Contribution ID: **749** Type: **Parallel session talk**

Exploring EFT operators via tHq production at the HL-LHC

Thursday 24 August 2023 09:10 (20 minutes)

Duration: 15'+5'
The Standard Model effective field theory (SMEFT) provides a general framework to describe the Beyond standard model physics expected to be valid upto certain higher energy scale, say Λ. It is quite demanding and challenging too, to explore the signature of this kind of generalised theory. In order to explore it, we concentrate on the modifications of top quark yukawa coupling - an important avenue to study the EWSB. With this goal, we consider the production of pp$\rightarrow$tHq at the LHC. Identifying the relevant sensitive dimension 6 EFT operators connected with this process, we try to find the accessible range of the corresponding wilson coefficients constrained by the latest LHC measurements which are directly sensitive to these operators. We try to develop a strategy of constraining these operators and obtain the best fit values. Since, these EFT operators modify the vertices, their effects can be observed in various kinematic distributions, in particular at the tail side. Presumably, signatures of these operators
can be observed in the excess of events at the higher side of certain kinematic variables. We discuss and devise strategy to look for the
signatures of those considered set of operators at the LHC with the high luminosity options 300fb^{-1} and 3000~fb^{-1}. Bin wise significances are also presented. Recently we have some new results which are not included in the version submitted in arXive (2210.05503)
It is now under review in JHEP.

Collaboration / Activity

Particle Physics Phenomeology

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