

## Wesley Robert Ketchum

5640 S. Ellis Ave.

HEP, Rm 209G

Chicago, IL 60637

Office Phone +1 773 702 7507

Cell Phone +1 720 570 6221

E-Mail wketchum@uchicago.edu

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## EDUCATION

- 2007-present Ph.D. in Physics, University of Chicago (*Expected, 06/2012*)
- 2007-2008 M.S. in Physics, University of Chicago
- 2004-2007 B.S. in Astrophysics and Mathematics, University of Oklahoma

## RESEARCH EXPERIENCE

- 2007-present CDF Experiment**  
**Supervisors: Prof. Young-Kee Kim & Dr. Vadim Rusu**  
**Dept. of Physics, University of Chicago and FNAL**  
*Involved in searches for WZ/ZZ diboson production in final states with jets; contributed to searches for ttH production; developed new neural-network based quark/gluon discriminant; validated new neural-network based b jet tagger; studied methods for increasing  $Z \rightarrow e^+e^-/\mu^+\mu^-$  acceptance; acted as mentor for three REU students, and two UChicago undergraduate students; served as on-call expert for Level 2 trigger system; served as DAQ/ACE shifter (one 10-week period); served as Consumer Operator shifter (two 1-week periods)*
- 2009-present GPU for HEP Triggering R&D**  
**Supervisor: Dr. Tiehui Liu**  
**FNAL**  
*Measured latency of simplified fast track-fitting algorithm at CDF Level 2 trigger test stand; compared performance in CPU and nVidia GPU using CUDA-C; studied ways to improve latency in GPU*
- 2007-2008 SCRF Cavity R&D**  
**Supervisor: Dr. Aseet Mukherjee**  
**FNAL**  
*Designed and built front-end electronics for silicon photodiode x-ray detection system; operated detection system to pinpoint points of quench during SCRF*

*tests; built and calibrated fast single-photon x-ray detector*

**2005-2008**                    **Supernovae Spectral Analysis**  
**Supervisors: Prof. Eddie Baron & Prof. David Branch**  
***Dept. of Physics and Astronomy, University of***  
***Oklahoma***

*Performed fits to spectra of type Ia SNe and Ib SNe; developed quantitative test for comparing goodness of fit for fits to Type Ia SNe spectra*

**2006**                         **Radioactivity Assay Chamber Construction**  
**Supervisors: Prof. John Wilkerson & Prof. Peter Doe**  
***Center for Experimental Nuclear Physics and***  
***Astrophysics, University of Washington***

*Participated in REU program where I constructed radioactivity assay chamber; operated germanium and plastic scintillator detectors; tested radioactivity of known and unknown sources, and compared to simulation*

## **OTHER PROFESSIONAL ACTIVITIES**

2011                         Excellence in Detectors and Instrumentation Technologies  
(EDIT) School Attendee

2010                         CERN-Fermilab Hadron Collider Physics Summer School  
Attendee

2010                         Graduate Teaching Assistant  
*Dept. of Physics, University of Chicago*

## **AWARDS AND HONORS RECEIVED**

2010-2012                 Robert A Millikan Fellowship  
*Dept. of Physics, University of Chicago*

2007-2009                 Robert R. McCormick Fellowship  
*Dept. of Physics, University of Chicago*

2007                         Fowler Prize for Outstanding Scholarship in Physics and  
Astronomy  
*Dept. of Physics and Astronomy, University of Oklahoma*

2007                         Chambliss Student Achievement Award, Honorable Mention  
*American Astronomical Society (Meeting 209, January 2007,*

*Seattle, WA)*

- 2006-2007 Barry M. Goldwater Scholarship
- 2004-2007 J. Clarence Karcher Scholarship  
*Dept. of Physics and Astronomy, University of Oklahoma*
- 2004-2007 Robert C. Byrd Scholarship
- 2004-2007 Oklahoma State Regents Scholarship
- 2006 Duane E. Roller Award for Outstanding Scholarship in  
Physics and Astronomy  
*Dept. of Physics and Astronomy, University of Oklahoma*
- 2005-2006 Leo S. and Virginia Cade Scholarship  
*University of Oklahoma*

## **SELECTED PUBLICATIONS AND PRESENTATIONS**

See additional attachment.