ICHEP 2010

Abstracts book

Table of contents

Search for Associated Production of Z and Higgs Bosons in $ll bb$ Final States in ppbar Collisions at sqrt(s)=1.96 TeV . . . 5

Search for Associated Production of W and Higgs Bosons in $l\nu bb$ Final States in ppbar Collisions at sqrt(s)=1.96 TeV . . . 6

Search for Associated Production of Z and Higgs Bosons in $\nu\nu bb$ Final States in ppbar Collisions at sqrt(s)=1.96 TeV . . . 7

Search for the Standard Model Higgs boson in the $\tau\tau q\bar q$ final state in ppbar Collisions at sqrt(s)=1.96 TeV . . . 8

Search for the Higgs Boson in $WW^{(*)}\to l^+l'^-$ Decays in ppbar Collisions at sqrt(s)=1.96 TeV . . . 9

Search for the Higgs Boson in $VH \to VWW^{(*)} \to ll' + X $ Decays in ppbar Collisions at sqrt(s)=1.96 TeV . . . 10

Search for Higgs Bosons in $H \to \gamma \gamma$ Decays in ppbar Collisions at sqrt(s)=1.96 TeV . . . 11

Search for the Standard Model Higgs in Semi-leptonic $WW^{(*)}$ decays in ppbar collisions at sqrt(s)=1.96 TeV . . . 12

Combined Upper Limit on Standard Model Higgs Boson Production at D0 in ppbar Collisions at sqrt(s)=1.96 TeV . . . 13

Measurement of Di-boson Production in Lepton Plus Jets Decays in ppbar Collisions at sqrt(s)=1.96 TeV . . . 14

Search for Neutral Supersymmetric Higgs Bosons in bbb(b) Final States in ppbar Collisions at sqrt(s)=1.96 TeV . . . 15

Search for Neutral Supersymmetric Higgs Bosons in di-τ Final States in ppbar Collisions at sqrt(s)=1.96 TeV . . . 16

Search for Neutral Supersymmetric Higgs Bosons in b$\tau\tau$ Final States in ppbar Collisions at sqrt(s)=1.96 TeV . . . 17

Combined upper limits on MSSM Higgs-boson production with up to 5.4 fb-1 of data at D0 . . . 18

Search for the lightest neutral CP-even Higgs boson in the Next-to-Minimal Supersymmetric Standard Model in ppbar Collisions at sqrt(s)=1.96 TeV . . . 19

Combined Upper Limits on Standard Model Higgs Boson Production at the Tevatron in ppbar Collisions at sqrt(s)=1.96 TeV . . . 20

Combined CDF and D0 upper limits on MSSM Higgs boson production in tau-tau final states in ppbar Collisions at sqrt(s)=1.96 TeV . . . 21

Measurements of the Top Quark Mass in the Lepton+Jets Channel with the D0 detector . . . 22

Measurement of the top quark mass in final states with two leptons using the D0 Detector . . . 23

Difference Between Top and Antitop Quarks with the D0 Detector . . . 24

Measurement of the Top Production Cross Section with the D0 Detector . . . 25

Measurement of differential distributions of top quarks with the D0 detector . . . 26

Single Top Quark Production with the D0 Detector . . . 27

Single Top Quark production in tau+jets channel at D0 28
Search for Flavor Changing Neutral Currents in Single Top final states with D0 29
Measurement of the Wtb Coupling and the W Boson Helicity in Top Quark Decays with the D0 Detector 30
Search for ttbar Resonances in the Lepton+Jets Final State in ppbar Collisions at sqrt{s}=1.96 TeV 31
Search for the Standard Model Higgs boson in the ttbar H --> ttbar bbar channel 32
Search for fourth generation t' quarks that decay to Wb 33
Measurement of the forward-backward charge asymmetry in top quark pair production 34
Search for Charged Higgs Bosons in ppbar collisions at sqrt{s}=1.96 TeV 35
Search for the Lightest Scalar Top Quark with the D0 Detector 36
Determination of the width of the top quark 37
Spin correlations in ttbar events at D 38
Search for W' bosons decaying to a top quark and a bottom quark 39
Search for Anomalous Top Quark Couplings at D0 40
Searches for Dielectron and Diphoton Resonances with the D0 Detector 41
Searches for WZ Resonances with the D0 Detector 42
Searches for Vector Quarks with the D0 Detector 43
Searches for R-Parity Violating Supersymmetry with the D0 Detector 44
Searches for Gauge-Mediated Supersymmetry with the D0 Detector 45
Searches for Sbottom Quarks with the D0 Detector 46
Searches for Leptoquarks with the D0 Detector 47
Searches for Signals from Hidden Valleys with the D0 Detector 48
Searches for Charged Massive Long-Lived Particles with the D0 detector 49
Searches for Quirks with the D0 Detector 50
Searches for Technicolor with the D0 Detector 51
Measurement of the Inclusive Jet Cross Section in ppbar Collisions at sqrt(s) = 1.96 TeV 52
Measurement of gamma + b + X and gamma + c + X Production Cross Sections in ppbar Collisions at sqrt(s) = 1.96 TeV 53
Measurement of Differential Z/gamma* + jet + X Cross Sections in pp Collisions at sqrt(s) = 1.96 TeV 54
Measurements of Differential Cross Sections of Z/gamma*+jets+X Events in ppbar Collisions at sqrt(s) = 1.96 TeV 55
Measurement of Z/gamma* +jet+X angular distributions in ppbar collisions at sqrt(s)=1.96 TeV . 56
Determination of the strong coupling constant from the inclusive jet cross section in ppbar collisions at sqrt(s)=1.96 TeV 57
Measurement of dijet angular distributions at sqrt{s}=1.96TeV and searches for quark compositeness and extra spatial dimensions 58
Double parton interactions in photon+3 jet events in ppbar collisions at sqrt{s}=1.96 TeV. 59
Measurement of Direct Photon Pair Production Cross Sections in ppabr Collisions at sqrt{s}=1.96TeV 60
Measurement of the dijet mass cross section in ppbar collisions at sqrt{s}=1.96 TeV. 61
Measurement of multi-jet cross section ratios in ppbar collisions at sqrt{s}=1.96TeV 62

Measurement of the pT and rapidity dependence of dijet azimuthal decorrelations in ppbar collisions at sqrt{s}=1.96TeV . . . 63
Inclusive Three-Jet Cross Section at D0 . . . 64
Measurement of production cross section ratio sigma(Z+b jet)/sigma(Z+jet) at D0 . . . 65
W+jets differential cross sections at D0 . . . 66
Angular correlations in minimum bias events at D0. . . . 67
Evidence for high mass exclusive dijet production in the D0 experiment . . . 68
Measurement of the elastic ppbar differential cross section in the range 0.25<|t|<1.2 GeV at sqrt{s}=1.96 TeV. . . . 69
Angular correlations in photon+2jet and photon+3jet events . . . 70
Measurement of muon charge asymmetry . . . 71
Measurement of Z/gamma* boson forward-backward charge asymmetry and extraction of weak mixing angle . . . 72
Measurement of WZ->lvll cross section and limits on the anomalous triple gauge couplings . . . 73
Measurement of ZZ->llll cross section and limits on the anomalous triple gauge couplings . . . 74
W boson mass and width measurements at D0 . . . 75
Measurement of Z/gamma* boson transverse momentum distribution . . . 76
Search for CP violation in semileptonic B^0_s decays . . . 77
New upper limit on the decay $B_s \to \mu \mu$ from D0 . . . 78
A Measurement of B_s^0 Mixing Using the Flavor-tagged Decay ${B_s^0 \rightarrow J/\psi \phi}$ . . . 79
Evidence for an anomalous like-sign dimuon charge asymmetry . . . 80
Combination of the D0 constraints on the CP violating phase ϕ_s . . . 81

Abstract ID : 347

Search for Associated Production of Z and Higgs Bosons in $ll bb$ Final States in ppbar Collisions at sqrt(s)=1.96 TeV

Content :

We present a search for a low mass Standard Model Higgs boson produced in association with a Z boson decaying to charged leptons at a center-of-mass energy of $\sqrt{s}=$1.96~TeV with the D0 detector at the Fermilab Tevatron collider. The search is performed in events containing two opposite-sign leptons (electron or muon) and one or two b-tagged jets with up to 6.4~fb^{-1} of data. Inclusion of the full data set and recent sensitivity improvements will be discussed.

Primary authors : D0, Physics Coordinators (D0 experiment)

Co-authors :

Presenter : D0, Physics Coordinators (D0 experiment)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Friday 07 May 2010

Last modified on : Friday 07 May 2010

Comments :

Abstract submitted on behalf of the D0 Collaboration. The name of the person presenting the abstract will be replaced after the assignment of talks by the parallel session conveners and the D0 Collaboration. For questions about the abstract please contact Gregorio Bernardi <gregorio@in2p3.fr> and Marco Verzocchi <mverzocc@fnal.gov> For speakers requests please contact the D0 speakers bureau (Horst Wahl <wahl@fnal.gov>)

Abstract ID : 562

Search for Associated Production of W and Higgs Bosons in $l\nu bb$ Final States in ppbar Collisions at sqrt(s)=1.96 TeV

Content :

We present a search for a low mass Standard Model Higgs boson produced in association with a W boson at a center-of-mass energy of $\sqrt{s}=$1.96~TeV with the D0 detector at the Fermilab Tevatron collider. The search is performed in events containing one lepton (electron, muon or tau), an imbalance in the transverse energy, and one or two b-tagged jets with up to 6.4~fb^{-1} of data. This channel is one of the most powerful in the search for a low mass Higgs at the Tevatron. Inclusion of the full data set and recent sensitivity improvements will be discussed.

