-gauge interactions. Finally, I will highlight the impact of one-loop HEFT modifications to the Higgs-self couplings and their effects on multi-Higgs production.

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