

# Measurements of charge and CP asymmetries in b-hadron decays using top-quark events collected by the ATLAS detector in pp collisions at $\sqrt{s} = 13\text{TeV}$

*Monday 7 April 2025 17:00 (15 minutes)*

Same- and opposite-sign charge asymmetries are measured in top-quark pair events in which a b-hadron decays semileptonically to a muon, using data corresponding to an integrated luminosity of  $139\text{ fb}^{-1}$  from proton-proton collisions at a centre-of-mass energy of  $\sqrt{s} = 13\text{TeV}$  collected with the ATLAS detector at the Large Hadron Collider at CERN. The charge asymmetries are based on the charge of the lepton from the top-quark decay and the charge of the muon from the semileptonic decay of a b-hadron and are measured in a fiducial region corresponding to the experimental acceptance. The measurement investigates the excess over the Standard Model reported by the D0 experiment and looks to improve upon the statistically limited  $\sqrt{s} = 8\text{TeV}$  measurements made at ATLAS using the full Run 2 dataset and new analysis techniques.

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