

Study of underlying event in top quark pair production in pp collisions at 13 TeV

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The first measurements of the underlying event activity in top quark and antiquark pair production are presented.

The measurements are performed in proton-proton collisions at a center-of-mass energy of 13 TeV, and are based on data collected by the CMS experiment at the LHC in 2016 corresponding to an integrated luminosity of 35.9 fb⁻¹. In each event, the contribution from the underlying event is isolated using particle-flow reconstruction by removing charged particles associated with the decay products of the top quark pair candidates as well as with pileup interactions from the reconstructed charged particles. The measurements are done using observable that enhance the sensitivity to the modelling of multiparton interactions, colour reconnection and the choice of the strong coupling parameter in the PYTHIA8 parton shower code. These measurements characterise, for the first time, the underlying event in top quark pair production and test the universality hypothesis at energy scales typically higher than the ones at which model parameters have been determined.

Type

Parallel talk

Sessions (parallel only)

Heavy Flavor

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