

Direct Measurement of the Mass Difference Between Top and Antitop Quarks with the D0 Detector

We present a measurement of the difference between the masses of the top and antitop quarks in the lepton+jets final state. The analysis is based on the “matrix element” method. The purity of the data sample is enhanced by applying a neural-net-based b-tagging technique. The data for this measurement corresponds to 1 fb⁻¹ of integrated luminosity acquired by the D0 experiment at the Fermilab Tevatron Collider. This represents the first direct measurement of a mass difference between a quark and its antiquark and represents a test of CPT invariance.

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