

John Stephen Conway

Curriculum Vita

Department of Physics
1 Shields Ave.
University of California
Davis, CA, 95616

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530-220-4671 (cell)
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Present Position Professor of Physics
University of California, Davis
July 2006 - present

Research Collaborations CMS Collaboration at CERN
CDF Collaboration at FNAL

Previous Positions Associate Professor of Physics
University of California, Davis
July 2004 - June 2006

Associate Professor of Physics
Rutgers University
July 1999 - June 2004

Assistant Professor of Physics
Rutgers University
January 1993 - June 1999

Research Associate
University of Wisconsin - Madison
May 1987 - December 1992

Education Ph.D. Physics, June 1987
University of Chicago

A.B. Physics With Honors, June 1981
Northwestern University

Awards and Honors Rutgers University Board of Trustees
Fellowship for Scholarly Excellence, May 1999

Rutgers SPS Professor of the Year
for Outstanding Teaching, April 1998

John S. Conway

Research Program

I am an experimental high-energy physicist, active in the field since 1980. My research has evolved to center on the most profound questions facing us today: What is the origin of mass, and of electroweak symmetry breaking? What new particles and interactions lie beyond the Standard Model? Can they tell us why there are three generations of matter fermions with such disparate masses yet identical quantum numbers?

The answers to these questions require the highest energy particle accelerators in the world, large sophisticated detectors, and tremendous amounts of data. I am presently working in CDF at the Tevatron accelerator at Fermilab. Though this is a collaboration of over 800 physicists, I am one of the intellectual leaders in this collaboration. I am also a member of the CMS collaboration, under construction for the LHC at CERN, which is expected to begin running by 2007.

My own approach to answering the questions above is a synthesis of two main lines of research: physics using tau leptons and the search for the Higgs and other new particles. Looking back on the great discoveries of the past three decades, including that of the top quark in CDF in 1995, and those of the W and Z bosons at CERN in 1983, the ability to efficiently identify and exploit final states with charged leptons is crucial. But it is the origin of mass that we seek, and if its origin lies in the Higgs mechanism then the heaviest lepton is favored: the tau.

Tau Physics

I have worked on tau leptons for over 15 years. I performed the first search in ALEPH in 1989 for the tau's supersymmetric cousin, the stau. I studied the anomalous production of charged particle pairs in conjunction with a tau pair in ALEPH, and went on to measure the polarization of taus in Z decay, using the world's first neural-network based $e/\mu/\pi$ particle identification. Since 1993 on CDF I have played a leading role in developing the techniques for identifying and reconstructing hadronic tau decays.

Tau identification and triggering at hadron colliders is a major experimental challenge due to the overwhelming background from hadronic jets. In CDF, I developed an analog neural network trigger for taus and developed new tau identification algorithms leading to a series of analyses looking for charged Higgs bosons from top quark decay, where the charged Higgs decays to taus. I also led a thesis student on measuring the forward-backward charge asymmetry of W bosons decaying to taus. Later, in Run 2 of the Tevatron (2001-present) my group at Rutgers led the way on improving tau identification in CDF, and my thesis student Zongru Wan performed the first sensitive search for new physics with high-invariant-mass tau pairs. As a UC Davis faculty member I am performing several interrelated searches for new physics with taus in the final state with our most recent data from Run 2. I presently lead the CDF Tau Working Group.

If the tau lepton in these analyses is a weapon, the quarry of the hunt is certainly the Higgs boson. A Standard Model-like Higgs in the low mass region (less than about 125 GeV) decays predominantly to b quark pairs, but there is an 8% branching ratio to tau pairs. For the charged Higgs predicted in supersymmetry the decays to taus can completely dominate. My vision is that greater signal to background ratios can be obtained with taus than with b jets, and a discovery may be possible. We expect a result with ten times the Run 1 sample by early 2006. This is important work in preparing for the future: at the LHC it is becoming clear that the tau mode is an even better Higgs discovery mode than $\gamma\gamma$ for low masses, and the tau modes play a key role in searching for supersymmetric Higgses at higher masses.

