

## Lawrence Wiencke - Full Publication List

### Publications in Refereed Journals

“Techniques for Measuring Atmospheric Aerosols at the High Resolution Fly’s Eye Experiment”, R. U. Abassi et al., Accepted for publication in *Astrophys. J.* (2005).

“A Study of the Composition of Ultrahigh Energy Cosmic Rays using the High Resolution Fly’s Eye.” *Astrophys. J.* **622**, 910 (2005).

“Monocular Measurement of the spectrum of UHE cosmic rays by the FADC detector of the HiRes Experiment”, with R. Abassi et al., *Astropart. Phys* **23** 157 2005.

“Search for Point Sources of Ultra-High Energy Cosmic Rays above  $4.0 \times 10^{19}$  eV using a Maximum Likelihood Ratio Test.” with R. U. Abassi et al., *Astrophys. J* **623** 164 (2005).

“Observation of the Ankle and Evidence for a High-Energy Break in the Cosmic Ray Spectrum”, R. U. Abassi et al., *Astrophys.J* (2005).

“Study of Small-scale Anisotropy of Ultrahigh Energy Cosmic Rays Observed in Stereo” by HiRes, R. Abassi et al, *Astrophys.J.***610**:L73,2004

“A Search for Arrival Direction Clustering in the HiRes-I Monocular Data Above  $10^{19.5}$  eV”, R. Abassi et al, *Astropart.Phys.***22**:139-149,2004

“Measurement of the Flux of Ultrahigh Energy Cosmic Rays from Monocular Observations by the High Resolution Fly's Eye Experiment”, R. Abassi et al, *Phys.Rev.Lett.***92**:151101,2004.

“Search for Global Dipole Enhancements in the HiRes-I Monocular Data above  $10^{18.5}$  eV.” with R. Abassi et al, *Astropart.Phys.***21**:111,2004.

“Using Fractal Dimensionality in the Search for Source Models of Ultrahigh-energy Cosmic Rays”, with R. Abassi et al, *Astropart.Phys.***21**:95,2004

“Geometry and Optics Calibration for Air Fluorescence Detectors Using Star Light”, T. Abu-Zayyad, et atl., *Astroparticle Physics* **18**,2002, 237.

“The energy spectrum and the high-resolution Fly’s Eye” L. R. Wiencke on behalf of the HiRes Collaboration, *J. Phys. G: Nucl. Part. Phys.* **27**, 1611 (2001).

“Measurements of the Cosmic Ray Energy Spectrum and Composition from  $10^{17}$  eV and  $10^{18}$  eV using a Hybrid Fluorescence Technique” with T. Abu-Zayyad et al., *Astrophys. J.* **557**, 686 (2001).

“A Measurement of the Average Longitudinal Development Profile of Cosmic Ray Air Showers Between  $10^{17}$  eV and  $10^{18}$  eV”, with T. Abu-Zayyad et al. *Astroparticle Phys* **16**, 1 (2001).

“A fiber-optic based calibration system for the High Resolution Fly’s Eye cosmic ray observatory”, J.H.V Girard, L.R. Wiencke et al., *Nuclear Instruments and Methods* **A460**, 278 (2001).

“The Prototype High Resolution Fly's Eye Cosmic Ray Detector”, with T. Abu-Zayyad, *Nuclear Instruments and Methods A*,150:253 (2000).

“Evidence for changing of cosmic ray composition between  $10^{17}$  eV and  $10^{18}$  eV” from multicomponent measurements, with T. Abu-Zayyad,, *Phy. Rev. Lett.* **84**, 4276 (2000).

## Lawrence Wiencke - Full Publication List

“Geometrical Reconstruction with the High Resolution Fly’s Eye Prototype Cosmic Ray Detector”, with C.R. Wilkinson et al., *Astropart. Phys.* **12**, 121 (1999).

"Radio-controlled Xenon Flashers for Atmospheric Monitoring at the HiRes Cosmic Ray Observatory", L. Wiencke et al., *Nucl. Instr. Meth.* **A428**, 593, (1999).