Primary authors : D0, Physics Coordinators (D0 Collaboration)

Co-authors :

Presenter : D0, Physics Coordinators (D0 Collaboration)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract submitted on behalf of the D0 Collaboration. The name of the person presenting the abstract will be replaced after the assignment of talks by the parallel session conveners and the D0 Collaboration. For questions about the abstract please contact Gregorio Bernardi <gregorio@in2p3.fr> and Marco Verzocchi <mverzocc@fnal.gov> For speakers requests please contact the D0 speakers bureau (Horst Wahl <wahl@fnal.gov>)

Abstract ID : 563

Search for Associated Production of Z and Higgs Bosons in $\nu\nu bb$ Final States in ppbar Collisions at sqrt(s)=1.96 TeV

Content :

We present a search for a low mass Standard Model Higgs boson produced in association with a Z boson decaying invisibly into a pair of neutrinos at a center-of-mass energy of $\sqrt{s}=$1.96~TeV with the D0 detector at the Fermilab Tevatron collider. The final state is characterised by the presence of two b-tagged jets from the Higgs boson decay and a large imbalance in the transverse energy of the event. This channel is very powerful because of the large signal yields, but is experimentally challenging due to the large QCD backgrounds and absence of visible leptons in the final state. Inclusion of the full data set, up to 6.8~fb^{-1}, and recent improvements to the sensitivity will be discussed.

Primary authors : D0, Physics Coordinators (D0 Collaboration)

Co-authors :

Presenter : D0, Physics Coordinators (D0 Collaboration)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract submitted on behalf of the D0 Collaboration. The name of the person presenting the abstract will be replaced after the assignment of talks by the parallel session conveners and the D0 Collaboration. For questions about the abstract please contact Gregorio Bernardi <gregorio@in2p3.fr> and Marco Verzocchi <mverzocc@fnal.gov> For speakers requests please contact the D0 speakers bureau (Horst Wahl <wahl@fnal.gov>)

Abstract ID : 564

Search for the Standard Model Higgs boson in the $\tau\tau q\bar q$ final state in ppbar Collisions at sqrt(s)=1.96 TeV

Content :

We present a search for a Standard Model Higgs boson in events with a final state containing two taus and two jets, in which one tau decays to either a muon or an electron and the other tau decays to hadrons at a center-of-mass energy of $\sqrt{s}=$1.96~TeV with the D0 detector at the Fermilab Tevatron collider. The final states are sensitive to a combination of associated production of a W/Z boson with a Higgs boson, vector boson fusion and gluon-gluon fusion production processes. Inclusion of the full data set, up to 5.4~fb^{-1}, and recent improvements to the sensitivity will be discussed.

Primary authors : D0, Physics Coordinators (D0 Collaboration)

Co-authors :

Presenter : D0, Physics Coordinators (D0 Collaboration)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract submitted on behalf of the D0 Collaboration. The name of the person presenting the abstract will be replaced after the assignment of talks by the parallel session conveners and the D0 Collaboration. For questions about the abstract please contact Gregorio Bernardi <gregorio@in2p3.fr> and Marco Verzocchi <mverzocc@fnal.gov> For speakers requests please contact the D0 speakers bureau (Horst Wahl <wahl@fnal.gov>)

Abstract ID : 565

Search for the Higgs Boson in $WW^{(*)}\to l^+l'^-$ Decays in ppbar Collisions at sqrt(s)=1.96 TeV

Content :

We present a search for the Standard Model Higgs boson produced via the $H\to WW^{(*)}\to l^+l'^-$ (l,l' = e,μ,τ) process at a center-of-mass energy of $\sqrt{s}=$1.96~TeV with the D0 detector at the Fermilab Tevatron collider. A Higgs particle with a mass greater than 140 GeV primarily decays into a pair of W-bosons and the leptonic decay channels of the W provide a clear signature. This channel provides the greatest sensitivity to the Higgs boson at the Tevatron, and sensitivity to the Standard Model Higgs is expected with this data set. Inclusion of the full data set, approximately 6.8~fb^{-1}, and recent improvements to the sensitivity will be discussed.

Primary authors : D0, Physics Coordinators (D0 Collaboration)

Co-authors :

Presenter : D0, Physics Coordinators (D0 Collaboration)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract submitted on behalf of the D0 Collaboration. The name of the person presenting the abstract will be replaced after the assignment of talks by the parallel session conveners and the D0 Collaboration. For questions about the abstract please contact Gregorio Bernardi <gregorio@in2p3.fr> and Marco Verzocchi <mverzocc@fnal.gov> For speakers requests please contact the D0 speakers bureau (Horst Wahl <wahl@fnal.gov>)

Abstract ID : 566

Search for the Higgs Boson in $VH \to VWW^{(*)} \to ll' + X $ Decays in ppbar Collisions at sqrt(s)=1.96 TeV

Content :

We present a search for the Standard Model Higgs boson produced via the $VH \to VWW^{(*)} \to l^{pm}\nu l'^{pm}\nu' + X $ process at a center-of-mass energy of $\sqrt{s}=$1.96~TeV with the D0 detector at the Fermilab Tevatron collider. We require two like-sign leptons (electrons or muons). This channel provides significant sensitivity in the intermediate Higgs boson mass range. Inclusion of the full data set, up to 5.4~fb^{-1}, and recent improvements to the sensitivity will be discussed.

Primary authors : D0, Physics Coordinators (D0 Collaboration)

Co-authors :

Presenter : D0, Physics Coordinators (D0 Collaboration)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract submitted on behalf of the D0 Collaboration. The name of the person presenting the abstract will be replaced after the assignment of talks by the parallel session conveners and the D0 Collaboration. For questions about the abstract please contact Gregorio Bernardi <gregorio@in2p3.fr> and Marco Verzocchi <mverzocc@fnal.gov> For speakers requests please contact the D0 speakers bureau (Horst Wahl <wahl@fnal.gov>)

Abstract ID : 567

Search for Higgs Bosons in $H \to \gamma \gamma$ Decays in ppbar Collisions at sqrt(s)=1.96 TeV

Content :

We present a search for Higgs bosons decaying to the di-photon final state using up to 4.2~fb^{-1} of data at a center-of-mass energy of $\sqrt{s}=$1.96~TeV with the D0 detector at the Fermilab Tevatron collider. Both gluon fusion and associated production processes are exploited. Whilst the branching ratio to the di-photon final state is small in the Standard Model, this channel contributes appreciably to the overall Higgs sensitivity at Tevatron. In parallel, the limit is re-interpreted in fermiophobic models where the di-photon branching ratio is considerably larger. This decay channel will be of major importance in the light mass Standard Model Higgs search at the LHC.

Primary authors : D0, Physics Coordinators (D0 Collaboration)

Co-authors :

Presenter : D0, Physics Coordinators (D0 Collaboration)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract submitted on behalf of the D0 Collaboration. The name of the person presenting the abstract will be replaced after the assignment of talks by the parallel session conveners and the D0 Collaboration. For questions about the abstract please contact Gregorio Bernardi <gregorio@in2p3.fr> and Marco Verzocchi <mverzocc@fnal.gov> For speakers requests please contact the D0 speakers bureau (Horst Wahl <wahl@fnal.gov>)

Abstract ID : 568

Search for the Standard Model Higgs in Semi-leptonic $WW^{(*)}$ decays in ppbar collisions at sqrt(s)=1.96 TeV

Content :

We present a search for the Standard Model Higgs boson produced via the $H\to WW^{(*)}\to l\nu jj$ process at a center-of-mass energy of $\sqrt{s}=$1.96~TeV using up to 5.4~fb^{-1} of data collected with the D0 detector at the Fermilab Tevatron collider. We search in events with one lepton (electron or muon), two jets and missing transverse energy. A Higgs particle with a mass greater than 140 GeV primarily decays into a pair of W-bosons. Whilst the di-lepton channels provide a clean signature, the semi-leptonic decay mode has a significantly larger cross section x branching ratio. Whilst able to reconstruct the Higgs mass the difficulty is in overcoming the very large W+jets background, and the procedures developed to achieve this will be discussed.

