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Measurement of top quark decay width in the dilepton channel from pp collisions at 13 TeV with CMS data

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We present a direct measurement of the top quark decay width with events from proton-proton collisions at a center-of-mass energy of 13 TeV. The data were taken by the CMS detector in 2016, corresponding to an integrated luminosity of 35.9 fb-1. The measurement is performed using the dilepton final state of the ttbar system which are selected containing two charged leptons and at least two jets, with at least one jet being identified as coming from a b quark. The distribution of the invariant mass of the lepton-b jet pairs is reconstructed in different categories depending on the multiplicity of b-jets and on the transverse momentum of the pairs. The distributions are compared to different hypothesis of the width and mass of the top quark which have been simulated at next-to-leading order QCD. A combined profile likelihood fit is used to extract both parameters simultaneously. After profiling the top quark mass we expect to measure the width with a 30% relative uncertainty.

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