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Type: **Experimental poster**

Measurement of the top quark pole mass using $t\bar{t}$ +jet events in the dilepton final state at 13 TeV

Tuesday 17 May 2022 19:00 (1 hour)

A measurement of the top quark pole mass in events where the top quark-antiquark pair is produced in association with one additional jet is presented. This analysis is performed using proton-proton collision data at 13 TeV collected by the CMS experiment at the CERN LHC in 2016, corresponding to a total integrated luminosity of 36.3 fb^{-1} . Events with two opposite charge leptons in the final state ($e\bar{e}$, $\mu\bar{\mu}$, $e\mu$) are analyzed. Using multivariate analysis techniques based on Machine Learning, the reconstruction of the main observable and the event selection are optimized. The production cross section is measured as a function of the invariant of the $t\bar{t}$ +jet system invariant mass at parton-level, using a maximum likelihood unfolding method. The top quark pole mass is then obtained from a chi-squared fit of the theory predictions at next-to-leading order precision to the data.

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