Contribution ID: **54** Type: **not specified**

Top Quark Mass Measurement using Matrix Element Analysis Technique and Lepton + Jets Channel

Monday 6 April 2009 16:15 (15 minutes)

We present a top quark mass measurement using ttbar candidate events for the lepton+jets decay channel from ppbar collisions at 1.96 TeV at CDF. The top quark mass is extracted by employing an unbinned maximum likelihood method using per-event probability density functions calculated using signal (ttbar) and background (W+jets) matrix elements, as well as a set of parameterised jet-to-parton mapping functions. The likelihood function is maximised with respect to the top quark mass, the fraction of signal events, and the jet energy scale correction, which is constrained in-situ via the mass of the hadronic W boson.

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Session Classification: Parallel Session 1 A - QCD and Electroweak

Track Classification: QCD and EW