

Search for top-antitop resonances using DØ Run 1 data at the Tevatron

DØ Collaboration

We use 125 pb^{-1} of data collected with the DØ detector at Fermilab to search for a narrow-width vector particle X, decaying to a top and an antitop quark. In the absence of any significant excess from the standard model expectations in the data with leptons plus jets in the final state, we present model-independent 95% confidence level upper limits on the cross section for narrow vector resonances decaying to t-tbar.

Use of maximal information for extracting parameters in single-lepton $t\bar{t}$ events.

DØ Collaboration

We present a novel approach to extract information from data through a direct comparison of all measured variables in an event with a matrix element that describes the entire production process. This approach is exemplified for t-tbar production in final states involving lepton + jets events, and used to determine the mass of the top quark and the helicity of the W boson in the decays of top quarks in such events.

Studies of W +jets Events and Top Quark Identification in the Electron+jets Channel at $D\bar{O}$

D \bar{O} Collaboration

We present preliminary studies of W + jets events in the single-electron with jets and large missing transverse energy channel using the first ppbar collision data collected with the $D\bar{O}$ detector at Fermilab at a center of mass energy of 1.96 TeV. We discuss the electron and jet identification and describe the techniques for isolating a top quark signal. We estimate the background contribution to the inclusive jet multiplicity distribution from studies of multijet data.

Status of $W \rightarrow \mu\nu$ plus jets and top quark identification at $D\bar{O}$

D \bar{O} Collaboration

We present preliminary studies of $W \rightarrow \mu\nu$ + jet events using the Run 2 $D\bar{O}$ detector at the Fermilab Tevatron. Results on trigger efficiencies and identification of muons and jets are given. We also describe present and future strategies for isolating a top quark signal in this channel.

Prospects for top physics with 15 fb^{-1} at DØ

DØ Collaboration

The DØ experiment started taking data with a new upgraded detector in mid 2001. Expectations are that we will take a few fb^{-1} of data with this detector during the so called Run2a before the need arises to replace the silicon tracker and trigger for the second phase of running called Run2b. The ultimate goal for the entire Run2 is to collect 15 fb^{-1} of data. An extensive program for studying top quark physics is planned with this data. Expectations for measurement of properties of the top quark including: its mass, decay width, decay fraction to b quarks, production cross sections, and kinematic studies will be presented.

Anomalous couplings of the top quark leading to FCNC interactions

DØ Collaboration

In the Standard Model (SM) flavour changing neutral currents (FCNC) only arise via higher order corrections and are highly suppressed. This makes FCNC processes an ideal place to look for new physics at high energy colliders. Many extensions of the SM predict magnetic-like couplings between the top, a light quark (u or c) and a neutral gauge boson (photon, gluon). The expected sensitivity of the DØ experiment to these anomalous couplings is presented here and is compared to the relevant existing bounds. In particular it is shown that a large discovery potential for a new tqg coupling is provided by the search for anomalous single top production.