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Measurement of the top mass with boosted jets

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We present a measurement of the jet mass distribution in fully hadronic decays of boosted top quarks with full Run 2 data. The measurement is performed in the lepton+jets channel of top quark pair production. The top quark decay products of the all-hadronic decay cascade are reconstructed with a single large-radius jet with transverse momentum greater than 400 GeV. The top quark mass is extracted from the normalised differential top quark pair production cross section at the particle level. The uncertainties arising from the calibration of the jet mass scale and modelling of the final state radiation in simulation are improved by dedicated studies of the jet substructure. These studies lead to a significant increase in precision in the top quark mass with respect to an earlier measurement, now reaching a precision below 1 GeV.

Declaration

I certify that I have checked that I am authorised to submit the abstract with the listed co-authors with their current affiliations

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