Primary authors : D0, Physics Coordinators (D0 Collaboration)

Co-authors :

Presenter : D0, Physics Coordinators (D0 Collaboration)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract submitted on behalf of the D0 Collaboration. The name of the person presenting the abstract will be replaced after the assignment of talks by the parallel session conveners and the D0 Collaboration. For questions about the abstract please contact Gregorio Bernardi <gregorio@in2p3.fr> and Marco Verzocchi <mverzocc@fnal.gov> For speakers requests please contact the D0 speakers bureau (Horst Wahl <wahl@fnal.gov>)

Abstract ID : 569

Combined Upper Limit on Standard Model Higgs Boson Production at D0 in ppbar Collisions at sqrt(s)=1.96 TeV

Content :

We present the combination of the searches for the Standard Model Higgs boson at a center-of-mass energy of $\sqrt{s}=$1.96~TeV, using up to 7~fb^{-1} of data collected with the D0 detector at the Fermilab Tevatron collider. The major contributing processes include associated production ($WH\to l\nu bb$, $ZH\to\nu\nu bb$, $ZH\to ll bb$, and $WH\to WWW^{(*)}$) and gluon fusion ($gg\to H\to WW^{(*)}$). The significant improvements across the full mass range resulting from the larger data sets, improved analyses and inclusion of additional channels are discussed. The combination of all channels results in significantly improved sensitivity across the 100-300 GeV mass range, and in particular around 160 GeV.

Primary authors : D0, Physics Coordinators (D0 Collaboration)

Co-authors :

Presenter : D0, Physics Coordinators (D0 Collaboration)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract submitted on behalf of the D0 Collaboration. The name of the person presenting the abstract will be replaced after the assignment of talks by the parallel session conveners and the D0 Collaboration. For questions about the abstract please contact Gregorio Bernardi <gregorio@in2p3.fr> and Marco Verzocchi <mverzocc@fnal.gov> For speakers requests please contact the D0 speakers bureau (Horst Wahl <wahl@fnal.gov>)

Abstract ID : 570

Measurement of Di-boson Production in Lepton Plus Jets Decays in ppbar Collisions at sqrt(s)=1.96 TeV

Content :

We present a measurement of the cross section for the simultaneous production of two vector bosons (WW,WZ,ZZ) in lepton plus jets decays at a center-of-mass energy of $\sqrt{s}=$1.96~TeV using up to 5.4~fb^{-1} of data collected with the D0 detector. This final state is a direct analog to SM Higgs searches in final states of leptons plus bottom quark pairs, and thus provides a crucial validation benchmark of the signal isolation techniques involved.

Primary authors : D0, Physics Coordinators (D0 Collaboration)

Co-authors :

Presenter : D0, Physics Coordinators (D0 Collaboration)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract submitted on behalf of the D0 Collaboration. The name of the person presenting the abstract will be replaced after the assignment of talks by the parallel session conveners and the D0 Collaboration. For questions about the abstract please contact Gregorio Bernardi <gregorio@in2p3.fr> and Marco Verzocchi <mverzocc@fnal.gov> For speakers requests please contact the D0 speakers bureau (Horst Wahl <wahl@fnal.gov>)

Abstract ID : 571

Search for Neutral Supersymmetric Higgs Bosons in bbb(b) Final States in ppbar Collisions at sqrt(s)=1.96 TeV

Content :

We present a search for Higgs bosons in the bh($\to$bbar) and bbh($\to$bbar) channels at a center-of-mass energy of $\sqrt{s}=$1.96~TeV using up to 5.4~fb^{-1} of data collected with the D0 detector. In many Supersymmetric models the cross-section for production of neutral Higgs bosons in association with bottom quarks is greatly enhanced compared to the Standard Model, and over much of the parameter space the dominant decay process is $\to bbar$. We search for an excess of events above the multijet background in events with 3 and 4 b-jets. Understanding the multijet background in this channel is particularly challenging. The treatment of the background, the multivariate techniques used to improve the sensitivity and the limit setting procedure are discussed.

Primary authors : D0, Physics Coordinators (D0 Collaboration)

Co-authors :

Presenter : D0, Physics Coordinators (D0 Collaboration)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract submitted on behalf of the D0 Collaboration. The name of the
person presenting the abstract will be replaced after the assignment of
talks by the parallel session conveners and the D0 Collaboration.
For questions about the abstract please contact
Gregorio Bernardi <gregorio@in2p3.fr> and Marco Verzocchi <mverzocc@fnal.gov>
For speakers requests please contact the D0 speakers
bureau (Horst Wahl <wahl@fnal.gov>)

Abstract ID : 572

Search for Neutral Supersymmetric Higgs Bosons in di-τ Final States in ppbar Collisions at sqrt(s)=1.96 TeV

Content :

We present a search for Higgs bosons in the di-tau modes at a center-of-mass energy of $\sqrt{s}=$1.96~TeV using up to 5.4~fb^{-1} of data collected with the D0 detector at the Fermilab Tevatron collider. In Supersymmetric models Higgs boson production cross section can be significantly enhanced compared to the Standard Model. In such models, the Higgs boson has a significant branching ratio to tau leptons at all masses, and the gluon fusion production process can be exploited directly. The di-tau channels complement the hb associated production modes through reduced dependence on the details of the Supersymmetric model under test.

Primary authors : D0, Physics Coordinators (D0 Collaboration)

Co-authors :

Presenter : D0, Physics Coordinators (D0 Collaboration)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract submitted on behalf of the D0 Collaboration. The name of the person presenting the abstract will be replaced after the assignment of talks by the parallel session conveners and the D0 Collaboration. For questions about the abstract please contact Gregorio Bernardi <gregorio@in2p3.fr> and Marco Verzocchi <mverzocc@fnal.gov> For speakers requests please contact the D0 speakers bureau (Horst Wahl <wahl@fnal.gov>)

Abstract ID : 573

Search for Neutral Supersymmetric Higgs Bosons in b$\tau\tau$ Final States in ppbar Collisions at sqrt(s)=1.96 TeV

Content :

We present a search for Higgs bosons produced via the associated $p\bar{p}\to h+b \to\tau+\tau+b$ process at a center-of-mass energy of $\sqrt{s}=$1.96~TeV using up to 5.4~fb^{-1} of data collected with the D0 detector at the Fermilab Tevatron collider. In Supersymmetric models Higgs boson production cross section can be significantly enhanced compared to the Standard Model; additionally the Higgs boson has a significant branching ratio to tau leptons at all masses. This hybrid 'b-tau' channel complements the di-tau search channel, in particular providing sensitivity around the Z mass.

Primary authors : D0, Physics Coordinators (D0 Collaboration)

Co-authors :

Presenter : D0, Physics Coordinators (D0 Collaboration)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract submitted on behalf of the D0 Collaboration. The name of the person presenting the abstract will be replaced after the assignment of talks by the parallel session conveners and the D0 Collaboration. For questions about the abstract please contact Gregorio Bernardi <gregorio@in2p3.fr> and Marco Verzocchi <mverzocc@fnal.gov> For speakers requests please contact the D0 speakers bureau (Horst Wahl <wahl@fnal.gov>)

Abstract ID : 574

Combined upper limits on MSSM Higgs-boson production with up to 5.4 fb-1 of data at D0

Content :

We present the combination of the searches for neutral Supersymmetric Higgs bosons at a center-of-mass energy of $\sqrt{s}=$1.96~TeV, using up to 5.4~fb^{-1} of data collected with the D0 detector at the Fermilab Tevatron collider. The searches considered cover the main production and decay mechanisms for Higgs bosons in these models: gg,bb$\to h \to \tau^+\tau^-$, hb(b)$\to b\bar{b}(b)$ and hb(b)$\to \tau^+\tau^-{b}(b)$. The resulting combination is interpreted in the context of different scenarios within the Minimal Supersymmetric Standard Model.

Primary authors : D0, Physics Coordinators (D0 Collaboration)

Co-authors :

Presenter : D0, Physics Coordinators (D0 Collaboration)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract submitted on behalf of the D0 Collaboration. The name of the person presenting the abstract will be replaced after the assignment of talks by the parallel session conveners and the D0 Collaboration. For questions about the abstract please contact Gregorio Bernardi <gregorio@in2p3.fr> and Marco Verzocchi <mverzocc@fnal.gov> For speakers requests please contact the D0 speakers bureau (Horst Wahl <wahl@fnal.gov>)

Abstract ID : 575

Search for the lightest neutral CP-even Higgs boson in the Next-to-Minimal Supersymmetric Standard Model in ppbar Collisions at sqrt(s)=1.96 TeV

Content :

We present a search for production of the lightest neutral CP-even Higgs boson (h) in the next-to-minimal supersymmetric standard model, where the h decays to a pair of lighter (<10 GeV) neutral pseudoscalar Higgs bosons (a) at a center-of-mass energy of $\sqrt{s}=$1.96~TeV using up to 4~fb^{-1} of data collected with the D0 detector at the Fermilab Tevatron collider. The a bosons are required to either both decay to $\mu\mu$ or one to $\mu\mu$ and the other to $\tau\tau$. This new search at the Tevatron is performed by looking for events with two pairs of collinear muons or a pair of collinear muons and missing transverse energy due to the tau-decays.

