

# Measurement of the mass difference between top and anti-top quarks in pp collisions at $\sqrt{s}=7$ TeV using the ATLAS detector

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## Abstract:

A measurement of the mass difference between top and anti-top quarks is presented. In a 4.7 fb<sup>-1</sup> data sample of proton-proton collisions at  $\sqrt{s} = 7$  TeV recorded with the ATLAS detector at the LHC, events consistent with  $t\bar{t}$  production and decay into a single charged lepton final state are reconstructed. For each event, the mass difference between the top and anti-top quark candidate is calculated. A two b-tag requirement is used in order to reduce the background contribution. A maximum likelihood fit to these per-event mass differences yields  $m_t - m_{\bar{t}} = 0.67 \pm 0.61$  (stat)  $\pm 0.41$  (syst) GeV, consistent with CPT invariance.

**Keywords:** -