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Using associated production of top quarks to neutral bosons to probe standard model couplings

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The unprecedentedly large integrated luminosity accumulated by the ATLAS detector at the highest proton-proton collision energy provided by the LHC allows for studies of rare top-quark SM processes. The associated production of top quarks with neutral bosons is such an example: it directly probes top-quark couplings to photons and Z bosons and tests for deviations from the standard model.

Two measurements are presented.

The cross sections for the production of top-quark pairs in association with a photon (ttgamma) or with a Z boson (ttZ) are measured both inclusively and differentially as a function of kinematic variables characterizing the tt+boson system. Both sets of measurements use the full Run-2 data set, corresponding to 139/fb of integrated luminosity. Final states with three and four leptons and b-jets are used to extract ttZ rates, while tt+gamma cross sections are derived from final states with one photon, one electron and one muon of opposite sign and at least two jets. The measurements are compared to predictions obtained by NLO+PS Monte Carlo and fixed-order NLO calculations.

Is this abstract from experiment?

Yes

Is the speaker for that presentation defined?

Yes

Name of experiment and experimental site

ATLAS, http://atlas.cern/

Internet talk

Yes

Details

Michal Dubovsky

Primary authors: ATLAS COLLABORATION; DUBOVSKY, Michal (Comenius University (SK))

Presenter: DUBOVSKY, Michal (Comenius University (SK))

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