



Contribution ID: 546

Type: **Talk**

Top quark properties overview (asymmetries, CP violation, spin correlations, FCNC) at the LHC

Wednesday 8 September 2021 17:35 (20 minutes)

The remarkably large integrated luminosity collected by the ATLAS and CMS detectors during Run2 in proton–proton collisions at a center-of-mass of 13 TeV allows to use the large sample of top quark events to explore a variety of properties of top quark production and decay and to probe the presence on new physics that might break well established symmetries or manifest itself in rare processes. In addition to spin correlation, asymmetry measurements are presented in observables sensitive to CP violation using $t\bar{t}$ events. Furthermore, the electroweak nature of t-channel single top production is exploited to measure the three top (anti)quark polarization vectors. Finally, $t\bar{t}$ and single top productions are used jointly to search for top quark flavor-changing interactions with the Higgs boson, charm or up quarks, and gluons.

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Session Classification: Standard model physics at the TeV scale

Track Classification: Standard model physics at the TeV scale