

## Di-boson simulation and precise measurement of $Z\gamma$ analysis in ATLAS detector

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Di-boson process is one important test of the Standard Model Electroweak Symmetry Breaking (EWSB) and perturbative QCD, also the backgrounds for many new physics searches. The study shows the simulation and precise measurement of di-boson processes in pp collisions at  $\sqrt{s}=13\text{TeV}$ , using a dataset corresponding to an integrated luminosity of  $139\text{ fb}^{-1}$  recorded with the ATLAS detector at the LHC. The production of a photon in association with a Z boson with Z decay to a charged lepton pair is considered. Precise measurement of di-boson inclusive processes, which is sensitive to anomalous triple gauge coupling, providing one opportunity to perform BSM study. The simulation procedure and precise measurement of di-boson process are reported.

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