Planck 2018
 <h2>From the Planck Scale to the Electroweak Scale</h2>

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Top, Electroweak & Higgs sector processes in the Standard Model EFT at NLO in QCD

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The Standard Model Effective Field Theory (SMEFT) provides a consistent formalism to parametrise the effects of heavy new physics appearing as deviations from SM expectations. One of the key goals of the LHC legacy will be to cover this parameter space as much as possible and contribute to a global fit of the EFT parameter space and, hopefully, provide hints on the nature of physics beyond the SM. To this end, precise predictions for all observables of interest in the SMEFT are required, both at fixed order and for Monte Carlo event generators interfaced with parton showers. I will present recent developments towards a first model implementation of operators in the leading Minimal Flavor Violation assumption, showcasing some results at next-to-leading order in QCD for single top production on its own and in association with a Higgs or Z boson at the LHC. The issue of EFT validity will be discussed alongside some LHC sensitivity studies and future prospects for the High Luminosity run.

Presenter: MIMASU, Ken (Université catholique de Louvain) **Session Classification:** Parallel Session on Collider Searches