Primary authors : D0, Physics Coordinators (D0 Collaboration)

Co-authors :

Presenter : D0, Physics Coordinators (D0 Collaboration)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract submitted on behalf of the D0 Collaboration. The name of the person presenting the abstract will be replaced after the assignment of talks by the parallel session conveners and the D0 Collaboration. For questions about the abstract please contact Gregorio Bernardi <gregorio@in2p3.fr> and Marco Verzocchi <mverzocc@fnal.gov> For speakers requests please contact the D0 speakers bureau (Horst Wahl <wahl@fnal.gov>)

Abstract ID : 576

Combined Upper Limits on Standard Model Higgs Boson Production at the Tevatron in ppbar Collisions at sqrt(s)=1.96 TeV

Content :

We present the combination of the searches for the Standard Model Higgs boson at a center-of-mass energy of $\sqrt{s}=$1.96~TeV, using up to 7~fb^{-1} of data collected with the CDF and D0 detectors at the Fermilab Tevatron collider. The major contributing processes include associated production ($WH\to l\nu bb$, $ZH\to\nu\nu bb$, $ZH\to ll bb$, and $WH\to WWW^{(*)}$) and gluon fusion ($gg\to H\to WW^{(*)}$). The significant improvements across the full mass range resulting from the larger data sets, improved analyses and inclusion of additional channels are discussed. The combination of all channels results in significantly improved sensitivity across the 100-300 GeV mass range, and in particular around 160 GeV.

Primary authors : D0, Physics Coordinators (D0 Collaboration) ; CDF, Physics Conveners (CDF Collaboration)

Co-authors :

Presenter : D0, Physics Coordinators (D0 Collaboration) ; CDF, Physics Conveners (CDF Collaboration)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract submitted on behalf of the CDF and D0 Collaborations and of the
Tevatron Higgs Working Group. The name of the
person presenting the abstract will be replaced after the assignment of
talks by the parallel session conveners and the CDF and D0 Collaborations.
For questions about the abstract please contact Kevin Pitts <kpitts@fnal.gov>,
Gregorio Bernardi <gregorio@in2p3.fr> and Marco Verzocchi <mverzocc@fnal.gov>
For speakers requests please contact the CDF and D0 speakers committee/
bureau (Giorgio Chiarelli <giorgio@fnal.gov> and Horst Wahl <wahl@fnal.gov>)

Abstract ID : 577

Combined CDF and D0 upper limits on MSSM Higgs boson production in tau-tau final states in ppbar Collisions at sqrt(s)=1.96 TeV

Content :

We present combined results on the search for a neutral Higgs boson in the di-tau final state with data collected at the CDF and D0 experiments. Data were collected in ppbar collisions at a centre of mass energy of 1.96 TeV during Run II of the Tevatron. Limits are set on the cross section times branching ratio ranging for Higgs masses from 90 GeV to 200 GeV respectively. The results are then interpreted as limits in four different benchmark scenarios within the framework of the MSSM.

Primary authors : D0, Physics Coordinators (D0 Collaboration) ; CDF, Physics Conveners (CDF Collaboration)

Co-authors :

Presenter : D0, Physics Coordinators (D0 Collaboration) ; CDF, Physics Conveners (CDF Collaboration)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract submitted on behalf of the CDF and D0 Collaborations and of the
Tevatron Higgs Working Group. The name of the
person presenting the abstract will be replaced after the assignment of
talks by the parallel session conveners and the CDF and D0 Collaborations.
For questions about the abstract please contact Kevin Pitts <kpitts@fnal.gov>,
Gregorio Bernardi <gregorio@in2p3.fr> and Marco Verzocchi <mverzocc@fnal.gov>
For speakers requests please contact the CDF and D0 speakers committee/
bureau (Giorgio Chiarelli <giorgio@fnal.gov> and Horst Wahl <wahl@fnal.gov>)

Abstract ID : 594

Measurements of the Top Quark Mass in the Lepton+Jets Channel with the D0 detector

Content :

We present measurements of the top quark mass based on data collected by the D0 experiment during Run II of the Fermilab Tevatron collider using lepton+jets final states. In the lepton+jets channel, the "Matrix-Element Method" is used where for each event a probability based on the differential cross section for production is calculated as a function of the top mass and the overall jet energy scale. The overall jet energy scale is constraint by the two jets from the hadronic W boson decay.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 599

Measurement of the top quark mass in final states with two leptons using the D0 Detector

Content :

We present measurements of the top quark mass based on data collected by the D0 experiment during Run II of the Fermilab Tevatron collider. We present results in dilepton final states. In the dilepton channel, three different techniques were used: the "Matrix Weighting Method" which uses a likelihood for the observed events to occur for a range of assumed top, the "Neutrino Weighting Method" where distributions are generated from event weights obtained from comparing the calculated and reconstructed missing transverse energy and the "Matrix Element Method" where for each event, a probability based on the differential cross section for production is calculated as a function of the assumed top mass.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 600

Difference Between Top and Antitop Quarks with the D0 Detector

Content :

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. CPT invariance imposes that the mass of a quark and its antiquark should be equal. The top quark is the only quark where one can measure this mass difference and look for a deviation from CPT invariance.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 601

Measurement of the Top Production Cross Section with the D0 Detector

Content :

We present measurements of the top quark pair production cross section
in ppbar collisions in the all jets, l+jets, and ll final states
(where l is an electron, muon, or tau) at a center of mass energy
of sqrt(s)=1.96 TeV in up to 5 fb^{-1} of data collected with
the D0 detector.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 602

Measurement of differential distributions of top quarks with the D0 detector

Content :

The study of kinematics of top quark pairs
produced at Fermilab Tevatron Collider can test Standard Model
production and decay of the system or look for
new physics. Differential distributions can validate current
generators and their level of description of the top quark pairs and
provide a detailed window on QCD dynamics of a unique heavy diquark
system at large scales. We present measurements of differential
distributions of top quarks produced in pairs in ppbar collisions
recorded by the DZero experiment. Events containing a
high-p_T lepton, large missing transverse energy, and four or more
jets were chosen from the 0.9 fb-1 Run II data sample. At least one
of the jets was required to be identified as a b jet. A constrained
kinematic fit associated these decay products with the individual top
quarks. The measured spectra, binned in several observables, are
compared to those obtained from the Monte Carlo simulation. We focus
on the transverse momentum of the top quark and the top pair system as
well as the system invariant mass and the azimuthal decorrelation
between top quarks.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 603

Single Top Quark Production with the D0 Detector

Content :
Using events containing an isolated electron or muon and missing transverse energy, together with jets originating from the fragmentation of b quarks, we measure the cross section of single top quark production. We use several multivariate techniques to extract the signal and combine them. Separate measurements of the t-channel and s-channel are also performed.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 604

Single Top Quark production in tau+jets channel at D0

Content :

We present the first direct search for single top quark production using reconstructed tau leptons in the final state. The search is based on 4.8 fb−1 of integrated luminosity collected in ppbar collisions at 1.96 TeV with the D0 detector at the Fermilab Tevatron Collider. We select events with a final state including an isolated tau lepton, missing transverse energy, two or three jets, one or two of them being identified as b quark jet. We use a multivariate technique to discriminate signal from background. The number of events observed in data in this final state is consistent with the signal plus background expectation. We set in the tau+jets channel an upper limit on the single top quark cross section of 7.3 pb at the 95% C.L. This measurement allows a gain of 4% in expected sensitivity for the observation of single top production when combining it with electron+jets and muon+jets
channels already published by the D0 collaboration with 2.3 fb−1 of data.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 605

Search for Flavor Changing Neutral Currents in Single Top final states with D0

Content :

We present a search for flavor-changing neutral currents in the single top final state using 2.3 fb-1 of lepton plus jets data collected with the D0 experiment. We apply the same event selection as for the single top observation analysis and improve the signal sensitivity using Bayesian Neural Networks. We find consistency between the background expectation and the observed data and set limits on the flavor-changing neutral current couplings of the top quark to the up quark (Ku) and the charm quark (Kc).

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking ; 10 - Beyond the Standard Model (theory and experimental searches)

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 606

Measurement of the Wtb Coupling and the W Boson Helicity in Top Quark Decays with the D0 Detector

Content :

We present the simultaneous measurement of the ratio of branching fractions, R=B(t -> Wb)/B(t -> Wq), with q being a d, s, or b quark, and the top quark pair production cross section sigma(ttbar) in the lepton plus jets channel using data at sqrt(s)=1.96 TeV collected with the D0 detector. We extract R and sigma(ttbar) by analyzing samples of events with 0, 1 and > 2 identified b jets. We also report on a model-independent measurement of the helicity of W bosons produced in top quark decays based on a 4 fb-1 sample of ttbar events in the dilepton and lepton+jets channels. W boson helicity fractions are sensitive to the ratios of different anomalous Wtb couplings as well as single top production. We set simultaneous limits on left-handed vector and right-handed vector, and left-handed vector and right-handed tensor Wtb couplings measured using the single top selection. We combined this analysis with the W boson helicity measurement to set direct upper limits on a right-handed vector coupling as well as a left-handed tensor coupling.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 607

Search for ttbar Resonances in the Lepton+Jets Final State in ppbar Collisions at sqrt{s}=1.96 TeV

Content :

A search for a narrow-width heavy resonance decaying into top quark pairs (X->ttbar) in ppbar collisions at sqrt(s)=1.96TeV has been performed using data collected with the D0 detector at the Fermilab Tevatron collider. This analysis considers ttbar candidate events in the lepton+jets channel with identified b-jets and the ttbar invariant mass distribution to search for evidence of resonant production. The analyzed dataset corresponds to an integrated lumiosity of 4 fb-1. We find no evidence for a narrow resonance X decaying to ttbar. Therefore we set upper limits on sigma*B(X->ttbar) for different hypothesized resonance masses using a Bayesian approach. Within a topcolor-assisted technicolor model, the existence of a leptophobic Z' boson with mass M_Z' < 820 GeV and width Gamma_Z'=0.012 M_Z' can be excluded at 95%C.L.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking ; 10 - Beyond the Standard Model (theory and experimental searches)

