

# Triple-Higgs searches in CMS

The shape of the Higgs potential is yet to be studied experimentally by the determination of the Higgs boson self-interaction couplings. While the trilinear coupling has already been constrained by measuring the inclusive di-Higgs production, the quartic coupling has only been constrained recently by direct experimental measurements. Quartic higgs self coupling can be accessed directly in triple Higgs production mode at LHC. This work reports one of the first searches at the LHC for simultaneous production of three Higgs bosons using Run 2 data of CMS. We also highlight the scope for HHH measurements going into the Run-3 and HL-LHC period.

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