In the past year my CDF colleagues and I have produced two Physical Review Letter papers with new results on the search for the Higgs and other new particles decaying to tau pairs. One paper has been accepted for publication, and the other will be submitted in August 2005. These results were eagerly awaited by the community, and though the search results are null they can be used to rule out important regions of the parameter space of models of physics beyond the Standard Model. We are presently working on extending these analyses to much larger data samples (more than a factor of three) and adding the search channel in which one has an identified b quark jet accompanying the Higgs boson.

Higgs Physics

My experience in Higgs physics is deep. I worked on the original searches at LEP 1, where we searched for and excluded the Standard Model Higgs from 50 MeV mass all the way up to over 60 GeV. In ALEPH I developed energy flow and particle identification techniques that were used long after I left.

A good deal of my research effort early on in CDF was in looking for charged Higgs, but after Run 1 was completed I co-lead the Tevatron Run 2 Higgs Workshop in 1998-1999, which made an assessment of the discovery reach of the Tevatron experiments for the Higgs. We showed that it would require 15 fb^{-1} of integrated luminosity to discover the Higgs in the low mass region, though with substantially less integrated luminosity one can rule it out statistically. This is still an important measurement, even though hopes of discovering a Standard Model Higgs at the Tevatron are waning: the absence of a ~ 120 GeV Higgs boson could be a clear departure from the Standard Model.

Detector Work

In parallel with my physics analysis work I have maintained a strong interest in detector hardware. As a graduate student on a smaller fixed target experiment I got a solid grounding in digital electronics and detection apparatus. In ALEPH at CERN, I was responsible for electronics installation, testing, and calibration for the large Time Projection Chamber; we achieved and maintained fewer than 0.1% dead channels out of 50,000. The TPC calibration was critical in the dE/dx component of my neural net particle ID.

In my early days on CDF I worked with the group at Rutgers to develop CVD diamond tracking detectors. The radiation hardness of diamond and its unique thermal, mechanical and electrical properties make it a very attractive material for the innermost layer of vertex detection, and it looked like it might be a contender for the silicon replacement in CDF at some point. We discovered that, being polycrystalline, the inter-crystallite boundaries were trapping charge, limiting the signal and causing position resolution degradation. Recently there is progress in the area of growing single-crystal diamond film that could overcome this limitation.

After my promotion in 1999 to Associate Professor at Rutgers, my group took on the responsibility for testing and burning in the more than 200 silicon vertex detector modules during construction of the SVX II and ISL in 1999-2000. We developed electronics to exercise the detector readout while keeping the detectors cool and dry in enclosures of our design and construction. This effort was very successful: we found several potentially fatal detector design flaws (and repaired them) and to this day we have over 95% of the installed detectors still operational in Run 2 in CDF.

Presently I am working on the CMS Forward Pixel project. This detector, consisting of silicon sensors with $100 \mu\text{m} \times 150 \mu\text{m}$ pixels bump bonded to readout chips, is being designed and built at Fermilab, with final assembly beginning in 2006, and shipping to CERN in 2007. My role is that of a "Level 3 Manager" overseeing the commissioning, transport, and installation of the detector, and

also beam tests of prototype devices. I have responsibility for the schedule, cost, and execution of this part of the subproject. We are setting up the assembly area and test facilities at Fermilab, and studying the best means of getting the assembled devices to CERN without losses. The detector will be installed in the CMS experiment in early 2008 for the first major physics data run.

Statistics Work

In conjunction with my work on multivariate analysis techniques and new particle searches, I was drawn into the study of statistical methods used in high energy physics. In the past decade a great deal of effort has gone into establishing methods for incorporating the effects of systematic errors into measurements and confidence intervals. In 1997 I wrote an algorithm that became the standard used within CDF for calculating limits in new particle searches. I continued to study various methods and developed the code used in the SUSY/Higgs Workshop for determining the mass reach for the Higgs at the Tevatron, based on a Bayesian method. In the past several years I have helped organize a workshop at Fermilab on statistics, and I presently serve on the CDF Statistics Committee.

