

MICHAEL H. KIRBY – CURRICULUM VITAE

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- EDUCATION** **Doctor of Philosophy in Physics** **Dec 2004**
Duke University, Durham, NC Advisor: Alfred Goshaw
Thesis: *Measurement of $W + \gamma$ Production in $p\bar{p}$ Collisions at $\sqrt{s} = 1.96$ TeV*
- Master of Arts in Physics** **May 2001**
Duke University, Durham, NC Advisor: Alfred Goshaw
Candidacy Topic: *$W + \gamma$ Coupling at the Tevatron in Run II*
- Bachelor of Science in Physics, Cum Laude** **May 1997**
Virginia Polytechnic Institute and State University
- RESEARCH** **Associate Scientist, Fermilab** **Aug 2010 - Present**
EXPERIENCE **Aug 2010 - Present – CDF Collaboration**
Developed new b-tagging algorithm for Higgs searches which increased efficiency by 15%. Incorporated algorithm in the $WH \rightarrow \ell\nu bb$, $ZH \rightarrow \ell\ell bb$, and $VH \rightarrow \cancel{E}_T bb$ analyses, increasing the CDF low-mass Higgs sensitivity by more than 8%. Improved Grid computing algorithms and increased data file delivery efficiency.
Aug 2010 - Present – MicroBooNE Collaboration
Constructed the MicroBooNE DAQ teststand and developed data storage networking.
- Postdoctoral Research Associate** **Sept 2007 - Aug 2010**
Northwestern University **DØ Collaboration**
Sept 2009 - Aug 2010 – Convener High Mass Higgs Physics Group
Led searches for standard model Higgs in $H \rightarrow WW$ and $WH \rightarrow WWW$ channels. Publication of four analyses Winter 2010 and supervision of 15+ analyzers.
Sept 2007 - Sept 2009 – Convener $ZH \rightarrow \ell\ell\bar{b}b$ Physics Group
Publication of 4 fb^{-1} measurement ZH analysis Winter 2010 improving 40% upon previous limits and expanded acceptance by 20%.
Sept 2008 - Sept 2009 – Convener Vector Boson + Jets Physics Group
Led 30+ analyzers from Higgs, Top, and Electroweak Physics groups measuring the associated production of jets with W and Z bosons.
- Postdoctoral Research Associate** **Nov 2004 - Aug 2007**
Radboud University, Nijmegen, The Netherlands **DØ Collaboration**
May 2005 - Jan 2007 – Convener DØ Silicon Operations
Managed the installation and integration of new silicon detector, Layer 0, that has doubled the lifetime of the DØ Silicon Tracker and improved the impact parameter resolution at DØ by 20% for Run IIb. Measured first evidence of type inversion in a microstrip detector at a hadron collider.
- Research Assistant** **May 1998 - Oct 2004**
Duke University **CDF Collaboration**
2001 - Oct 2004 Dissertation Research
Performed most precise measurement of $W\gamma$ and $Z\gamma$ production. Extensive collaboration with phenomenologists calculating Next-to-Leading Order $W\gamma$ and $Z\gamma$ cross-sections and kinematics and improved uncertainty by an order of magnitude.
June 1999 - June 2002 CDF Detector Construction and Installation
Installation, commissioning, and development of online software for Central Outer Tracking Chamber DAQ electronics boards.

PUBLICATIONS **Selected Articles**

“**Combination of Tevatron searches for the standard model Higgs boson in the W^+W^- decay mode**” [CDF and DØ Collaborations], Phys. Rev. Lett. **104**, 061802 (2010).

“**Search for Higgs Boson in Dilepton plus Missing Energy with $5.4 fb^{-1}$ of $p\bar{p}$ Collisions at $\sqrt{s} = 1.96$ TeV**” [DØ Collaboration], Phys. Rev. Lett. **104**, 061804 (2010).

“**Search for Higgs Boson Production in Association with a Z Boson in $p\bar{p}$ Collisions at $\sqrt{s} = 1.96$ TeV**” [DØ Collaboration], In preparation for submission (2010).

“**The DØ RunIIb Silicon Layer 0**” [R. Angstadt, et al.], Submitted to Nuclear Instruments and Methods in Physics Research Section A (2009).

“**First direct two-sided bound on the B_s^0 oscillation frequency**” V. M. Abazov *et al.* [DØ Collaboration], Phys. Rev. Lett. **97**, 021802 (2006).

