

CHARLES PLAGER – CURRICULUM VITAE

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EDUCATION

Ph.D. Physics

University of Illinois, Urbana-Champaign

Thesis: *A Search for CP Violation in, and a Dalitz Analysis of, $D^0 \rightarrow \pi^- \pi^+ \pi^0$ in CLEO II.V*

January 2003

Adviser: Mats Selen

M.S. Physics

University of Illinois, Urbana-Champaign

May 1995

B.S. Math, Physics, and Psychology

University of Illinois, Urbana-Champaign

May 1992

AWARDS

2008 URA Visiting Scholars Fellowship.

2002 Giulio Ascoli Award for Demonstrating Excellence and Originality in the Study of High Energy Physics.

1994 Scott Anderson Physics Assistant Award for Excellence in Teaching.

EXPERIENCE

Staff Physicist/Guest Scientist

University of California, Los Angeles and

Fermi National Accelerator Laboratory

November 2008 – Present
CMS and CDF Collaborations

Architect of novel top cross section measurement technique, *SHyFT*. Analysis first completed at CDF with 2.7 fb^{-1} (including thesis for one graduate student) and now in collaboration review for publication.

Assembled team of over 20 physicists working on *SHyFT* on CMS. Expanding technique to work as data-driven estimate of backgrounds for searches with similar signatures as top (*e.g.*, SUSY, Higgs, single top, and other exotic phenomena).

Appointed Physics Analysis Support Convener at LPC in January 2010. Responsibilities include providing both statistical and analysis implementation support to LPC personnel. Provided both software and physics content and support for first Hadron Collider Physics Summer School MC tutorials.

Repurposed several CDF analysis tools for CMS as well as created new ones. Includes, for example, python interface to CMS data format, good run list scripts, pileup estimation machinery, and several statistical tools.

Postdoctoral Research Associate

University of California, Los Angeles

January 2003 – October 2008
CDF Collaboration

Appointed co-convener of top quark properties group in January 2007 - August 2008. Primary tasks include reviewing the analyses and working to standardize analysis tools and procedures (these tools are used by all of the top physics group and much of CDF as a whole).

Founded and leading a ten person analysis group searching for top quark flavor changing neutral currents (*e.g.*, $t \rightarrow Zc$; 1.9 fb^{-1}). The paper has just been accepted to PRL in October. With subset of this group, finished CDF's first search for invisible top decays.

Performed analyses on various top quark properties. In particular, collaborated on top quark branching fraction analysis (200 pb^{-1}), specifically the method for systematic uncertainty propagation, future projected reach, and final limit. Led a small team to complete a single top cross section combination (2.2 fb^{-1}). Contributed to top pair dilepton cross section analysis, including leading the effort to combine the two CDF (dilepton) top quark pair cross section analyses for the Run II Tevatron's first high p_T publication. God-parent (internal collaboration reviewer) for both the search for single top production (160 pb^{-1}) and the lepton + track top pair cross section (1.1 fb^{-1}) analyses.

Supervised graduate and undergraduate students on both analyses and service projects. Created top physics analysis framework letting users analyze data outside the CDF software environment, regardless of the physical location of the data files. Updated the online data monitoring interface using a web interface for current information as well as references - making the job both easier and more productive as well as allowing “remote shifts”. Updated monitoring software of both cross section and overall trigger performance during running. Authored new web-based system *WebTalks* for organizing talks allowing easy access by both speakers and participants.

Research Assistant
University of Illinois

July 1997 – January 2003
CLEO Collaboration

Performed a complete Dalitz plot analysis examining the resonant substructure of $D^0 \rightarrow \pi^- \pi^+ \pi^0$ decays.

Deeply involved in design, simulation, construction, documentation, and maintenance of trigger electronics and software for CLEO III detector. Created computer simulations and pattern generation of tracking trigger. Designed, tested, and laid out Stereo Trigger (STTR) boards. Wrote code for debugging trigger boards in VME crates. Served as *Trigger Czar* (responsible local on-call expert for trigger system).

Initiated many online data taking improvements by authoring Perl scripts, including web-based electronic log books, web-based shift sign up system, GUI for crate monitoring, and a system for copying and monitoring all data runs. Also created framework allowing seamless integration of C++ with existing FORTRAN code.

Teacher
Peace Corps

September 1995 – June 1997
Central Africa

University of Dschang, Cameroon, Africa,

June 1996 – June 1997

Taught “Physics for Biologists” (*La Physique pour Les Science Naturelles*) for three semesters in French. Lecture size ranged from 120 students to 550 students.

Lycée de Mobaye, Central African Republic, Africa,

September 1995 – May 1996

Coordinated class topics from 6^{ème} (7th grade) to *terminale* (13th grade) as head of math department. Taught 3^{ème} (10th grade) through *terminale* in French.

Teaching Assistant
University of Illinois

August 1992 – June 1995
Physics Department

Physics 101-102 (General Physics),

December 1994 – June 1995

Taught 2 lab sections (total of 50 students). Redesigned all 10 labs for Physics 101 and laid the groundwork for the new labs for Physics 102 with Prof. David Hertzog.

Physics 140 (Practical Physics – How Things Work),

August 1993 – May 1994

Co-designed and developed “The Discovery Room” with Prof. David Hertzog – a new hands-on approach to learning for non-science majors. Taught 8 Discovery Room sections per week (50 students).

Physics 106 (General Physics: Mechanics),

August 1992 – June 1993

Taught discussion and lab, wrote quizzes. Graded lab reports, quizzes and exams (75 students).

