Contribution ID: **54** Type: **LHC experiments**

ttH Coupling Measurements with Multileptons and Photons, and Combined Results Using the ATLAS Detector at the LHC

Tuesday, 5 June 2018 17:15 (15 minutes)

After the discovery of a Higgs boson, the measurements of its properties are at the forefront of research. The determination of the associated production of a Higgs boson and a pair of top quarks is of particular importance as the ttH Yukawa coupling is large and can probe for physics beyond the Standard Model.

The ttH production was analysed in various final states. The results are reviewed with multileptons and $H \to \gamma\gamma$ final states.
The combined results also including the $H \to bb$ decay channel are presented.

The analysis was based on data taken in 2015 and 2016 by the ATLAS experiment recorded from 13˜TeV proton-proton collisions. The combined results provide evidence for the ttH production modes and are compared with the Standard Model (SM) predictions allowing models beyond the SM to be constrained.

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Session Classification: Posters session