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Measurement of top-quark properties with the ATLAS and CMS detectors at LHC

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The remarkably large integrated luminosity collected by the ATLAS and CMS detectors at the highest protonproton collision energy provided by LHC allows to use the large sample of top quark events to explore properties of the top quark production and decay and to probe the presence on new physics that might break well established symmetries. The angular properties are explored by illustrating the simultaneous measurement of the all three components of the top-quark and antiquark polarisation vectors in t-channel single-top-quark production, the measurement of normalised differential cross sections for single-top t-channel production as a function of the direction cosines of the momentum of the charged lepton in the top quark rest frame, the measurement of the helicity of the W boson from the top decays . The angular differential cross sections in single-top t-channel events are used to extract the complex Wilson coefficient of the dimension-six O_{tW} operator in the framework of an effective field theory. Measurements of the top sector of the CKM matrix and of the ttbar forward backward asymmetry enrich the exploration of top quark decay and production. Finally a measurement that tests the universality of the couplings of the different generations of leptons to the electroweak gauge bosons is illustrated.

Collaboration / Activity

CMS

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