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Wednesday 19 May 2010

Comments :

Abstract ID : 608

Search for the Standard Model Higgs boson in the ttbar H --> ttbar bbar channel

Content :
We present a search for the Standard Model Higgs boson produced in association with top anti-top quark pairs. This analysis considers samples of lepton+jets events with one, two or three b-tagged jets and four, five or more jets in total collected with the D0 detector, corresponding to an integrated luminosity of 4 fb-1. Kinematical differences between ttbar and ttbar H events are exploited and limits are set on the ttbar H --> ttbar bbar production cross section. An enhanced production cross section can theoretically be achieved if a t' quark is produced via a heavy G' boson (vector color octet) instead via a Standard Model gluon. An example for such a model is analysed here leading to exclusion limits on the Higgs mass.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 609

Search for fourth generation t' quarks that decay to Wb

Content :

We present a search for pair-production of a fourth generation t' quark with its antiparticle, followed by their decay to W b, based on 5 fb-1 of data. We set upper limits on the t' pair production cross section which can be translated into limits on the t' mass.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking ; 10 - Beyond the Standard Model (theory and experimental searches)

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Wednesday 19 May 2010

Comments :

Abstract ID : 610

Measurement of the forward-backward charge asymmetry in top quark pair production

Content :

We present a new measurement of the integrated forward-backward charge asymmetry in top-antitop quark pair (ttbar) production in proton-antiproton collisions in the lepton plus jets final state. Using a b-jet tagging algorithm and kinematic reconstruction assuming ttbar+X production and decay, collected by the D0 experiment at the Fermilab Tevatron Collider, is used to measure the asymmetry for different jet multiplicities. The result is also used to set upper limits on ttbar+X production via a Z' resonance.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 611

Search for Charged Higgs Bosons in ppbar collisions at sqrt{s}=1.96 TeV

Content :

We report on a search for charged Higgs bosons in the mass range 80 < m_H+ < 155 GeV in decays of top quark pairs in ppbar collisions at sqrt{s}=1.96 TeV. It has been performed using ~1 fb-1 of data collected with the D0 detector at the Fermilab Tevatron collider. The search is based on the analysis of ttbar production rates in the final states with two isolated leptons (electrons or muons) and jets, one isolated lepton (electron or muon) and jets and isolated lepton (electron or muon) and tau decaying hadronically. We find no evidence for signal. The results are interpreted within a tauonic Higgs model where the charged Higgs is assumed to decay exclusively to taunu and in a leptophobic model where the charged Higgs is assumed to decay exclusively to csbar. We set upper limits on the branching fractions B(t -> H+ b -> taubar neutrino b)) and B(t -> H+ b -> c sbar b)) for low charged-Higgs masses.
We also use ratios of ttbar cross sections in different final states to set upper limits on those branching fractions.
Furthermore, we describe a search for quark fusion production qq' --> H+ of the charged Higgs boson reconstructed in the tb final state for a mass range 180 < m_H+ < 300 GeV. We find no evidence for heavy charged Higgs production and set limits on the production cross-section for a variety of theoretical models.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking ; 10 - Beyond the Standard Model (theory and experimental searches)

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 612

Search for the Lightest Scalar Top Quark with the D0 Detector

Content :

Due to the large mass of the top quark, the lightest stop quark is likely to be the lightest squark. If it is light enough, it could decay to a bottom quark and a chargino, which then decays to a charged lepton and a sneutrino. We search for pair-produced stop quarks following this decay chain in final states containing and electron and a muon in 5.4 fb-1 of data collected at the Fermilab Tevatron collider and in the absence of a signal set new limits in the (stop mass, sneutrino mass) plane.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 10 - Beyond the Standard Model (theory and experimental searches)

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 613

Determination of the width of the top quark

Content :

We extract the total width of the top quark from the partial decay width and the branching fraction B(t -> Wb). The partial width is obtained from the measured t-channel cross section for single top quark production in 2.3 fb-1 of ppbar data from the D0 collaboration, and the branching fraction is extracted from a measurement of the ratio R = B(t -> Wb)/B(t -> Wq) in ttbar events in lepton+jets channels with 0, 1 and 2 b-tags in 1 fb-1 of integrated luminosity. Assuming B(t -> Wq) = 1, where q includes any kinematically accessible quark, the result is: 2.1 +- 0.6 GeV which translates to a top quark lifetime of (3 +- 1) 10^{-25} s.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 614

Spin correlations in ttbar events at D

Content :

Since the top quark decays before it hadronizes, the spin of the top quark is reflected by its decay products. A measurement of the correlation between the spin of the top and the spin of the anti-top quark produced in proton anti-proton scattering at a center of mass energy of 1.96 TeV is presented using a double differential angular distribution.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 616

Search for W' bosons decaying to a top quark and a bottom quark

Content :

We search for the production of a heavy W' gauge boson that decays to third generation quarks in 2.3 fb-1 of ppbar collisions at sqrt(s) = 1.96 TeV, collected with the D0 detector at the Fermilab Tevatron collider. We analyze the final-state invariant mass distribution and set upper limits on the production cross section times branching fraction. We set lower mass limits for a left-handed W' boson with SM couplings and for right-handed W' bosons decaying to both leptons and quarks and decaying only to quarks. We also set limits on the coupling of the W' boson to fermions as a function of its mass.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking ; 10 - Beyond the Standard Model (theory and experimental searches)

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Wednesday 19 May 2010

Comments :

Abstract ID : 617

Search for Anomalous Top Quark Couplings at D0

Content :

Anomalous Wtb couplings modify the angular correlations of the top quark decay products and change the single top quark production cross section. We present limits on anomalous top quark couplings by combining information from W boson helicity measurements in top quark decays and anomalous coupling searches in the single top quark final state. We set limits on right-handed vector couplings as well as left-handed and right-handed tensor couplings based on data collected by the D0 experiment.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking ; 10 - Beyond the Standard Model (theory and experimental searches)

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 624

Searches for Dielectron and Diphoton Resonances with the D0 Detector

Content :
The results of searches for dielectron and diphoton resonances with the D0 detector are reported. These searches use 5.4fb-1 of data from ppbar collisions at a center-of-mass energy of 1.96 TeV, collected by the D0 detector at the Fermilab Tevatron between October 2002 and Summer 2009. We search for resonances in the invariant mass spectrum of two electromagnetic (EM) objects from the decay of new Z' bosons or Randall-Sundrum gravitons to electron-positron and/or photon pairs.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 10 - Beyond the Standard Model (theory and experimental searches)

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 625

Searches for WZ Resonances with the D0 Detector

Content :
5.4fb-1 of data from ppbar collisions at a center-of-mass energy of 1.96 TeV, collected by the D0 detector at the Fermilab Tevatron collider between October 2002 and Summer 2009, are used to search for resonances decaying to a WZ pair. Both fully leptonic and lepton(s) plus jets channels are used to set the most stringent limits to date on the existence of such resonances.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 10 - Beyond the Standard Model (theory and experimental searches)

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 626

Searches for Vector Quarks with the D0 Detector

Content :
Vector-like quarks are predicted in multiple extensions of the standard model. At a hadron collider, these are dominantly produced in association with a light quark, and are expected to decay to a quark and a vector boson. We report on a search for vector quarks in the W/Z + jets channels, using 5.4fb-1 of data from ppbar collisions at a center-of-mass energy of 1.96 TeV, collected by the D0 detector at the Fermilab Tevatron.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 10 - Beyond the Standard Model (theory and experimental searches)

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Friday 14 May 2010

Comments :

Abstract ID : 628

Searches for R-Parity Violating Supersymmetry with the D0 Detector

Content :

In supersymmetry R-parity is used to distinguish particles from their supersymmetric partners. We search for signals of possible non-conservation of R-parity in 5.4 fb-1 of data collected with the D0 detector at the Fermilab Tevatron collider through resonant production of supersymmetric neutrinos which decay to a pair of leptons. Improved limits are set on R-parity violating couplings.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 10 - Beyond the Standard Model (theory and experimental searches)

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 629

Searches for Gauge-Mediated Supersymmetry with the D0 Detector

Content :

We report the result of a search for new physics in events with two photons and large missing transverse energy collected with the D0 Detector at the Fermilab Tevatron Collider. Several models of physics beyond the Standard Model motivate a search in this final state, such as supersymmetry (SUSY) with gauge-mediated supersymmetry breaking and universal extra dimensions (UED) with gravity-mediated Kaluza-Klein excitation decays. In these models, two heavy neutral particles are produced, such as the lightest neutralino in the SUSY case or the first Kaluza-Klein excitation of the photon in the UED case. These particles decay to a photon and another neutral particle, such as the gravitino or graviton, and in this analysis the decay is assumed to be prompt. With 5.4 fb-1 of data collected at the Fermilab Tevatron collider between 2002 and 2009, we present the result of the most sensitive search in the di-photon and large missing transverse energy final state to date.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 10 - Beyond the Standard Model (theory and experimental searches)

