

Effective field theory over the edge: implications for Higgs physics

Thursday 1 October 2015 14:30 (15 minutes)

Effective field theory (EFT) provides an efficient framework to study the phenomenology of extended Higgs sectors at the LHC. One caveat is that assuming a clear hierarchy of scales strongly suppresses the size of new physics deviations in an environment where partonic processes can probe a wide range of scales. We consider several modifications of the Higgs sector: a singlet and doublet extension, scalar top partners, and a vector triplet. We systematically compare full model versus EFT-based predictions relevant for the LHC Run II Higgs program. We discuss which observables are accurately described by the EFT in the linear representation and identify those situations in which the EFT approach breaks down.

Primary author: Dr LOPEZ-VAL, David (CP3, Universite catholique de Louvain)

Co-authors: Prof. FREITAS, Ayres (University of Pittsburgh); Mr BREHMER, Johann (ITP, Heidelberg University); Prof. PLEHN, Tilman (ITP, Heidelberg University)

Presenter: Dr LOPEZ-VAL, David (CP3, Universite catholique de Louvain)

Session Classification: Particle Phenomenology