



Contribution ID: 238

Type: not specified

## Measurement of the $ZZ(^*)$ and $Z\gamma$ production cross sections at 8 TeV and 13 TeV and limits on anomalous triple gauge couplings with the ATLAS detector (WG3)

*Tuesday, April 12, 2016 4:50 PM (15 minutes)*

Measurements of the cross sections of the production of pairs of electroweak gauge bosons at the LHC constitute stringent tests of the electroweak sector of the Standard Model and provide a model-independent means to search for new physics at the TeV scale.

The ATLAS collaboration has measured inclusive and differential cross sections of the production of  $ZZ$  pairs and  $Z$  and photon pairs, using final states with the  $Z$  decaying to charged leptons or neutrinos.

First integrated measurements of the  $ZZ$  pair production cross sections using fully leptonic final states at 13 TeV using data corresponding to 3.2 /fb are presented.

Detailed studies of integrated and differential cross sections have been performed using data corresponding to 20.3 /fb at a centre-of-mass energy of 8 TeV. The measurements are performed as a function of a variety of kinematic variables calculated from the leptons, like the transverse momentum or rapidity of the vector bosons. For the case of the production of four charged leptons a measurement of the four-lepton invariant mass spectrum ranging from 80 to 1000 GeV was performed, where several distinct physics processes give rise to the production of 4-lepton final state. All measurements are compared to calculations at up to NNLO in pQCD. Constraints on new physics are provided by setting limits on anomalous triple couplings between neutral vector bosons, which are forbidden at tree level in the Standard Model.

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**Session Classification:** WG3 Electroweak Physics and Beyond the Standard Model

**Track Classification:** Electroweak Physics and Beyond the Standard Model