“Study of Lambda<sup>0</sup> Polarization in Four Different Exclusive PP Reactions at 27.5-GeV/C”, with J. Felix et al., *Phys. Rev. Lett.* **82**, 5213 (1999).

"A Precise Measurement of the D<sup>0</sup> Mass", with M.H.L.S. Wang et al., *Phys. Rev.* **D56**, 2544 (1997).

"Study of Lambda<sup>0</sup> Polarization in  $pp \rightarrow pL^0K^+ \pi^+ \pi^- \pi^+ \pi^-$  at 27.5 GeV," with J. Felix et al., *Phys. Rev. Lett.* **76**, 22 (1996).

"Hyperon Production in 28 GeV/c Proton-Proton Interactions," with E. Gottschalk et al., *Phys. Rev.* **D53**, 4756 (1996).

"The Calibration of the Absolute Sensitivity of Photomultiplier Tubes in the High Resolution Fly's Eye Detector," with D. Bird et al., *Nucl. Instr. Meth.* **A349**, 592 (1994).

"Precise Measurement of the Lambda and Anti-Lambda Masses and a Test of CPT Invariance," with E.P. Hartouni et al., *Phys. Rev. Lett.* **72**, 1322 (1994).

"Pion-Pion Correlations at Low Relative Momentum Produced in p-p Collisions at 27.5 GeV/c", with J. Uribe et al, *Phys. Rev.* **D49**, 4373 (1994).

“Observation of Coulomb Effects in Production of proton anti-proton, pi+pi-, K+K- Pairs in pp collisions at 27.5 GeV/C”, L. Wiencke et al., *Phys Rev* **D46**, 3708 (1992).

“High Speed Simultaneous Measurement of Pulse Area and Time-Of-Flight for Photomultiplier Signals,” with E.P. Hartouni et al., *Nucl. Instr. Meth.* **A313**, 161 (1992).

“A New Technique for Online and Offline High Speed Computation,” E.P. Hartouni et al., *IEEE Trans. Nucl. Sci.* **36**, 1480 (1989).

### Publications Submitted

“A Secondary Measurement of Atmospheric Aerosols using Air Showers Observed in Stereo by HiRes”, with R. Abassi, et al., submitted to *Astroparticle Physics Journal* (2005).

### Conference Proceedings

“The Central Laser Facility at the Pierre Auger Observatory” (astro-ph/0507334), F. Arqueros et al., *Proc. 29th ICRC* (2005).

“First Estimate of the Primary Cosmic Ray Energy Spectrum above 3 Eev from the Pierre Auger Observatory”, the Pierre Auger Collaboration, *Proc. 29<sup>th</sup> ICRC* (2005).

“Atmospheric Aerosol Monitoring at the Pierre Auger Observatory”, R. Cester et al., *Proc. 29<sup>th</sup> ICRC* (2005).