This work is quite important: as an example, we published a paper last year on a supersymmetry search in which the limit obtained depended on taking into account properly the correlations. The improved limits were equivalent to a 40% increase in data sample size! In our ongoing new particle searches and measurements (such as that of the top quark pair production cross section, recently published in PRL), optimizing the analysis and statistical methods leads to greatly improved sensitivity, and allows us to combine several results together, properly taking into account correlations and systematic effects. The methods I developed are being used in our search for the Higgs bosons of supersymmetry, and indeed have allowed us to obtain excellent separation of the Higgs signal from the very large Z boson background.

Building the UC Davis Group for the LHC Era

In two years the first protons will begin to circulate in the LHC, and physics data will follow the next year. My main goal in the coming years is to build upon the existing strong effort on CMS at UC Davis, and knit the group more tightly together to be ready for the great physics discoveries to come. I have hired a postdoc who is working full time on CMS, at the Fermilab LHC Physics Center (LPC). I have two incoming students who are interested in the CMS work; one has already begun work on the CMS pixel project and physics preparation. I have instituted regular weekly video meetings of the Davis CMS group, who are located at CERN, Fermilab, and Davis, in order to create a group spirit and coherence even with such a wide separation. I have also begun preparations for a major computing facility based at Davis, based on a large number of compute nodes (100-200 CPUs) and large amounts of disk storage (50-100 Tb). This facility, to be used by the whole Davis group, will greatly enhance our ability to analyze reduced data samples and perform simulations of new physics signal processes.

The large energy and collision rate of the LHC guarantees that we will be able to thoroughly explore the TeV mass/energy scale, where we expect to definitively find the the origin of electroweak symmetry breaking. The LHC may well find a host of new particles, such as those predicted in supersymmetric theories, which could help explain dark matter in the universe and possibly give us insight into the nature of dark energy. The next decade will be an extraordinary one in the field of particle physics, and I believe we will open up a whole new realm to explore in the coming decades.

The UC Davis Group is poised to play a prominent role in this coming era of discovery, and I will help make this a reality.

John S. Conway
Leadership and Service

Physics Community Service

Member, Physics Graduate Record Exam (GRE) Committee of Examiners,
Educational Testing Service, July 2004 - present.

Chair, Fermilab Users' Meeting,
Batavia, Illinois, June 2003.

Member, Fermilab Users' Executive Committee,
2001-2003.

Founder and Chair, Alvin Tollestrup Postdoctoral Research Award Committee,
2003-present.

Member, American Physical Society Division of Particles and Fields Nominating Com-
mittee,
July 2004 - present.

Chair, CDF Speakers Committee,
2001-2003.

Physics Conference Organization

ALCPG/ILC Snowmass 2005, LHC-ILC Coordination Group,
Snowmass Colorado, August 2005.

LHC-ILC Synergies, organizer,
Stanford, California, March 2005.

CPNSH: CP Violating and non-Standard Higgs, organizer,
Stanford, California, March 2005.

SUSY 2004, Higgs/SUSY Parallel Session organizer,
Tsukuba, Japan, June 2004.

SUSY 2003, Experimental Parallel Session organizer,
Tucson, Arizona, June 2003.

SUSY 2002, Electroweak Symmetry Breaking Parallel Session organizer,
Hamburg, Germany, June 2002.

Weak Interactions and Neutrinos 2002, Electroweak Symmetry Breaking
Parallel Session convener, Christchurch, New Zealand, January 2002.

UC Davis Physics Department Service

Graduate Admissions Committee,
2005-present.

Graduate Written Preliminary Exam Committee,
2005-present.

Colloquium Committee,
2004-present.

Rutgers Physics Department Service

Graduate Studies and Life Committee,
2000-2004.

Long-Range Planning Committee,
2001-2003.

Physics Website Committee,
2002-2004.

