

Lawrence R. Wiencke, Ph.D.

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Education

Ph.D., Columbia University, 1992
M.Phil. Columbia University, 1986
M.A., Columbia University, 1985
A.B., Dartmouth College, 1983 (cum laude, honors physics major)

Experience

2007–present Associate Professor, Department of Physics, Colorado School of Mines
2002–2007 Research Associate Professor, Department of Physics, University of Utah
2003–2005 Visiting Scientist, Enrico Fermi Institute, University of Chicago
2002 Foreign Fellow, International Cosmic Ray Research Institute (ICRR),
University of Tokyo
1998–2002 Research Assistant Professor, Department of Physics, University of Utah
1993–1997 Postdoctoral Research Associate, Department of Physics, University of Utah
1985–1992 Graduate Student Research Associate, Nevis Labs, Columbia University
1983–1985 Graduate Student Faculty Fellow, Columbia University
1981–1983 Student Assistant, Department of Physics, Dartmouth College

Research

Pierre Auger Observatory, Malargüe, Argentina (2003–present)
Co-Task Leader Exotics group
Co-Task Leader Atmospheric Group
Auger North Task Force: site evaluations, atmospheric measurements, Utah, Colorado
2003–2011: >25 visits to Malargüe Argentina for research activities
Telescope Array Experiment, Delta Utah (2006 – 2007)
High Resolution Fly's Eye (HiRes), Utah, USA (1993–present)
Analysis Group: air shower reconstruction, energy spectrum analysis, search for exotics ($v > c$, $v < c$)
Atmospheric Group: development of techniques and apparatus to measure atmospheric clarity
HiRes prototype: installation, operation, and analysis of prototype stereo experiment (1993–1997)
Backscatter LIDAR system (Japan/United States R&D project) (1998)
CRAYS (Calibration by Rayleigh Scattering) Kashiwa, Japan (2002–2003)
BNL E766 (Brookhaven National Labs) p-p and n-p @ 27.5 GeV/c (1986-1993)

Awards

Center of Excellence Fellowship, University of Tokyo (2001)

Teaching

CSM: PHGN 300 Modern Physics (Fall 2009, 2010, 2011)
CSM: PHGN 326 Advanced Lab II (Spring 2010, 2011)

CSM: PHGN 480/481 Senior Design Practice (2007,2008,2009,2010)
 Utah:Physics 3620/5620: Electronics/Computer Interfacing (spring 2001)
 Utah: Co-taught Physics 1410: The Clock in the Sun (spring 1995, spring 1996)

Students Supervised, with Graduation Dates

Eric Mayotte	PhD	Current
Michael Coco	MSc (EE)	Current
Alexandra Woolman	MSc	Current
David Schuster	PhD	2011
David Starbuck	MSc	2011
Kathlene Gesterling	MSc	2008
Julien Girard (Utah)	Master's of instrumentation	2000
Paul Denholm (Utah)	Master's of instrumentation	1997
Amy House-Thomas	BS (Senior Project)	Current
Levi Patterson	BS (Senior Project)	Current
Andrew Mahan	BS (Senior Project)	Current
Robert Wright	BS (Senior Project)	Current
Nathaniel Walker	BS (Senior Project)	Current
Alexandra Woolman	BS (Senior Project)	2011
Michael Bratton	BS (Senior Project)	2011
Samara Esquibel	BS (Senior Project)	2011
Michael Calhoun	BS (Senior Project)	2010
Lucas Emmert	BS (Senior Project)	2010
Adam Botts	BS (Senior Project)	2010
Levi Hamilton	BS (Senior Project)	2010
John Claus	BS (Senior Project)	2010
Sarah Morgan	BS (Senior Project)	2010
Bryce Carande	BS (Senior Project)	2010
T.J. Heid	BS (Senior Project)	2010
Michael Coco	BS (Senior Project)	2010
Clint Allen	BS (Senior Project)	2009
John Sherman	BS (Senior Project)	2009
John Koop	BS (Senior Project)	2009
James Robler	BS (Senior Project)	2009
Tim Eller	BS (Senior Project)	2009
Matt Bowles	BS (Senior Project)	2009
Jonathan Powers	BS (Senior Project)	2009
David Starbuck	BS (Senior Project)	2009
Kathleen Gesterling	BS (Senior Project)	2008
David Pilger	BS (Senior Project)	2008
John Compton	BS (Senior Project)	2008
Shoji Komatsu (Utah)	BS (Senior Project)	2007
Chris Cannon (Utah)	BS (Senior Project)	2004
Reid Mumford (Utah)	BS (Senior Project)	2000
Richard Gray (Utah)	BS (Senior Project)	2000

Selected Papers

“Atmospheric Super Test Beam for the Pierre Auger Observatory” L. Wiencke for the Pierre Auger Collaboration, Proc 32nd International Cosmic Ray Conference (August, 2011).

