

MEASUREMENT OF TOP QUARK MASS IN THE ALL HADRONIC
CHANNEL IN $\sqrt{s} = 1.96$ TeV, $p\bar{p}$ COLLISIONS AT DØ

Abstract

by

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A measurement of the top quark mass in proton-antiproton collisions at $\sqrt{s} = 1.96$ TeV using $1040 fb^{-1}$ of data collected in DØ detector at Fermilab is presented. This analysis focuses on the all-hadronic decay mode of the top quark and therefore only events with six or more calorimeter jets in the final state are considered. The measured top masses in the six jets and seven or more jets events are:

$$m_{top}^{6j} = 187.3_{-5.7}^{+6.4}(\text{stat.})_{-4.0}^{+3.2}(\text{syst.}) \text{ GeV}/c^2 \quad (1)$$

$$m_{top}^{7+j} = 173.8_{-7.6}^{+9.4}(\text{stat.})_{-7.4}^{+3.1}(\text{syst.}) \text{ GeV}/c^2 \quad (2)$$

The results from both cases can be combined to give:

$$m_{top} = 183.6_{-4.8}^{+5.3}(\text{stat.})_{-4.6}^{+3.2}(\text{syst.}) \text{ GeV}/c^2 \quad (3)$$