Ph.D. Oral Exam Committee,

2000-2001.

Ph.D. Written Exam Committee,
2001-2002.

Graduate Recruiting Committee,
2000-2001.

Rutgers University Community Service

Douglass College Project SUPER (Science for Undergraduates, A Program for Excellence in Research) Mentor,
1999-2001.

Junior Science and Humanities Symposium Paper Judge,
1994-present.

QuarkNet Higgs Analysis Project for High Schools,
2002-2003.

John S. Conway

Invited Talks, Seminars, and Colloquia

- “Understanding the Higgs,” Los Alamos National Laboratory Director’s Colloquium, March 2005.
- “Understanding the Higgs,” University of Oklahoma Physics Colloquium, November 2004.
- “What CDF Can Say about the Higgs,” University of Oklahoma High Energy Seminar, November 2004.
- “What CDF Can Say about the Higgs,” SUSY 2004, Tsukuba, Japan, June 2004.
- “The Search for the Higgs at the Tevatron,” LHC Advanced Study Institute, Prague, Czech Republic, July 2003.
- “The Search for the Higgs,” session summary talk, Weak Interactions and Neutrinos 2002, Christchurch, New Zealand, January 2002.
- “Search for the Higgs at the Tevatron,” invited lecture, Mexican Physical Society Workshop, Zacatecas, Mexico, November 2001.
- “Search for New Phenomena at Hadron Colliders,” invited plenary talk, ICHEP 2000, Osaka, Japan, August 2000.
- “Setting Limits and Making Discoveries in CDF,” invited talk, CERN Workshop on Confidence Limits, Geneva, Switzerland, January 2000.
- “The Higgs Reach at the Tevatron in Run 2,” invited talk, LHCC Open Session, CERN, Geneva, Switzerland, July 2000.
- “The Higgs Search at the Tevatron in Run 1 and Run 2,” seminar, University of Michigan, Ann Arbor, Michigan, December 1999.
- “The Higgs Reach at the Tevatron in Run 2,” invited plenary talk, SUSY 99, Fermilab, Batavia, Il, June 1999.
- “The Higgs Reach at the Tevatron in Run 2,” invited talk, Beyond the Desert 99, Schloss Ringberg, Tegernsee, Germany, June 1999.
- “The Higgs Reach at the Tevatron in Run 2,” invited talk, Linear Collider Workshop, Sitges, Spain, April 1999.
- “The Higgs Reach at the Tevatron in Run 2,” invited talk, Rencontres de Physique, La Thuile, Italy, March 1999.

- “The Higgs Reach at the Tevatron in Run 2,” invited talk, Tevatron Run 2 SUSY/Higgs Workshop, Fermilab, Batavia, IL, Nov. 1998.
- “The Tau Lepton and the Search for the Higgs in CDF,” colloquium, Rutgers University, Piscataway, NJ, Sept. 1998.
- “Recent Results in the Development of Diamond Particle Detectors,” ICHEP 98, Vancouver, BC, Canada, July 1998.
- “Searches for New Particles at the Tevatron,” SLAC Experimental Seminar, SLAC, Stanford, California, April 1998.
- “Searches for New Particles at the Tevatron,” Aspen Winter Conference 98, Aspen, Colorado, January 1998.
- “Data Handling in High Energy Physics,” seminar at AT&T, Murray Hill, New Jersey, October 1997.
- “The Discovery of the Top Quark,” colloquium, Lehigh University, Bethlehem, Pennsylvania, September 1997.
- “Search for Supersymmetry at the Tevatron,” Europhysics HEP97, Jerusalem, Israel, August 1997.
- “Recent Advances in Vertex Detection,” Europhysics HEP97, Jerusalem, Israel, August 1997.
- “Recent CDF Results on Searches for New Particles,” Beyond the Desert '97, Tegernsee, Germany, June 1997.
- “The Discovery of the Top Quark,” colloquium, Colorado State University, Ft. Collins, Co., April 1997.
- “Physics with Taus at the Tevatron,” TAU 96, Estes Park, Co., September 1996.
- “Recent CDF Results,” SUSY 96, College Park, Maryland, June 1996.
- “The Top Quark and Beyond,” colloquium, Rutgers University, Piscataway, New Jersey, March, 1995.
- “Discovery of the Top Quark,” Rutgers Experimental High Energy Seminar, Rutgers University, Piscataway, New Jersey, March, 1995.
- “Use of a Neural Network for Charged Particle Identification in the ALEPH Tau Polarization Measurement,” CDF/DØSeminar, February, 1993.
- “Use of a Neural Network for Charged Particle Identification in the ALEPH Tau Polarization Measurement,” DPF 92, Fermilab, Batavia IL, November 1992.
- “Tau Physics at ALEPH,” High Energy Seminar, Univ. of Washington, Seattle WA, May 1992.
- “Tau Physics at ALEPH,” High Energy Seminar, Cornell Univ., Ithaca NY, February 1992.
- “Tau Physics at ALEPH,” High Energy Seminar, Pittsburgh Univ., Pittsburgh PA,