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 630

Searches for Sbottom Quarks with the D0 Detector

Content :

In supersymmetry, the partner of the bottom quark could be among the lightest supersymmetric particles. In that case, it would be produced abundantly at the Fermilab Tevatron collider. We search for pair-produced sbottom quarks each decaying to a bottom quark and an undetected lightest neutralino in 5.4 fb-1 of data and obtain the most stringent limits to date on the sbottom quark mass.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 10 - Beyond the Standard Model (theory and experimental searches)

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 631

Searches for Leptoquarks with the D0 Detector

Content :
Leptoquarks arise naturally in all models of unification of leptons and quarks, and might have masses close to the electroweak scale. In this case, to avoid flavor- changing neutral currents, leptoquarks cannot mix generations and separate searches are performed in separate final states for first, second and third generation leptoquarks. Result from searches using up to 5.4 fb-1 of data collected at the Fermilab Tevatron collider are presented.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 10 - Beyond the Standard Model (theory and experimental searches)

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 632

Searches for Signals from Hidden Valleys with the D0 Detector

Content :

In hidden valley scenarios, new particles with relatively light masses are hypothesized to exist in a "potential valley" separated from the standard model by a high potential barrier. At high energy colliders, this barrier could be crossed leading to the production of hidden valley particles which could decay to standard model particles after moderately short lifetimes. Results from multiple searches for hidden valley particles in ppbar collisions at a center-of-mass energy of 1.96 TeV, collected by the D0 detector at the Fermilab Tevatron collider are reported.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 10 - Beyond the Standard Model (theory and experimental searches)

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 633

Searches for Charged Massive Long-Lived Particles with the D0 detector

Content :

In many new physics scenarios, some of the postulated new particles can have lifetimes that allow them to escape typical particle detectors before decaying. If these particles are charged, they would lead to tracks with characteristic dE/dx and v/c. We present the results of searches for such particles in 5.4 fb-1 of data collected by the D0 detector at the Fermilab Tevatron collider.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 10 - Beyond the Standard Model (theory and experimental searches)

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 634

Searches for Quirks with the D0 Detector

Content :

Quirks are hypothetical new fermions bound by a new SU(N) "infracolor" gauge coupling in which the breaking of the "infracolor" string is exponentially suppressed, implying the bound states can have mesoscopic and even macroscopic size. We report on a search for mesoscopic states which appear in the detector as a single highly ionizing particle, using data recorded by the D0 experiment in Run II of the Fermilab Tevatron collider.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 10 - Beyond the Standard Model (theory and experimental searches)

Contribution type : --not specified--

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Friday 14 May 2010

Comments :

Abstract ID : 635

Searches for Technicolor with the D0 Detector

Content :
Technicolor models postulate the existence of new (techni-)fermions bound into (techni-)hadrons by a new confining interaction with characteristic energy scale close to the electroweak scale. At the Tevatron collider, technirho and techniomega vector mesons could be produced with their subsequent decays likely to contain weak bosons. Searches for evidence for technicolor particle production using 5.4 fb-1 of data collected at the Fermilab Tevatron collider are described, and new constraints on their existence are given.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 10 - Beyond the Standard Model (theory and experimental searches)

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 664

Measurement of the Inclusive Jet Cross Section in ppbar Collisions at sqrt(s) = 1.96 TeV

Content :

We give a detailed description of the measurement of the inclusive jet cross section in ppbar collisions at a center-of-mass energy sqrt(s) =1.96 TeV using data collected by the D0 experiment at the Fermilab Tevatron Collider corresponding to an integrated luminosity of 0.7 fb-1. We describe the extraction of the jet energy scale correction directly from data. The method to extract the jet cross section is discussed in detail and a description is given of the main uncertainties which are predominantly related to jet energy scale. The results cover jet transverse momenta from 50 GeV to 600 GeV, jet rapidities in the range -2.4 to 2.4 and are compared to recent parton distribution functions in the proton. Detailed studies of correlations between systematic uncertainties in transverse momentum and rapidity are presented.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 03 - Perturbative QCD, Jets and Diffractive Physics

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 665

Measurement of gamma + b + X and gamma + c + X Production Cross Sections in ppbar Collisions at sqrt(s) = 1.96 TeV

Content :

First measurements of the differential cross sections for the inclusive production of a photon in association with a heavy quark (b, c) jet are presented, covering photon transverse momenta 30-150 GeV, photon rapidities |y^gamma| < 1.0, jet rapidities |y^{jet}| < 0.8 and jet transverse momenta pT^jet > 15 GeV. The results are based on an integrated luminosity of 1fb-1 in ppbar collisions at sqrt(s)=1.96 TeV recorded with the D0 detector at the Fermilab Tevatron Collider. The results are compared with next-to-leading order perturbative QCD predictions.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 03 - Perturbative QCD, Jets and Diffractive Physics

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 666

Measurement of Differential Z/gamma* + jet + X Cross Sections in pp Collisions at sqrt(s) = 1.96 TeV

Content :

We present measurements of differential cross sections for Z/gamma*(->mumu)+jet+X production in a 1 fb-1 data sample collected with the D0 detector in proton anti-proton collisions at sqrt{s}=1.96 TeV. Results include the first measurements differential in the Z/gamma* transverse momentum and rapidity, as well as new measurements differential in the leading jet transverse momentum and rapidity. Next-to-leading order perturbative QCD predictions are compared to the measurements, and reasonable agreement is observed, except in the region of low Z/gamma* transverse momentum. Predictions from two event generators based on matrix elements and parton showers, and one pure parton shower event generator are also compared to the measurements. These show significant overall normalization differences to the data and have varied success in describing the shape of the distributions.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 03 - Perturbative QCD, Jets and Diffractive Physics

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 667

Measurements of Differential Cross Sections of Z/gamma*+jets+X Events in ppbar Collisions at sqrt(s) = 1.96 TeV

Content :

We present cross section measurements for Z/gamma*+jets+X production, differential in the transverse momenta of the three leading jets. The data sample was collected with the D0 detector at the Fermilab Tevatron proton anti-proton collider at a center-of-mass energy of 1.96 TeV and corresponds to an integrated luminosity of 1 fb-1. Leading and next-to-leading order perturbative QCD predictions are compared with the measurements, and agreement is found within the theoretical and experimental uncertainties. We also make comparisons with the predictions of four event generators. Two parton-shower-based generators show significant shape and normalization differences with respect to the data. In contrast, two generators combining tree-level matrix elements with a parton shower give a reasonable description of the the shapes observed in data, but the predicted normalizations show significant differences with respect to the data, reflecting large scale uncertainties. For specific choices of scales, the normalizations for either generator can be made to agree with the measurements.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 03 - Perturbative QCD, Jets and Diffractive Physics

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 668

Measurement of Z/gamma* +jet+X angular distributions in ppbar collisions at sqrt(s)=1.96 TeV

Content :

We present the first measurements at a hadron collider of differential cross sections for Z/gamma* +jet+X production in delta_phi(Z,jet), |delta_y(Z,jet)| and |yboost(Z+jet)|. Vector boson production in association with jets is an excellent probe of QCD and constitutes the main background to many small cross section processes, such as associated Higgs production. These measurements are crucial tests of the predictions of perturbative QCD and current event generators, which have varied success in describing the data. Using these measurements as inputs in tuning event generators will increase the experimental sensitivity to rare signals.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 03 - Perturbative QCD, Jets and Diffractive Physics

Contribution type : --not specified--

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 669

Determination of the strong coupling constant from the inclusive jet cross section in ppbar collisions at sqrt(s)=1.96 TeV

Content :
We determine the strong coupling constant alphas and its energy dependence from the pT dependence of the inclusive jet cross section in ppbar collisions at sqrt(s)=1.96 TeV. The strong coupling constant is determined over the transverse momentum range 50 < pT < 145 GeV. Using perturbative QCD calculations to order O(alphas^3) combined with O(alphas^4) contributions from threshold corrections, we obtain alphas(MZ) = 0.1161 +0.0041 -0.0048. This is the most precise result obtained at a hadron-hadron collider.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 03 - Perturbative QCD, Jets and Diffractive Physics

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 670

Measurement of dijet angular distributions at sqrt{s}=1.96TeV and searches for quark compositeness and extra spatial dimensions

Content :

We present the first measurement of dijet angular distributions in ppbar collisions at sqrt{s}=1.96TeV at the Fermilab Tevatron Collider. The measurement is based on a dataset corresponding to an integrated luminosity of up to 0.7fb-1 collected with the D0 detector. Dijet angular distributions have been measured over a range of dijet masses, from 0.25TeV to above 1.1TeV. The data are in good agreement with the predictions of perturbative QCD and are used to constrain new physics models including quark compositeness, large extra dimensions, and TeV-1 scale extra dimensions. For all models we set the most stringent direct limits to date.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 03 - Perturbative QCD, Jets and Diffractive Physics ; 10 - Beyond the Standard Model (theory and experimental searches)

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 671

Double parton interactions in photon+3 jet events in ppbar collisions at sqrt{s}=1.96 TeV.

