

Probing for anomalous Higgs-VV couplings in production and decay $H \rightarrow 4l$ at CMS

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The study of the anomalous interactions of the recently discovered Higgs boson is performed using the decay information $H \rightarrow 4l$ and information from associated production of two quark jets, originating either from vector boson fusion or an associated vector boson. The full dataset recorded by the CMS experiment during 2016 of the LHC Run 2 is used, corresponding to an integrated luminosity of 35.9 fb^{-1} at 13 TeV. Novel techniques are used for the study of associated VBF and VH production and its combination with analysis of decay information using optimal approaches based on matrix element techniques. The tensor structure of the interactions of the spin-zero Higgs boson with two vector bosons either in production or in decay is investigated and constraints are set on anomalous HVV interactions. All observations are consistent with the expectations for the standard model Higgs boson.

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