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## Measurement of fiducial and differential cross sections in the $H \rightarrow \gamma \gamma$ decay channel with 13 TeV proton-proton collision data with the ATLAS detector

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This poster presents fiducial and differential cross-section measurements of the Higgs boson in the  $H \rightarrow \gamma \gamma$  decay channel, using proton-proton collisions recorded at a 13 TeV centre-of-mass energy during 2015 and 2016. The amount of background, mainly from SM diphoton production and hadronic jets, is determined by a simultaneous signal and background fit to the diphoton mass spectrum. The fiducial cross-sections are measured in different phase space regions, and differentially as functions of a selection of variables. Differential distributions are used to probe kinematic properties, associated jet activity, and spin/CP nature of the Higgs boson. The data are compared to several state-of-the-art theoretical predictions of SM Higgs boson production.

Summary

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