Content :

We have used a sample of photon+3-jet events collected by the D0 experiment with an integrated luminosity of about 1 fb^-1 to determine the fraction of events with double parton scattering f_DP in a single ppbar collision at sqrt{s}=1.96TeV. The DP fraction and effective cross section sigma_eff, a process-independent scale parameter related to the parton density inside the nucleon, are measured in three intervals of the second (ordered in pT) jet transverse momentum pT_jet2 within the range 15 < pT_jet2 < 30 GeV. In this range, f_DP varies between 0.23 < f_DP < 0.47, while sigma_eff has the average value sigma_eff^ave = 16.4 +- 0.3(stat) +- 2.3(syst) mb.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 03 - Perturbative QCD, Jets and Diffractive Physics ; 04 - Hadronic Structure, Parton Distributions, soft QCD, Spectroscopy

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 672

Measurement of Direct Photon Pair Production Cross Sections in ppabr Collisions at sqrt{s}=1.96TeV

Content :
We present a measurement of direct photon pair production cross sections using 4.2 fb^{-1} of data collected with the D0 detector at the Fermilab Tevatron ppbar Collider. We measure single differential cross sections as a function of the diphoton mass, the transverse momentum of the diphoton system, the azimuthal angle between the two photons, and the polar scattering angle of the photons, as well as the double differential cross sections considering the last three kinematic variables in three diphoton mass bins. The results are compared with different perturbative QCD predictions.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 03 - Perturbative QCD, Jets and Diffractive Physics

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 673

Measurement of the dijet mass cross section in ppbar collisions at sqrt{s}=1.96 TeV.

Content :

The inclusive dijet production double differential cross section as a function of dijet invaant mass and the largest absolute rapidity of the two leading jets is measured in ppbar collisions at sqrt{s}=1.96 TeV using 0.7 fb-1 of data collected with the D0 detector at the Fermilab Tevatron Collider. The measurement is performed in six rapidity (y) regions up to |y| = 2.4 for the two jets with the largest transverse momentum in an event. Next-to-leading order perturbative QCD predictions are found to be in agreement with the data.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 03 - Perturbative QCD, Jets and Diffractive Physics

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 674

Measurement of multi-jet cross section ratios in ppbar collisions at sqrt{s}=1.96TeV

Content :

We present the first measurement of ratios of multijet cross sections in ppbar collisions at sqrt{s}=1.96TeV at the Fermilab Tevatron Collider. The measurement is based on a dataset corresponding to an integrated luminosity of up to 0.7fb-1 collected with the D0 detector. The ratio of inclusive three-jet and two-jet cross sections is measured as a function of transverse jet momentum. The results are compared to next-to-leading order (NLO) perturbative QCD predictions as well as model predictions using different approximations of QCD.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 03 - Perturbative QCD, Jets and Diffractive Physics

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 675

Measurement of the pT and rapidity dependence of dijet azimuthal decorrelations in ppbar collisions at sqrt{s}=1.96TeV

Content :

We present a new measurement of dijet azimuthal decorrelations in ppbar collisions at sqrt{s}=1.96TeV at the Fermilab Tevatron Collider. The measurement is based on a dataset corresponding to an integrated luminosity of up to 0.7fb-1 collected with the D0 detector. Dijet azimuthal decorrelations are measured as a function of transverse jet momentum and rapidity. The results are compared to model predictions using different approximations of QCD.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 03 - Perturbative QCD, Jets and Diffractive Physics

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 676

Inclusive Three-Jet Cross Section at D0

Content :

We analyze multijet production in a dataset corresponding to an integrated luminosity of 0.7 fb-1 collected with the D0 detector at the Fermilab Tevatron Collider. Thus far, all jet-only tests of QCD at a collision energy of 1.96 TeV use either inclusive jet or dijet final states. We extend this effort by investigating the inclusive three-jet final state. Fully describing the three-jet final state requires eight variables. In this analysis, we present the measurement of the inclusive three-jet cross section as a function of three-jet invariant mass in bins of softest jet transverse momenta and in bins of jet rapidities.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 03 - Perturbative QCD, Jets and Diffractive Physics

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 677

Measurement of production cross section ratio sigma(Z+b jet)/sigma(Z+jet) at D0

Content :
The inclusive Z+b jet production is an important background to searches for the Higgs boson in associated ZH production at the Fermilab Tevatron collider. We present measurements of the ratio of inclusive cross sections for ppbar --> Z+b-jet to ppbar --> Z+jet production. The measurement uses a data sample from ppbar collisions at sqrt(s) =1.96 TeV corresponding to an integrated luminosity of 5.4 fb-1 collected by the D0 detector at the Tevatron. Z bosons are selected in the electron and muon decay modes. The measurements are compared with the next-to-leading order theoretical predictions.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking ; 03 - Perturbative QCD, Jets and Diffractive Physics

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 679

W+jets differential cross sections at D0

Content :

We present a measurement of W -> lnu production in association with 1, 2, 3 or 4 jets, inclusively, in p-pbar collisions at sqrt(s)=1.96 TeV. Differential cross sections are measured as a function of the softest (ordered in transverse momentum) jet pT and rapidity, and lepton pT and pseudorapidity. The measurements are unfolded to particle level to account for detector effects and compared to next-to-leading order (NLO) theoretical predictions, as well as a number of leading order (LO) matrix element plus parton shower programs as well as pure parton shower programs.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking ; 03 - Perturbative QCD, Jets and Diffractive Physics

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 681

Angular correlations in minimum bias events at D0.

Content :
We present results of a study of minimum bias events using data collected by the D0 experiment at the Fermilab Tevatron Collider corresponding to an integrated luminosity of 1 fb^-1 during RunIIa. Using angular correlations between charged tracks in the event, we can construct very robust variables such as the difference in azimuthal angle delta-phi between the highest pT track in the event and all other hard tracks. We compare the distribution of these variables to those predicted by various multiple parton interaction models and tunes.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 03 - Perturbative QCD, Jets and Diffractive Physics ; 04 - Hadronic Structure, Parton Distributions, soft QCD, Spectroscopy

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 683

Evidence for high mass exclusive dijet production in the D0 experiment

Content :

We present evidence for exclusive dijet production in ppbar collisions, in a little explored region of high invariant dijet masses (M_jj > 100 GeV). The data set used corresponds to 30 pb-1 collected with the D0 detector at sqrt{s}=1.96 TeV. The exclusive events are identified by a set of cuts based on calorimeter information, resulting in 26 events observed with 5.2 ± 4.3 expected background events.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 03 - Perturbative QCD, Jets and Diffractive Physics ; 04 - Hadronic Structure, Parton Distributions, soft QCD, Spectroscopy

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 685

Measurement of the elastic ppbar differential cross section in the range 0.25<|t|<1.2 GeV at sqrt{s}=1.96 TeV.

Content :
The elastic proton-antiproton scattering process is studied as a function of the four-momentum transfer squared |t| at a center-of-mass energy of 1.96TeV. Scattered protons and antiprotons are selected by using forward roman pot detectors that were installed around the D0 interaction point of the Tevatron. The data presented correspond to a dedicated period of low luminosity running of the D0 experiment. Comparison to data from other experiments at lower energies is presented.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 03 - Perturbative QCD, Jets and Diffractive Physics ; 04 - Hadronic Structure, Parton Distributions, soft QCD, Spectroscopy

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Friday 14 May 2010

Comments :

Abstract ID : 687

Angular correlations in photon+2jet and photon+3jet events

Content :
We present a new measurement of azimuthal correlations in photon+2jet and photon+3jet produced in ppbar collisions at sqrt{s}=1.96 TeV at the Fermilab Tevatron Collider. The measurement is based on a dataset corresponding to an integrated luminosity of up to 1.1 fb-1 collected with the D0 detector. The azimuthal distributions are measured as a function of the 2nd (ordered in pT) jet transverse momentum. The results are compared with different event generators and multiple parton interaction models and NLO QCD.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 03 - Perturbative QCD, Jets and Diffractive Physics

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Thursday 13 May 2010

Last modified on : Thursday 13 May 2010

Comments :

Abstract ID : 703

Measurement of muon charge asymmetry

Content :

We present a measurement of the muon charge asymmetry from W boson decays using 4.9 fb-1 of data collected at \sqrt{s}=1.96 GeV with the D0 detector at the Fermilab Tevatron Collider. Our results are compared with next-to-leading-order calculations performed using modern parton distribution functions. Our findings can be used to constrain future parton distribution function fits.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Friday 14 May 2010

Last modified on : Friday 14 May 2010

Comments :

Abstract ID : 704

Measurement of Z/gamma* boson forward-backward charge asymmetry and extraction of weak mixing angle

Content :
We present a measurement of the Z/gamma* boson forward-backward charge asymmetry (AFB) distribution in electron channel using data collected by the D0 detector at the Fermilab Tevatron collider. The AFB distribution around the Z pole is sensitive to the effective
weak mixing angle and the Z-light quark couplings, the AFB distribution above the Z pole is sensitive to the new physics beyond the SM. We use the measured AFB distribution to extract the effective weak mixing angle.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Friday 14 May 2010

Last modified on : Friday 14 May 2010

Comments :

Abstract ID : 706

Measurement of WZ->lvll cross section and limits on the anomalous triple gauge couplings