- February 1992.
- “Tau Physics at ALEPH,” High Energy Seminar, Univ. of Michigan, Ann Arbor MI, February 1992.
- “Tau Physics at ALEPH,” High Energy Seminar, Rutgers Univ., Piscataway NJ, January 1992.
- “Tau Physics at ALEPH,” High Energy Seminar, Univ. of Colorado, Boulder CO, January 1992.
- “Tau Physics at ALEPH,” High Energy Seminar, Univ. of Maryland, College Park MD, January 1992.
- “Tau Physics at ALEPH,” High Energy Seminar, Univ. of California - Berkeley, Berkeley, CA, January 1992.
- “Study of $Z \rightarrow \ell^+ \ell^- V$ in ALEPH,” DPF 91, Vancouver BC, Canada, August 1991.
- “Study of $Z \rightarrow \ell^+ \ell^- V$ in ALEPH,” High Energy Seminar, UC Santa Cruz, Santa Cruz CA, April 1991.
- “Review of B Physics and New Particle Searches at LEP,” Invited talk at the APS Spring Meeting, Washington DC, April 1991.
- “Recent Results from ALEPH,” High Energy Seminar, Columbia Univ., New York, NY, April 1990.
- “Recent Results from ALEPH,” High Energy Seminar, California Institute of Technology, Pasadena CA, April 1990.
- “Recent Results from ALEPH,” High Energy Seminar, Univ. of Chicago, Chicago IL, April 1990.
- “Recent Results from ALEPH,” High Energy Seminar, Columbia Univ., New York, NY, April 1990.
- “Recent Results from ALEPH,” High Energy Seminar, Princeton Univ., Princeton NJ, April 1990.
- “Search for Supersymmetric Particles in ALEPH,” DPF 90, Houston, Texas, January 1990.
- “The ALEPH TPC,” Universite Clermont-Ferrand, France, June 1989.
- “The ALEPH TPC,” CERN EF Seminar, Geneva, Switzerland, May 1989.
- “Higher Twist Effects in Muon Pair Production,” Rencontres de Moriond, Les Arcs, France, February 1988.
- “First results from E615,” Fermilab Joint Theoretical/Experimental Seminar, Batavia IL, June 1985.

John S. Conway

Courses Taught

UC Davis

Spring 2005	Physics 131B	Elementary Particles
Winter 2005	Physics 7B - Lecturer	Introductory Physics