## Lawrence Wiencke - Full Publication List

- “Timing Calibration and Synchronization of Surface and Fluorescence Detectors of the Pierre Auger Observatory”, P. Allison et al., Proc. 29<sup>th</sup> ICRC (2005).
- “Atmosphere Monitoring at the High Resolution Fly’s Eye Observatory”, L. Wiencke for the HiRes collaboration, Proc 29<sup>th</sup> ICRC (2005).
- “Probing the HiRes Aperture near 100 EeV using a Distant Laser”, L. Wiencke for the HiRes collaboration, International Conference on Cosmic Rays, HE 1.3 p477 2003.
- “Shoot the Shower, Probing Atmospheric Clarity of the Shower/Detector Plane at HiRes”, J. Boyer, E. Mannel, L. Wiencke for the HiRes Collaboration, International Conference on Cosmic Rays, HE 1.3 p481 2003.
- “Atmospherics at HiRes”, L. Wiencke for the HiRes collaboration, ICRC, HE 1.3 p485 2003.
- “Measurement of the Flux of UHE Cosmic Rays by the HiRes Detectors Observing in Monocular Mode” with D. Bergman et al., Proc 28<sup>th</sup> ICRC (2003).
- “Stereo Spectrum of UHECR Showers at the HiRes detector” with W. Springer et al., Proc 28<sup>th</sup> ICRC (2003).
- “Measurement of the Flux of UHE Cosmic Rays by the HiRes Detectors Observing in both Monocular and Stereoscopic Modes”, with W. Springer et al., Proc 28<sup>th</sup> ICRC (2003).
- “Absolute Calibration of the HiRes Detectors” with S. Thomas et al., Proc 28<sup>th</sup> ICRC (2003).
- “Absolute Energy Scale of the HiRes Detector” with E. Mannel et al., Proc 28<sup>th</sup> ICRC (2003).
- “Atmospheric Monitoring at HiRes - The atmosphere at Dugway” L. R. Wiencke et al., Proc of 27<sup>th</sup> ICRC (2001).
- “Measurement of the Ultrahigh Energy Cosmic Ray Spectrum using Monocular Data from the High-Resolution Fly’s Eye Experiment” with T. Abu-Zayyad et al, Proc 27<sup>th</sup> ICRC (2001).
- “Atmospheric Monitoring at HiRes - Analysis Techniques” M. Roberts, L. R. Wiencke et al, Proc of 27<sup>th</sup> ICRC (2001).
- “Measuring Air Shower Speeds with the HiRes Fluorescence Detectors” P. Morrison, L. R. Wiencke et al, Proc of 27<sup>th</sup> ICRC (2001).
- Absolute GPS Time Event Generation and Capture for Remote Locations” J.D. Smith, S. B. Thomas, L. R. Wiencke et al., Proc of 27<sup>th</sup> ICRC, HE175, (2001).
- “Atmospheric Monitoring at HiRes - Hardware I”, M. D. Roberts, L. R. Wiencke et al., Proc 27<sup>th</sup> ICRC, HE 139, (2001).
- “Atmospheric Monitoring at HiRes - Hardware II”, L. R. Wiencke et al., Proc 27<sup>th</sup> ICRC, HE 140 (2001).
- “A fiber-optic based calibration system for the HiRes Experiment” G. Archbold, J. Girard, L.R. Wiencke et al, Proc 27<sup>th</sup> ICRC, HE138 (2001).
- “A Monocular Spectrum Analysis using FADC Timing at HiRes” with D. Bergman et al., Proc 27<sup>th</sup> ICRC, HE78, (2001).
- “Preliminary Stereo Results from the High Resolution Fly’s Eye Cosmic Ray Observatory” with K. A. Reil et al., Proc

## Lawrence Wiencke - Full Publication List

27<sup>th</sup> ICRC (2001).

Calibration and Stability of the High Resolution Fly's Eye Detector" with B.F. Jones et al., Proc 27<sup>th</sup> ICRC (2001).

"Description of the High Resolution Fly's Eye Detector", with T. Abu-Zayyad et al, Proc 27<sup>th</sup> ICRC, HE 76, (2001).

"Measurement of the Cosmic Ray Energy Spectrum from  $10^{17}$  to  $10^{18.3}$  eV Using a Hybrid Technique", with Z. Cao et al., Proc 27<sup>th</sup> ICRC (2001).

"Measurement of the Average Longitudinal Development Profile of Cosmic Ray Air Showers Between  $10^{17}$  to  $10^{18}$ ", with Z. Cao et al., Proc 27<sup>th</sup> ICRC (2001).

"Monte Carlo Simulation of the HiRes Experiment" with Z. Cao et al., Proc 27<sup>th</sup> ICRC (2001).

Atmospheric Monitoring in Utah using the Back Scatter LIDAR method" with Sasano et al., Proc 27<sup>th</sup> ICRC (2001).

"Comparison of CORSIKA-generated Showers with HiRes data" with A. Zech et al. Proc 27<sup>th</sup> ICRC (2001).

"Measurement of the Cosmic Ray energy Spectrum and Composition from  $10^{17}$  to  $10^{19}$  eV using the HiRes Prototype Detector", HiRes Collaboration, Proc 27<sup>th</sup> ICRC (2001).

"Measurement of the Ultra-High Energy Cosmic Ray Spectrum using Monocular Data from the High Resolution Fly's Eye Experiment", with C.Jui et al, Proc 27<sup>th</sup> ICRC (2001).

