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Type: **Talk**

## Top quark properties and mass measurements with the ATLAS detector

*Thursday 24 August 2017 16:30 (30 minutes)*

The top quark is unique among the known quarks in that it decays before it has an opportunity to form hadronic bound states. This makes measurements of its properties particularly interesting as one can access directly the properties of a bare quark. The latest measurements of these properties with the ATLAS detector at the LHC are presented. Measurements of top quark spin observables in top-antitop events, each sensitive to a different coefficient of the spin density matrix, are presented and compared to the Standard Model predictions. The helicity of the W boson from the top decays and the production angles of the top quark are further discussed. Limits on the rate of flavour changing neutral currents in the production or decay of the top quark are reported. The production of top-quark pairs in association with W and Z bosons is also presented. The measurement probes the coupling between the top quark and the Z boson. The cross-section measurement of photons produced in association with top-quark pairs is also discussed. These process are all compared to the best available theoretical calculations. The latest ATLAS measurements of the top quark mass in lepton+jets, dilepton, and all-hadronic final states are also reported. In addition, measurements aiming to measure the mass in a well-defined scheme are presented.

### Topic:

Topic: High Energy Particle Physics

### Summary

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**Session Classification:** Parallel session

**Track Classification:** A High Energy Particle Physics: