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New approaches for hh→bbbb as a probe of Higgs self-coupling

Tuesday, 19 October 2021 15:45 (10 minutes)

Abstract:
Searches for pairs of Higgs bosons will be, in all likelihood, the best tools to precisely measure the Higgs boson self-coupling λ_{hhh} in future colliders. We study various strategies for the $hh \to b\bar{b}b\bar{b}$ search in the HL-LHC era with focus on constraining λ_{hhh}. We implement a machine-learning-based approach to separate signal and background and apply recent advances in machine learning interpretability, compare the traditional 4 b-jet reconstruction to final states with 1 or 2 large-radius jets, and test scenarios with different top-quark Yukawa couplings, among other factors.
Based on arXiv:2004.04240.

speaker known

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