

# Sensitivity to New Physics in final states with multiple gauge and Higgs bosons

*Tuesday, November 8, 2022 10:40 AM (15 minutes)*

We analyse the sensitivity to beyond-the-Standard-Model effects of hadron-collider processes involving the interaction of two electroweak ( $V$ ) and two Higgs ( $H$ ) bosons,  $VVHH$ , with  $V$  being either a  $W$  or a  $Z$  boson. We examine current experimental results by the CMS collaboration in the context of a dimension-8 extension of the Standard Model in an effective-field-theory formalism. We show that constraints from vector-boson-fusion Higgs-pair production on operators that modify the Standard Model  $VVHH$  interactions are already comparable with or more stringent than those quoted in the analysis of vector-boson-scattering final states. We study the modifications of such constraints when introducing unitarity bounds, and investigate the potential of new experimental final states, such as  $ZHH$  associated production. Finally, we show perspectives for the high-luminosity phase of the LHC.

## Type of talk

Theory

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