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Differential cross section measurements in Higgs to gammagamma with the ATLAS detector at the LHC

Recent results in the bosonic decay modes have confirmed Higgs-like properties of the boson discovered in 2012 by the ATLAS and CMS collaborations. Measurements of the kinematic properties of the Higgs decay products and their correlations shed further light on its production and decay. With the 20/fb dataset collected in 2012, and the high selection efficiency, the diphoton decay channel is ideally suited to measure its properties. This poster presents the first differential cross-section measurements for several diphoton and jet distributions in ATLAS. The signal yield is extracted from the dominant diphoton and photon-jet background using a signal plus background fit of the narrow resonance. The measured cross sections are then corrected for acceptance and resolution and compared to Standard Model Higgs predictions.

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