

EFT at FASERnu: an experiment to probe them all

We will discuss how to systematically study physics beyond the standard model (BSM) in the neutrino experiments within the standard model Effective Field Theory (SMEFT) framework. In this way, the analysis of the data can capture large classes of models, where the new degrees of freedom have masses well above the relevant energy for the experiment. Moreover, it allows to compare several experiments in a unified framework and in a systematic way. The approach could be applied to several short- and long baseline neutrino experiments. We will show the results of this approach at the FASERν experiment, installed 480 m downstream of the ATLAS interaction point. For some coupling structures, we find that FASERν will be able to constrain interactions that are almost three orders of magnitude weaker than the Standard Model weak interactions, implying that FASERν will be indirectly probing new physics at the 10 TeV scale.

Working group

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