Rutgers

Spring 2004	Physics 228 - Administrator	Analytical Physics II
Fall 2003	Physics 227 - Administrator	Analytical Physics II
Spring 2003	Physics 124 - Administrator	Analytical Physics I
Fall 2002	Physics 123 - Administrator	Analytical Physics I
Spring 2002	Physics 124 - Administrator	Analytical Physics I
Fall 2001	Physics 123 - Administrator	Analytical Physics I
Spring 2001	Physics 124 - Administrator	Analytical Physics I
Fall 2000	Physics 123 - Administrator	Analytical Physics I
Spring 1999	Honors Seminar	Science and Pseudoscience
Fall 1998	Physics 273 - Honors Physics III	Modern Physics
Spring 1998	Honors Seminar	Science and Pseudoscience
Fall 1997	Physics 273 - Honors Physics III	Modern Physics
Spring 1997	Physics 382	Classical Mechanics
Fall 1996	Physics 381	Classical Mechanics
Spring 1996	Physics 382	Classical Mechanics
Fall 1995	Physics 381	Classical Mechanics
Spring 1995	Physics 382	Classical Mechanics
Fall 1994	Physics 381	Classical Mechanics
Spring 1994	Physics 228 - Recitations	Analytical Physics II
Fall 1993	Physics 227 - Recitations	Analytical Physics II

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List of Publications¹

1. **D. Acosta *et al.* (CDF Collaboration), “Search for new physics using high mass tau pairs from 1.96-TeV $p\bar{p}$ collisions,” FERMILAB-PUB-05-251-E, June 2005, accepted for publication in Phys. Rev. Lett.**
2. D. Acosta *et al.* (CDF Collaboration), “A search for supersymmetric Higgs bosons in the di-tau decay mode in $p\bar{p}$ collisions at $\sqrt{s} = 1.8$ TeV,” FERMILAB-PUB-05-237-E, June 2005, submitted to Phys. Rev. D.
3. D. Acosta *et al.* (CDF Collaboration), “Measurement of the $t\bar{t}$ production cross section in $p\bar{p}$ collisions at $\sqrt{s} = 1.96$ TeV using lepton plus jets events with semileptonic decays to muons,” FERMILAB-PUB-05-220-E, June 2005, submitted to Phys. Rev. D.
4. D. Acosta *et al.* (CDF Collaboration), “Measurement of $B(t \rightarrow Wb)/B(t \rightarrow Wq)$ at the Collider Detector at Fermilab, FERMILAB-PUB-05-219-E, May 2005, submitted to Phys. Rev. Lett.
5. D. Acosta *et al.* (CDF Collaboration), “Evidence for the exclusive decay $B_c^\pm \rightarrow J/\psi\pi^\pm$ and measurement of the mass of the B_c meson,” FERMILAB-PUB-05-216-E, May 2005, submitted to Phys. Rev. Lett.
6. D. Acosta *et al.* (CDF Collaboration), “Study of jet shapes in inclusive jet production in $p\bar{p}$ collisions at $\sqrt{s} = 1.96$ TeV,” FERMILAB-PUB-05-156-E, May 2005, submitted to Phys. Rev. D.
7. **D. Acosta *et al.* (CDF Collaboration), “Measurement of the cross section for $t\bar{t}$ production in $p\bar{p}$ collisions using the kinematics of lepton plus jets events,” FERMILAB-PUB-05-161-E, April 2005, submitted to Phys. Rev. D.**
8. D. Acosta *et al.* (CDF Collaboration), “ K_s^0 and Λ^0 production studies in $p\bar{p}$ collisions at $\sqrt{s} = 1800$ and 630 GeV,” FERMILAB-PUB-05-078-E, April 2005, submitted to Phys. Rev. D.
9. D. Acosta *et al.* (CDF Collaboration), “Measurement of the azimuthal angle distribution of leptons from W boson decays as a function of the W transverse momentum in $p\bar{p}$ collisions at $\sqrt{s} = 1.8$ TeV,” FERMILAB-PUB-05-063-E, April 2005, submitted to Phys. Rev. D.
10. **D. Acosta *et al.* (CDF Collaboration), Search for Higgs bosons decaying into $b\bar{b}$ and produced in association with a vector boson in $p\bar{p}$ collisions at 1.8 TeV,” FERMILAB-PUB-05-042-E, Mar 2005, accepted for publication in Phys. Rev. Lett.**
11. D. Acosta *et al.* (CDF Collaboration), Search for long-lived doubly-charged Higgs bosons in $p\bar{p}$ collisions at $\sqrt{s} = 1.96$ TeV,” FERMILAB-PUB-05-031-E, March 2005, submitted to Phys. Rev. Lett.

