

Recent measurements of the top-quark mass using the ATLAS detector at the LHC

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The top-quark mass is an important fundamental parameter of the Standard Model, since higher-order corrections involving top quarks have a large impact due to the high value of the top-quark mass. A new measurement of the top-quark mass is presented. The analysis is based on top-quark-antiquark pair events in which a soft muon is reconstructed which originates in a large fraction of the cases from the b hadron from top-quark decay. This measurement method is less sensitive to the jet energy calibration and has therefore different systematic uncertainties than conventional measurements. In addition, a measurement of the top-quark pole mass is performed using the normalised differential cross section of top-quark-antiquark pair production in association with an energetic jet in the lepton+jets final state unfolded to parton level. A comparison between the experimental distribution and the theoretical prediction allows the top-quark mass to be extracted in the pole mass scheme and in the $\overline{\text{MS}}$ scheme.

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