PUBLICATIONS

Selected Articles

T. Aaltonen *et al.*, The CDF Collaboration, “Search for the flavor-changing neutral-current decay $t \rightarrow Zq$ in $p\bar{p}$ collisions at $\sqrt{s} = 1.96$ TeV”, *Phys. Rev. Lett.* **101**, 192002, (2008).

T. Aaltonen *et al.*, The CDF Collaboration, “Measurement of the Single Top Quark Production Cross Section at CDF”, Accepted for publication by *Phys. Rev. D*

T. Aaltonen *et al.*, The CDF Collaboration, “Measurement of the Single Top Quark Production Cross Section at CDF”, *Phys. Rev. Lett.* **101**, 252001 (2008)

D. Acosta *et al.*, The CDF Collaboration, “Measurement of $B(t \rightarrow Wb)/B(t \rightarrow Wq)$ at the Collider Detector at Fermilab” *Phys. Rev. Lett.* **95**, 102002 (2005).

D. Cronin-Hennessy *et al.*, The CLEO Collaboration, “Searches for CP violation and $\pi\pi$ S-wave in the Dalitz-plot analysis of $D^0 \rightarrow \pi^-\pi^+\pi^0$ ” *Phys. Rev. D* **72**, 031102 (2005).

D. Acosta *et al.*, The CDF Collaboration, “Search for Electroweak Single Top Quark Production in $p\bar{p}$ Collisions at $\sqrt{s}=1.96$ TeV” *Phys. Rev. D* **71**, 012005 (2005).

D. Acosta *et al.*, The 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).

R. M. Hans, C. L. Plager, M. A. Selen, and M. J. Haney, “The CLEO-III trigger: axial and stereo tracking” *IEEE Trans. Nucl. Sci.* **48**, no. 3, 2001.

Co-author of 60 CDF and 106 CLEO journal articles. Complete list of publications available: <http://charles.plager.net/publications.pdf>

Books

D. W. Hertzog, D. Kim and C. Plager, **Brave New Labs: Physics 101 Laboratory Experiments**, First Edition, 1995.

Selected Conference Proceedings

C. Plager, “A Search For CP Violation in, and A Dalitz Analysis of $D^0 \rightarrow \pi^-\pi^+\pi^-$ ” in the Proceedings of the 2003 Lake Louise Winter Institute.

T.J. Bergfeld, J.A. Ernst, G.D. Gollin, M.J. Haney, R.M. Hans, E.E. Johnson, C.L. Plager, C. M. Sedlack, M.A. Selen, and J.B. Williams, “The CLEO-III Trigger: Axial and Stereo Tracking,” in the Proceedings of the 2000 Nuclear Science Symposium, Lyon, France, October 2000.

RECENT SELECTED INVITED TALKS	Caltech HEP Seminar “The Truth, the SM Truth, and Nothing but the Truth?”	March 2009
	SLAC HEP Seminar “A View of the Top of CDF”	March 2009
	Third Grenoble Top Workshop “Top Properties at the Tevatron Run II”	October 2008
	QCD Conference “Top Properties at CDF Run II”	July 2008
	Laboratoire de Physique Nucleaire et des Haute Energies Seminaire “Z(ee) Charming Top Quark - The Search for Top Flavor Changing Neutral Currents $t \rightarrow Z c$ at CDF Run II”	July 2008
	CERN HEP Seminar “How Charming is the Truth? - The Search for Top Flavor Changing Neutral Currents $t \rightarrow Z c$ at CDF Run II”	July 2008
	Pheno Symposium “Top Properties at CDF Run II”	April 2008
	Joint Experimental-Theoretical Seminar “How Charming is the Truth? - The Search for Top Flavor Changing Neutral Currents $t \rightarrow Z c$ at CDF Run II”	April 2008

COMPUTER SKILLS **Languages:** Strong knowledge of C++, Python, and Perl. Past experience with C, FORTRAN, AHDL, Mathematica
Platforms: UNIX, Linux, Microsoft Windows (including Cygwin), MacOS
Web: Extensive use of HTML and CGI scripting experience

VOLUNTEER WORK **Peace Corps** **July 1995 – June 1997**
Physics Van Outreach Program **May 1994 – June 1995**
Helped coordinate and run shows at elementary schools and community associations.
Crisis Line Volunteer **September 1990 – September 1991**

LANGUAGES Fluent in English and French

CITIZENSHIP U.S.

REFERENCES

Prof. Robert Cousins Department of Physics/154705 University of California, Los Angeles 475 Portula Plaza Los Angeles, CA 90095-1547 +1-310-825-1928 cousins(at)physics.ucla.edu	Prof. Petar Maksimovic Dept. of Physics and Astronomy/Bloomberg 417 Johns Hopkins University 3400 N. Charles Street Baltimore, MD 21218-2686 +1-410-516-3819 petar(at)jhu.edu
Prof. David Saltzberg Department of Physics/154705 University of California, Los Angeles 475 Portula Plaza Los Angeles, CA 90095-1547 +1-310-206-4542 saltzbrg(at)physics.ucla.edu	Dr. Michelangelo L. Mangano TH Division, CERN, CH-1211 Building 4, Room 4-2.046 Geneva 23, Switzerland Tel: +41 22 767 2820 Michelangelo.Mangano(at)cern.ch
Dr. Douglas Glenzinski CDF M.S. 318 (Fermi) Fermi National Acc. Lab P.O. Box 500 Batavia, IL 60510 630-840-8095 douglasg(at)fnal.gov	Prof. Paul Tipton Department of Physics Yale University P.O. Box 208120 New Haven, CT 06511-8499 +1-203-432-3375 paul.tipton(at)yale.edu