



Contribution ID: 291

Type: **Poster Presentation**

Studying $WW\gamma$ and $WZ\gamma$ production in proton-proton collisions at $\sqrt{s} = 8$ TeV with the ATLAS experiment

Measuring triboson final states at the Large Hadron Collider provides a test of the non-Abelian structure of the Standard Model of particle physics. This structure gives rise to self-interactions of the electroweak gauge bosons and the SM predicts the exact strength of these couplings of the gauge bosons. Any observed deviation from the SM expectations would imply the existence of physics beyond the SM.

This poster presents a study of triboson production using $WW\gamma$ and $WZ\gamma$ events produced in proton-proton collisions corresponding to an integrated luminosity of 20.2 fb^{-1} at a centre-of-mass energy of $\sqrt{s} = 8$ TeV and recorded with the ATLAS detector. The $WW\gamma$ production cross section is measured using the fully-leptonic final state containing an electron, a muon and a photon. Furthermore, upper limits on the production cross section of the fully-leptonic final state and semi-leptonic final states containing an electron or a muon, two jets and a photon are derived. The results are compared to the cross sections predicted by the Standard Model of particle physics at next-to-leading order precision. In addition, upper limits on the production cross section are derived in a phase space optimised for the search of physics beyond the Standard Model. The limits are computed for all final states individually and for the combination of the electron and muon channel of the semi-leptonic final states. The results obtained in this phase space are combined and interpreted in the context of anomalous quartic gauge couplings using an effective field theory.

Experimental Collaboration

ATLAS

Presenter: DJUVSLAND, Julia Isabell (Ruprecht-Karls-Universitaet Heidelberg (DE))

Session Classification: Poster session

Track Classification: Top and Electroweak Physics