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Inclusive and differential cross-sections measurements in the single top tW e-mu channel with CMS at Run 3

The first inclusive and normalised differential cross sections measurements for the production of single top quarks in association with a W boson in proton-proton collisions at a centre-of-mass energy of 13.6 TeV are presented. The data used were recorded with the CMS detector during 2022. Events containing one muon and one electron in the final state are analysed. For the inclusive measurement, a multivariate discriminant, exploiting the kinematic properties of the events, is used to separate the signal from the dominant $t\bar{t}$ background. For the differential measurements, a fiducial region is defined according to the detector acceptance, and the requirement of exactly one b-tagged jet. The resulting distributions are unfolded to particle-level and compared with predictions at next-to-leading order in perturbative QCD

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