“**Measurement of $W\gamma$ and $Z\gamma$ production in $p\bar{p}$ collisions at $\sqrt{s} = 1.96$ TeV**”, D. Acosta *et al.* [CDF II Collaboration], Phys. Rev. Lett. **94**, 041803 (2005).

“**CDF Central Outer Tracker**”, T. Affolder, et al., Nuclear Instruments and Methods in Physics Research Section A, Volume 526, Issue 3 (July 2004), Pages 249-299.

Conference Proceedings

M. Kirby, “**Search for high mass SM Higgs at the Tevatron**” in the Proceedings of International Conference on High Energy Physics 2008.

M. Kirby, “ **B_s Mixing Measurements at the Tevatron**” in the Proceedings of New Trends in High-Energy Physics 2006.

M. Kirby, “**Tevatron $W/Z/\gamma$ Results**” in the Proceedings of the International Topical Conference on Hadron Collider Physics 2004.

MEMBERSHIPS **DØ Advisory Council**

Sept 2008 - Present

DØ Open Science Enclave Computing Committee

June 2009 - Present

FNAL Users Executive Committee

2001 - 2002

REFERENCES

Dr. Robert Roser, Scientist
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University of Chicago
5640 S. Ellis Ave., Chicago, IL 60637

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Dr. Marco Verzocchi, Scientist
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Fermilab MS 357, Batavia, IL, 60510

DØ Physics Coordinator
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Email: mverzocc@fnal.gov

SEMINARS/ TALKS	APS Division of Particles and Fields, August 2011 <i>Searches for $ZH \rightarrow \ell\ell b\bar{b}$ at CDF</i>	Providence, RI
	Syracuse Physic Department Colloquium; March 2, 2010 <i>First Higgs Exclusions at the Tevatron</i>	Syracuse, NY
	SLAC Experimental Seminar; Nov 24, 2009 <i>Tevatron high mass SM Higgs searches and combined results</i>	Menlo Park, CA
	Michigan State University HEP Seminar; Nov 17, 2009 <i>Search for standard model Higgs at $D\bar{0}$</i>	East Lansing, MI
	Boston University HEP Seminar; Oct 29, 2009 <i>Search for standard model Higgs at $D\bar{0}$</i>	Boston, MA
	APS Division of Particles and Fields; July 2009 <i>Search for $H \rightarrow WW$ and $WH \rightarrow WWW^*$ at $D\bar{0}$</i>	Detroit, MI
	XVII Int. Workshop on Deep Inelastic Scattering 2009 <i>$D\bar{0}$ Results in $Z + Jets$</i>	Madrid, Spain
	University of Virginia HEP Seminar; December 3, 2008 <i>$D\bar{0}$ Search for standard model Higgs at $D\bar{0}$</i>	Charlottesville, VA
	Northwestern Univ. HEP Seminar; September 22, 2008 <i>Recent Results from ICHEP 2008</i>	Evanston, IL
	International Conference on High Energy Physics 2008 <i>Search for high mass SM Higgs at the Tevatron</i>	Philadelphia, PA
	Hadron Collider Physics 2008 <i>SM Higgs Search with ZH Associated Production at $D\bar{0}$</i>	Galena, IL
	Argonne National Lab HEP Seminar; June 11, 2008 <i>Search for the Standard Model Higgs Boson at $D\bar{0}$</i>	Du Page, IL
	Baylor University Physics Colloquium; March 6, 2008 <i>Search for the Standard Model Higgs Boson at the Tevatron</i>	Waco, TX
	New Trends in High Energy Physics 2006 <i>B_S Mixing Measurements at the Tevatron</i>	Yalta, Crimea
	LPC E-Gamma Workshop 2004 <i>CDF Results with Photons and Electrons</i>	Fermilab
	Univ. Pennsylvania HEP Seminar 2004 <i>CDF Run II $W/Z + \gamma$ Results</i>	Philadelphia, PA
	HCP Conference 2004 <i>Study of W, Z, and γ Production at the Tevatron</i>	East Lansing, MI
	APS April Meeting 2003 <i>Study of $W + \gamma$, $W \rightarrow e\nu$ Production at the Tevatron</i>	Philadelphia, PA
	APS April Meeting 2002 <i>Searches for new physics in final states involving photons at CDF</i>	Albuquerque, NM
	Division of Particles and Fields, APS 2000 <i>The CDF Central Outer Tracker Front-end Electronics</i>	Columbus, OH