Contribution ID: **114** Type: **Parallel talk**

Measurement of the ttH production cross-section in multi-leptonic final states in pp collisions at a centre-of-mass energy of 13 TeV with the CMS detector

Wednesday 16 October 2024 14:00 (15 minutes)

The Yukawa coupling of the Higgs boson to the top quark is a pivotal parameter in the Standard Model, providing insights into fundamental particle interactions. This coupling is investigated through the production processes of Higgs bosons in association with top quarks, including tH and ttH. Utilizing proton-proton collision data at a centre-of-mass energy of 13 TeV, this study encompasses an integrated luminosity of up to 137 fbˆ{-1} from the data period 2016 to 2018. Advanced machine learning methods enhance the sensitivity of distinguishing signals from the background and separating tH and ttH signals. The observed production rates for these processes are analyzed, with tH showing a significance of 1.38σ and ttH demonstrating a significance of 4.73σ. The coupling yt is constrained at a 95% confidence level within specific intervals. The sensitivity results will be presented, focusing on final states involving multi-lepton configurations.

Track type

SM and Higgs Physics

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