¹I participated heavily in the construction and operation of the detectors and experiments on which the publications listed here are based. The publications in bold face are which I have made major physics and data analysis contributions.

12. D. Acosta *et al.* (CDF Collaboration), First evidence for $B_s^0 \rightarrow \phi\phi$ decay and measurements of branching ratio and A_{CP} for $B^+ \rightarrow \phi K^+$,” FERMILAB-PUB-05-027-E, February 2005, submitted to Phys. Rev. Lett.
13. D. Acosta *et al.* (CDF Collaboration), “Measurement of the moments of the hadronic invariant mass distribution in semileptonic B decays,” FERMILAB-PUB-05-017-E, February 2005, submitted to Phys. Rev. D.
14. D. Acosta *et al.* (CDF Collaboration), “Measurement of the W^+W^- cross section in $p\bar{p}$ collisions at $\sqrt{s} = 1.96$ TeV using dilepton events,” Phys. Rev. Lett. **94**:211801, 2005.
15. D. Acosta *et al.* (CDF Collaboration), “Measurement of the forward-backward charge asymmetry from $W \rightarrow e\nu$ production in $p\bar{p}$ collisions at $\sqrt{s} = 1.96$ TeV,” Phys. Rev. **D71**:051104, 2005 .
16. D. Acosta *et al.* (CDF Collaboration), “Search for ZZ and ZW production in $p\bar{p}$ collisions at $\sqrt{s} = 1.96$ TeV,” FERMILAB-PUB-05-002-E, January 2005, submitted to Phys. Rev. D.
17. D. Acosta *et al.* (CDF Collaboration), “Measurement of the J/ψ meson and B -hadron production cross sections in $p\bar{p}$ collisions at $\sqrt{s} = 1.96$ TeV,” Phys. Rev. **D71**:032001, 2005.
18. D. Acosta *et al.* (CDF Collaboration), “Analysis of decay-time dependence of angular distributions in $B_s^0 \rightarrow J/\psi\phi$ and $B_d^0 \rightarrow J/\psi K^{0*}$ decays and measurement of the lifetime difference between B_s mass eigenstates,” Phys. Rev. Lett. **94**:101803, 2005.
19. D. Acosta *et al.* (CDF Collaboration), “Measurement of the cross section for prompt diphoton production in $p\bar{p}$ collisions at $\sqrt{s} = 1.96$ TeV,” FERMILAB-PUB-04-435-E, Decemeber 2004, submitted to Phys.Rev.Lett.
20. D. Acosta *et al.* (CDF Collaboration), “Search for anomalous kinematics in $t\bar{t}$ dilepton events at CDF II,” FERMILAB-PUB-04-396-E, December 2004, submitted to Phys.Rev.Lett.
21. W. Adam *et al.* (RD42 Collaboration), “New developments in CVD diamond for detector applications,” Eur. Phys. J.C33:S1014-S1016, 2004.
22. D. Acosta *et al.* (CDF Collaboration), “Measurements of $b\bar{b}$ azimuthal production correlations in $p\bar{p}$ collisions at $\sqrt{s} = 1.8$ TeV,” FERMILAB-PUB-04-370-E, December 2004, submitted to Phys. Rev. D.
23. D. Acosta *et al.* (CDF Collaboration), “Measurement of the W boson polarization in top decay at CDF at $\sqrt{s} = 1.8$ TeV,” Phys. Rev. **D71**:031101, 2005, Erratum-ibid. **D71**:059901, 2005.
24. D. Acosta *et al.* (CDF Collaboration), “Measurement of the forward-backward charge asymmetry of electron-positron pairs in $p\bar{p}$ collisions at $\sqrt{s} = 1.8$ TeV,” Phys. Rev. **D71**:052002, 2005.
25. D. Acosta *et al.* (CDF Collaboration), “Measurement of charged particle multiplicities in gluon and quark jets in $p\bar{p}$ collisions at $\sqrt{s} = 1.8$ TeV,” Phys. Rev. Lett. **94**:171802, 2005.