"Study of the Longitudinal Development of Air Showers with CORSIKA", with C. Song et al., Proc 27<sup>th</sup> ICRC (2001).

"Systematic Issues in the HiRes Spectral Measurements", the HiRes Collaboration, Proc 27<sup>th</sup> ICRC (2001).

"Stereo Measurements of Cosmic Ray Events at the High Resolution Fly's Eye Prototype", L. Wiencke et al., ICRC (1999).

"HiRes/MIA Measurements of EAS Development Between  $10^{17}$  and  $10^{18}$  eV", with T. Abu-Zayyad et al., ICRC 5 365 (1999).

"HiRes/MIA Measurements of EAS Development Between  $10^{17}$  and  $10^{18}$  eV: Detector Description and Performance", with T. Abu-Zayyad et al., ICRC 3 260 (1999).

"First Stereo Results from the High Resolution Fly's Eye Air Fluorescence Detector", with T. Abu-Zayyad, et al., ICRC 5 369.

"The Cosmic Ray Energy Spectrum as Measured in Monocular Mode by the High Resolution Fly's Eye Experiment", with T. Abu-Zayyad et al., ICRC 3 264 (1999).

Study of Anisotropy in Arrival Directions in the Highest Energy Cosmic Rays from High Resolution Fly's Eye Results", with T. Abu-Zayyad et al., ICRC 3 296 (1999).

"A Steerable Laser System for Atmospheric Monitoring at the High Resolution Fly's Eye," L. Wiencke. et al., in *Ultraviolet Atmospheric and Space Remote Sensing: Methods and Instrumentation*, R. Huffman and C. Stergis, ed., Proc. SPIE (1999).

"Research and Development Facility at Black Rock Hills for a next Generation Air Fluorescence Detector", L. Wiencke et al., ICRC 5, 389 (1999).

## Lawrence Wiencke - Full Publication List

- “Atmospheric Monitoring via Measurements of Scattered Light at the High Resolution Fly’s Eye”, with R. Gray et al., **ICRC 5** 353 (1999).
- “A Steerable Laser System for Atmospheric Monitoring at the High Resoluition Fly’s Eye”, with R. Mumford, et al., **ICRC 5** 377 (1999).
- “Status of the High Resolution Fly's Eye Detector: Operation and Installation”, with T. Abu-Zayyad et al., **ICRC 5** 349 (1999).
- “Atmospheric Monitoring for Transmission Corrections to Air Fluorescence Signals” with J. A.J. Matthews et al., **ICRC 5** 412 (1999).
- “Atmospheric Monitoring for the Telescope Array Project”, with M. Chikawa et al., **ICRC 5** 404 (1999).
- “Calibrating the High Resolution Fly’s Eye Detector”, with B. Jones et al., **ICRC 5** 429 (1999).
- “Light Transmission Fluctuations from Extended Air Showers produced by Cosmic Rays and Gamma-Rays”, **Proc 26<sup>th</sup> ICRC 5** 433 (1999).
- "Radio Controlled Light Sources for Atmospheric Monitoring at HiRes," with T. Abu-Zayyad et al., **ICRC 5** 357 (1997).
- "Physics with HiRes Stage 0.5 and Stage 2," with T. Abu-Zayyad et al., **ICRC 5** 321 (1997).
- "Cosmic Ray Composition Measured by HiRes in Coincidence with FE2," with T. Abu-Zayyad et al., **ICRC 3** 21 (1997).
- "Multi-Component Observations of  $10^{17}$  eV EAS with a Hybrid Fluorescence and Surface Detector," with T. Abu-Zayyad et al., **ICRC 3** 29 (1997).
- "Trigger Sensitivity of the FADC Instrumented HiRes Fly's Eye," with T. Abu-Zayyad **ICRC 7** 209 (1997).
- "Calibration and Stability Measurements of A FADC Based Data Acquisition System for hte HiRes Fly's Eye Experiment," with T. Abu-Zayyad et al., **ICRC 7** 213 (1997).
- "Cosmic Ray Composition Measured by HiRes in Coincidence with FE2," with T. Abu-Zayyad **ICRC 4** 29 (1997).
- "The Capabilities of the High Resolution FLY's Eye Detector," with T. Abu-Zayyad et al., **ICRC 5** 325 (1997).
- "Status of the High Resolution FLY's Eye Detector: Operaton and Installation," with T. Abu-Zayyad. et al., **ICRC 5** 329 (1997).
- "The HiRes Detector: Absolute Calibration and Alignment," with T. Abu-Zayyad et al., **ICRC 5** 333 (1997).
- "A Monte Carlo Study of Reconstructin of Monocular Events having Limited Track Lengths for the High Resolution Fly's Eye," with T. Abu-Zayyad et al., **ICRC 5** 337 (1997).
- "Stereo Reconstruction of EAS with the Hres Detector," with T. Abu-Zayyad et al., **ICRC 5** 341 (1997).
- "Atmospheric Monitoring at the High Resolution Fly's Eye: Atmospheric Scattering," with T. Abu-Zayyad et al.,

