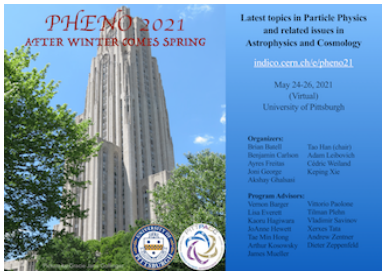

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Beyond the Standard Model Effective Field Theory: The Singlet Extended Standard Model and Higgs FIts

Wednesday 26 May 2021 14:45 (15 minutes)

One of the assumptions of simplified models is that there are a few new particles and interactions accessible at the LHC and all other new particles are heavy and decoupled. The effective field theory (EFT) method provides a consistent method to test this assumption. Simplified models can be augmented with higher order operators involving the new particles accessible at the LHC. Any UV completion of the simplified model will be able to match onto these beyond the Standard Model EFTs (BSM-EFT). In this paper we study the simplest simplified model: the Standard Model extended by a real gauge singlet scalar. In addition to the usual renormalizable interactions, we include dimension-5 interactions of the singlet scalar with Standard Model particles. As we will show, even when the cutoff scale is 3 TeV, these new effective interactions can drastically change the interpretation of Higgs precision measurements and scalar searches.

Summary

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