26. D. Acosta *et al.* (CDF Collaboration), Search for scalar leptoquark pairs decaying to $\nu\bar{\nu}q\bar{q}$ in $p\bar{p}$ collisions at $\sqrt{s} = 1.96$ TeV,” Phys. Rev. **D71**:112001,2005, Erratum-ibid. D71:119901, 2005.
27. D. Acosta *et al.* (CDF Collaboration), Search for electroweak single top quark production in $p\bar{p}$ collisions at $\sqrt{s} = 1.96$ TeV,” Phys. Rev. **D71**:012005, 2005.
28. D. Acosta *et al.* (CDF Collaboration), Search for anomalous production of diphoton events with missing transverse energy at CDF and limits on gauge-mediated supersymmetry-breaking models,” Phys. Rev. **D71**:031104, 2005.
29. D. Acosta *et al.* (CDF Collaboration), “Measurement of the $t\bar{t}$ production cross section in $p\bar{p}$ collisions at $\sqrt{s} = 1.96$ TeV using lepton plus jets events with secondary vertex b -tagging,” Phys. Rev. **D71**:032002, 2005.
30. D. Acosta *et al.* (CDF Collaboration), “Comparison of three-jet events in $p\bar{p}$ collisions at $\sqrt{s} = 1.8$ TeV to predictions from a next-to-leading order QCD calculation,” submitted to Phys. Rev. Lett.}
31. D. Acosta *et al.* (CDF Collaboration), “Measurement of partial widths and search for direct CP violation in D^0 meson decays to K^-K^+ and $\pi^-\pi^+$,” Phys. Rev. Lett. **94**:122001, 2005.
32. D. Acosta *et al.* (CDF Collaboration), “Search for excited and exotic electrons in the $e\gamma$ decay channel in $p\bar{p}$ collisions at $\sqrt{s} = 1.96$ TeV,” Phys. Rev. Lett. **94**:101802, 2005.
33. D. Acosta *et al.* (CDF Collaboration), “Measurement of $W\gamma$ and $Z\gamma$ production in $p\bar{p}$ collisions at $\sqrt{s} = 1.96$ TeV,” Phys. Rev. Lett. **94**:041803, 2005.
34. D. Acosta *et al.* (CDF Collaboration), “Measurement of the $t\bar{t}$ production cross section in $p\bar{p}$ collisions at $\sqrt{s} = 1.96$ TeV using kinematic fitting of b -tagged lepton plus jet events,” Phys. Rev. **D71**:072005, 2005.
35. D. Acosta *et al.* (CDF Collaboration), “First measurements of inclusive W and Z cross sections from Run II of the Tevatron collider,” Phys. Rev. Lett. **94**:091803, 2005.
36. D. Acosta *et al.* (CDF Collaboration), “Search for doubly-charged Higgs bosons decaying to dileptons in $p\bar{p}$ collisions at $\sqrt{s} = 1.96$ TeV,” Phys. Rev. Lett. **93**:221802, 2004.
37. D. Acosta *et al.* (CDF Collaboration), “Inclusive search for anomalous production of high- p_T like-sign lepton pairs in $p\bar{p}$ collisions at $\sqrt{s} = 1.8$ TeV,” Phys. Rev. Lett. **93**, 061802 (2004).
38. D. Acosta *et al.* (CDF Collaboration), “Measurement of the $t\bar{t}$ production cross section in $p\bar{p}$ collisions at $\sqrt{s} = 1.96$ TeV using dilepton events,” Phys. Rev. Lett. **93**:142001,2004.
39. D. Acosta *et al.* (CDF Collaboration), “Direct photon cross section with conversions at CDF,” Phys. Rev. **D70**:074008, 2004.
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