

Permutation Symmetry in Enumerating the SMEFT operators

Thursday, 15 April 2021 09:30 (25 minutes)

Complete and independent bases of EFT operators are essential to study the new physics effect in a model-independent way. Not present in the lower dimensional operators, the problem of repeated fields and the flavor structures of the Wilson coefficients becomes an outstanding obstacle in enumerating the SMEFT operators of higher dimensions. We clarify the origin of the problem from both operator and amplitude points of view and provide a general algorithm to systematically obtain the independent operators or amplitude bases with definite permutation symmetries by applying the set of group algebra projectors. The resulting operator bases is easy for identifying the independent flavor components and guaranteed to be complete and independent serving as a foundation for various phenomenology studies.

Presenter: LI, Haolin

Session Classification: 4.15 Morning