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## **Boosted VBF HH→4b HL-LHC projections**

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This work focuses on extrapolating the constraints for diHiggs (HH) within the future HL-LHC, specifically targeting the boosted VBF (Vector Boson Fusion) topology. This production mode, while having a lower production rate than ggF, is more sensitive to certain coupling modifiers such as  $\kappa_2 V$ .

Previous studies using Run 2 data have shown that the boosted analysis is more sensitive to this modifier. This work aims to reproduce those results but for a scenario with higher luminosity and collision energy (up to 3000 fb<sup>-1</sup>). Multiple scenarios are proposed, considering variations to the group of systematic uncertainties.

As luminosity increases, seems that statistical uncertainties become less relevant, while systematic uncertainties become dominant. Various scenarios are analyzed, ranging from maintaining the same uncertainties as Run 2 to removing them completely. All of this is to analyze what new information the improvements of the HL-LHC can bring.

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