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Measurements of differential and integrated fiducial cross sections for Higgs Boson production in the four-lepton decay channel using run 2 data with the CMS detector

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After the discovery of the Higgs boson and its characterisation, we are entering in the precision era of the Higgs physics where we need robust measurements to spot any sign of BSM physics. Among the many available tools, fiducial measurements are one of the most used in HEP due to their model independence, longevity, and easy comparison with theoretical predictions. The production cross section is measured by removing detector effects and backgrounds using an unfolding procedure.

Integrated and differential fiducial cross sections for the production of the Higgs boson in pp collision at the LHC at a $\sqrt{s}=13$ TeV via the $H \rightarrow ZZ \rightarrow 4\ell$ ($\ell=e,\mu$) channel are presented. The dataset was collected by the CMS experiment in 2016, 2017, and 2018, equivalent to a validated integrated luminosity of 137 fb^{-1} .

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