Contribution ID: **104** Type: **Oral presentation**

Observation of the WWW Production in p-p Collision at √s = 13 TeV with the ATLAS Detector

WWW production was recently observed by the ATLAS collaboration using the full Run II data set with an integrated luminosity of 139 fb^{-1} at $\sqrt{s} = 13$ TeV. These first observation and cross-section measurements are presented. Measurements are performed in two final states. Events with two same-sign electrons or muons in association with two jets as well as events with three charged leptons with no same flavor opposite sign lepton pairs are selected. Machine learning techniques are used to improve the signal sensitivity by training different kinematic variables separately for each channel. Triboson WWW production is observed with a significance of 8.0σ, where the expectation is 5.4σ. The inclusive WWW production cross-section is measured to be 820 ± 100 (stat.) ± 80 (syst.) fb.

Career stage

Postdoc

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Session Classification: SM I