Content :
We present the recent results of studying WZ production using 4.1 fb-1 of integrated luminosity collected with the D0 detector at the Fermilab Tevatron collider. Using fully leptonic decays of the weak bosons we measure the WZ production cross section and set the limits on anomalous triple gauge couplings within different parametrization. These are the best limits to date obtained from the direct measurement of the WWZ couplings.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Friday 14 May 2010

Last modified on : Friday 14 May 2010

Comments :

Abstract ID : 707

Measurement of ZZ->llll cross section and limits on the anomalous triple gauge couplings

Content :

We present a measurement of ZZ production in four lepton final state (ZZ->lll'l', l,l'=e, mu) using data collected with the D0 detector at the Fermilab Tevatron collider. We also derive limits on anomalous neutral trilinear ZZZ and ZZgamma* couplings within different parametrization.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Friday 14 May 2010

Last modified on : Friday 14 May 2010

Comments :

Abstract ID : 709

W boson mass and width measurements at D0

Content :

We present a precise measurement of W boson mass measurement in electron decay channel using data collected by the D0 detector at the Fermilab Tevatron collider. A binned likelihood fit method is used to extract the mass information from the transverse mass, the electron transverse momentum and missing transverse energy distributions. We also present a precise direct measurement of W boson width using the events with large transverse mass. The W mass result can be used to put stringent indirect limits on the SM Higgs boson mass.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Friday 14 May 2010

Last modified on : Friday 14 May 2010

Comments :

Abstract ID : 711

Measurement of Z/gamma* boson transverse momentum distribution

Content :

We present measurements of the Z/gamma* boson transverse momentum distribution in both electron and muon channels using data collected with the D0 detector at the Fermilab Tevatron collider. Results are compared to next-to-leading-order predictions from different event generators.

Primary authors : D0, Physics Coordinators (D0)

Co-authors :

Presenter : D0, Physics Coordinators (D0)

Track classification : 02 - The Standard Model and Electroweak Symmetry Breaking

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Friday 14 May 2010

Last modified on : Friday 14 May 2010

Comments :

Abstract ID : 882

Search for CP violation in semileptonic B^0_s decays

Content :

We have performed a search for CP violation in a sample of $B^0_s\rightarrow\mu^+D^-_sX$vdecays corresponding to 5 fb^{-1} of proton-antiproton collisions collected by the D0 detector in Run II at the Fermilab Tevatron collider. New physics in B^0_s mixing could contribute a significant CP violating weak phase which would be observed as a difference in the decay-time distribution for $B^0_s\rightarrow\bar{B}^0_s$ oscillated states versus that for $\bar{B}^0_s\rightarrow B^0_s$. A fit to the decay-time distribution of the $B^0_s/\bar{B^0_s$ candidates yields the flavor-specific asymmetry $a^s_{fs}=[-1.7\pm9.1({\rm stat})^{+1.4}_{-1.5}({\rm syst})]\times 10^{-3}$ which excludes CP violation due to new physics within the experimental sensitivity.

Primary authors : D0, Physics Coordinators (D0 Collaboratio)

Co-authors :

Presenter : D0, Physics Coordinators (D0 Collaboratio)

Track classification : 06 - CP violation, CKM and Rare Decays

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Friday 14 May 2010

Last modified on : Friday 14 May 2010

Comments :

Abstract submitted on behalf of the D0 Collaboration. The name of the person presenting the abstract will be replaced after the assignment of talks by the parallel session conveners and the D0 Collaboration. For questions about the abstract please contact Gregorio Bernardi <gregorio@in2p3.fr> and Marco Verzocchi <mverzocc@fnal.gov> For speakers requests please contact the D0 speakers bureau (Horst Wahl <wahl@fnal.gov>)

Abstract ID : 884

New upper limit on the decay $B_s \to \mu \mu$ from D0

Content :

We present the results of a search for the flavor-changing neutral current decay $B^0_s\rightarrow\mu^+\mu^-$ using approximately 6.1 fb^{-1} of $p\bar{p}$ collisions at $\sqrt{s}=1.96$ TeV collected by the D0 experiment at the Fermilab Tevatron Collider. Compared to the previous published D0 result we have increase the amount of data analyzed by a factor of 4 and improved the background rejection using a multivariate discrimination technique.

Primary authors : D0, Physics Coordinators (D0 Collaboratio)

Co-authors :

Presenter : D0, Physics Coordinators (D0 Collaboratio)

Track classification : 06 - CP violation, CKM and Rare Decays

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Friday 14 May 2010

Last modified on : Friday 14 May 2010

Comments :

Abstract submitted on behalf of the D0 Collaboration. The name of the person presenting the abstract will be replaced after the assignment of talks by the parallel session conveners and the D0 Collaboration. For questions about the abstract please contact Gregorio Bernardi <gregorio@in2p3.fr> and Marco Verzocchi <mverzocc@fnal.gov> For speakers requests please contact the D0 speakers bureau (Horst Wahl <wahl@fnal.gov>)

Abstract ID : 885

A Measurement of B_s^0 Mixing Using the Flavor-tagged Decay ${B_s^0 \rightarrow J/\psi \phi}$

Content :

We report an improved measurement of the CP-violating phase \phi_s, of the decay width difference for the two mass eigenstates $\Delta \Gamma_s$, of the mean B^0_s lifetime $\overline \tau_s$, and of magnitudes of the decay amplitudes, from the flavor-tagged decay ${B_s^0 \rightarrow J/\psi \phi}$ using a data sample with an integrated luminosity of 6.1 fb^{-1} collected with the D0 detector at the Fermilab Tevatron collider.

Primary authors : D0, Physics Coordinators (D0 Collaboratio)

Co-authors :

Presenter : D0, Physics Coordinators (D0 Collaboratio)

Track classification : 06 - CP violation, CKM and Rare Decays

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Friday 14 May 2010

Last modified on : Friday 14 May 2010

Comments :

Abstract submitted on behalf of the D0 Collaboration. The name of the
person presenting the abstract will be replaced after the assignment of
talks by the parallel session conveners and the D0 Collaboration.
For questions about the abstract please contact
Gregorio Bernardi <gregorio@in2p3.fr> and Marco Verzocchi <mverzocc@fnal.gov>
For speakers requests please contact the D0 speakers
bureau (Horst Wahl <wahl@fnal.gov>)

Abstract ID : 886

Evidence for an anomalous like-sign dimuon charge asymmetry

Content :

We measure the charge asymmetry A of like-sign dimuon events in 6.1 fb^{-1} of $p\overline{p}$ collisions recorded with the D0 detector at a center-of-mass energy $\sqrt{s} = 1.96$ TeV at the Fermilab Tevatron collider. From A, we extract the like-sign dimuon charge asymmetry in semileptonic b-hadron decays: $A^b_{sl}= -0.00957 \pm 0.00251~({\rm stat}) \pm 0.00146~({\rm syst})$. This result differs by 3.2 standard deviations from the standard model prediction $A^b_{sl}(SM) = (-2.3^{+0.5}_{-0.6}) \times 10^{-4}$ and provides first evidence of anomalous CP-violation in the mixing of neutral B mesons.

Primary authors : D0, Physics Coordinators (D0 Collaboratio)

Co-authors :

Presenter : D0, Physics Coordinators (D0 Collaboratio)

Track classification : 06 - CP violation, CKM and Rare Decays

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Friday 14 May 2010

Last modified on : Saturday 15 May 2010

Comments :

Abstract submitted on behalf of the D0 Collaboration. The name of the person presenting the abstract will be replaced after the assignment of talks by the parallel session conveners and the D0 Collaboration. For questions about the abstract please contact Gregorio Bernardi <gregorio@in2p3.fr> and Marco Verzocchi <mverzocc@fnal.gov> For speakers requests please contact the D0 speakers bureau (Horst Wahl <wahl@fnal.gov>)

Abstract ID : 888

Combination of the D0 constraints on the CP violating phase ϕ_s

Content :

We present a combination of the D0 measurements of the B^0_s width difference, $\Delta\Gamma_s$, and of the CP-violating phase, ϕ_s. We include in this combination the measurement of the B^0_s mixing parameters obtained from flavor-tagged ${B_s^0 \rightarrow J/\psi \phi}$ decays, the search for CP violation in semileptonic $B^0_s\rightarrow\mu^+D^-_sX$ decays, the measurement of the branching ratio for the decay $B^0_s\rightarrow D^{(*)+}_s D^{(*)-}_s$ and the measurement of the like-sign asymmetry for semileptonic b decays.

Primary authors : D0, Physics Coordinators (D0 Collaboratio)

Co-authors :

Presenter : D0, Physics Coordinators (D0 Collaboratio)

Track classification : 06 - CP violation, CKM and Rare Decays

Contribution type : Parallel Session Talk

Submitted by : D0, Physics Coordinators

Submitted on Friday 14 May 2010

Last modified on : Friday 14 May 2010

Comments :

Abstract submitted on behalf of the D0 Collaboration. The name of the person presenting the abstract will be replaced after the assignment of talks by the parallel session conveners and the D0 Collaboration. For questions about the abstract please contact Gregorio Bernardi <gregorio@in2p3.fr> and Marco Verzocchi <mverzocc@fnal.gov> For speakers requests please contact the D0 speakers bureau (Horst Wahl <wahl@fnal.gov>)