

APR08-2008-000589

Abstract Submitted
for the APR08 Meeting of
The American Physical Society

Sorting Category: A19. (E)

Top quark mass measurement in the lepton+jets and dilepton channels at CDF using a template method HYUN SU LEE, University of Chicago, CDF COLLABORATION — We present a measurement of the top quark mass using the CDF detector at the Fermilab Tevatron in a 2 fb^{-1} data sample observed in the lepton+jets and two leptons final states. In the lepton+jets channel, we determine the reconstructed top quark invariant mass in each event by minimizing a χ^2 for the overconstrained kinematic system. At the same time, we measure the mass of the hadronically decaying W boson in the same event sample, that provides an in situ improvement in the determination of the jet energy scale. In the dilepton channel, the reconstruction of the top quark mass involves an under-constrained system due to two neutrinos in each event. We integrate undetermined kinematic variables and produce a probability distribution which gives the relative likelihood of different values of the top quark mass. We extract the top quark mass and the jet energy scale by comparing representative distributions constructed from simulated events to the data distribution. We simultaneously fit for the top quark mass and the jet energy scale using two observables in the lepton + jets and dilepton channels with a single likelihood.

- Prefer Oral Session
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Special instructions: Membership pending

Date submitted: 10 Jan 2008

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