“Measurement of the Depth of Maximum of Extensive Air Showers above 10^{18} eV”, The Pierre Auger Collaboration, Phys. Rev. Lett. 104, 091101 (2010).

“A study of the effect of molecular and aerosol conditions in the atmosphere on air fluorescence measurements at the Pierre Auger Observatory”, The Pierre Auger Collaboration, Astroparticle Physics 33, 108 (2010).

“Observation of the suppression of the Flux of cosmic Rays above 4×10^{19} eV, The Pierre Auger Collaboration Physics Review Letters, 101 061101 (2008).

“First Observation of the Greisen-Zatsepin-Kuzmin Suppression”, R. Abassi et al (The HiRes Collaboration) Physical Review Letters 100 101101 (2008)

Extracting First Science Results from the Pierre Auger Observatory, L. Wiencke for the Pierre Auger Collaboration, NIMA 572 p508 (2007).

A measurement of time-averaged aerosol optical depth using air-showers observed in stereo by HiRes” R. Abbasi, et al. Astroparticle Physics 25 p93 (2006).

The Central Laser Facility at the Pierre Auger Observatory B. Fick et al., JINST 1, p11003 (2006).

Evidence for Changing of Cosmic Ray Composition Between 10^{17} and 10^{18} eV from Multicomponent Measurements, T. Abu-Zayyad et al., Phys. Rev. Lett. 84, 4276 (2000).

Precise Measurement of the Λ^0 and $\bar{\Lambda}^0$ Masses and a Test of *CPT* Invariance, E.P. Hartouni et al., Phys. Rev. Lett. 72b, 1322 (1994).

Observation of Coulomb Effects in Production of $p\bar{i}^+ p\bar{i}^-$, $p p\bar{i}^-$, and $K^+ K^-$ Pairs in pp Collisions at 27.5 GeV/c, L.R. Wiencke et al., Phys. Rev. D46, 3708 (1992).

Selected Invited Talks

“Overview of Atmospheric Monitoring at Cosmic Ray Observatories”, International Summer School on Atmospheric and Oceanic Sciences (ISSAOS-2011) , Sept 7th 2011, Laboratori Nazionali del Gran Sasso, Italy.

“Auger North: The Pierre Auger Observatory in the Northern Hemisphere” High Energy Astro Physics Division (HEAD) March 4th 2010, Hawaii

“Pierre Auger Observatory: Recent Results and Future Plans” SLAC Summer Institute, August 3rd 2009.

“Atmospheric Calorimetry above 10^{19} eV: Shooting Lasers at the Pierre Auger Observatory” May 28, 2008 International Calorimetry Conference (CALOR), Pavia Italy (2004).

“The High Resolution Fly’s Eye: Status and Physics,” Very High Energy Neutrino Telescope Workshop, Taipei, China (2002)

“The Energy Spectrum and the High Resolution Fly’s Eye,” European Cosmic Ray Symposium, Lodz, Poland (2000)

Patents Awarded

“System and method for precise absolute time event generation and capture”, J Smith, J. Thomas, S. Thomas, L. Wiencke, US Patent #7975160, Awarded July 5th 2011

Professional Memberships and Service

Particle Data Group <http://pdg.lbl.gov>

American Physical Society

American Geophysical Union

American Association of Physics Teachers

Centenary Symposium 2012: Discovery of Cosmic Rays – Local Organizing Committee

International Astroparticle Physics Symposium (2008) Co-Chair Local Organizing Committee

International Cosmic Ray Conference (1999) Local Organizing Committee

Public Outreach

“Pierre Auger Observatory - North” presentation to Power County Commissioners (2009).

“The Pierre Auger Observatory Results and Plans” public presentation Lamar Community College (2008).

Interface between Telescope Array experiment and Japanese American Citizens’ League (2006).

Operated portable HiRes detector and laser to measure atmospheric clarity: collaboration with

Delta, Utah, high school students and Millard County, Utah, officials (summer, fall 2002)

Co-taught workshop with Astrophysics Science Projects Integrating Research and Education (ASPIRE) (summer 1998)