



ID de Contribution: 175

Type: YSF (Young Scientists Forum)

Higgs boson production in association with a top quark pair with the ATLAS detector

mardi 13 mars 2018 19:51 (5 minutes)

This presentation covers a search for the associated production of the Higgs boson with a top quark pair ($t\bar{t}H$). The search is performed in multileptonic final states using a dataset corresponding to an integrated luminosity of 36.1 fb^{-1} of proton-proton collision data recorded by the ATLAS experiment at a center-of-mass energy of $\sqrt{s} = 13 \text{ TeV}$ at the Large Hadron Collider. Higgs boson decays to WW^* , $\tau\tau$ and ZZ^* are targeted. Seven final states, categorized by the number and flavor of charged-lepton candidates, are examined for the presence of the Standard Model Higgs boson with a mass of 125 GeV and a pair of top quarks. An excess of events over the expected background from Standard Model processes is found with an observed significance of 4.1 standard deviations, compared to an expectation of 2.8 standard deviations. New analysis techniques to suppress the main backgrounds are presented. Further the combination of this result with other $t\bar{t}H$ searches from the ATLAS experiment using the Higgs boson decay modes to $b\bar{b}$, $\gamma\gamma$ and $ZZ^* \rightarrow 4\ell$ is briefly reported.

Summary

Auteur principal: WOLFF, Robert (CPPM, Aix-Marseille Université, CNRS/IN2P3 (FR))

Orateur: WOLFF, Robert (CPPM, Aix-Marseille Université, CNRS/IN2P3 (FR))

Classification de Session: YSF2