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Type: **Talk**

## Higgs self-coupling measurements in the HL-LHC era: new approaches for the HH->4b final state.

Wednesday, 25 August 2021 13:00 (30 minutes)

Searches for pairs of Higgs bosons will be, in all likelihood, the best tools to precisely measure the Higgs boson self-coupling  $\lambda_{hhh}$  in future colliders. We study various strategies for the  $hh \rightarrow b\bar{b}b\bar{b}$  search in the HL-LHC era with focus on constraining  $\lambda_{hhh}$ . 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.

### Is this abstract from experiment?

No

### Name of experiment and experimental site

N/A

### Is the speaker for that presentation defined?

Yes

### Details

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### Internet talk

No

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**Session Classification:** Mini-workshop on Machine Learning for Particle Physics