## Lawrence Wiencke - Full Publication List

ICRC 5 345 (1997).

"Testing the High Resolution Fly's Eye Using the Laserscope," with T. Abu-Zayyad et al., ICRC 5 349 (1997).

"Atmospheric Monitoring at the High Resolution Fly's Eye: Data from the HiRes2 Flasher Array," with T. Abu-Zayyad et al., ICRC 5 361 (1997).

"Atmospheric Monitoring at the High Resolution Fly's Eye: Monitoring Data via the HiRes Laser/Lidar System," with T. Abu-Zayyad et al., ICRC 5 365 (1997).

The High Resolution Fly's Eye (HiRes) Project", with M. Al-Seady et al., 32<sup>nd</sup> Rencontres de Moriond: High Energy Phenomena in Astrophysics, (1997).

"Study of Lambda0 Polarization in Exclusive PP Reactions at 27.5 GeV/c", with J. Felix et al., 6<sup>th</sup> Workshop on Particles and Fields Particles and Fields 320 (1997).

"A Precision Measurement of the Sigma0 Hyperon Mass", with M. Wang et al., 6<sup>th</sup> Workshop on Particles and Fields Particles and Fields 80 (1997).

"Atmospheric Studies Using the High-Resolution Fly's Eye Xenon Flasher Array," L. Wiencke et al., in *Ultraviolet Atmospheric and Space Remote Sensing: Methods and Instrumentation*, R. Huffman and C. Stergis, ed., Proc. SPIE **2831**, 241 (1996).

"The HiRes2 Prototype and Coincident Measurements with HiRes1," L. Wiencke et al., ICRC **3**, 548 (1995).

"Atmospheric Monitoring of Fluorescence Detector Experiments," with P. Sokolsky et al, ICRC **3**, 560 (1995).

"Measurement of the Aerosol Differential Scattering Cross Section Using the HiRes Fluorescence Detectors" with T. Tessier et al., ICRC **3** 408 (1995).

"The High Resolution Fly's Eye Project," with D. Bird et al., ICRC **3**, 504 (1995).

"Cosmic Rays Shower Maximum in the 0.01 to 1 EeV Region -- Results from HiRes/FE2 Coincident Data," with D. Bird et al., ICRC **2**, 718 (1995).

Preliminary Analysis of Monocular HiRes Prototype Data" with D.J. Bird et al., ICRC **3**, 500, (1995).

"Multi-Component Observations of  $10^{17}$  eV EAS with the CASA-MIA and HiRes Detectors," with D. Bird et al., ICRC **2**, 760 (1995).

"Observation of Coulomb Effects in Production of  $p^+p^-$ ,  $pp^-$ ,  $K^+K^-$ , and  $pK^-$  Pairs in pp Collisions at 27.5 GeV/c," L. Wiencke et al. Proceedings of the November 1992 Meeting of the American Physical Society, Division of Particles and Fields.

"A High Statistics Study of Like-Sign Pion Pair Correlations" with E. P. Hartouni et al, The Fermilab Meeting, DPF 92 **2** 1161 (1992).

"Photon Production in Fully Reconstructed PP Collisions at 27.5 GeV/c" L. Wiencke et al., Pittsburg Workshop on Soft Lepton Pair and photon Production, 0031 (1990) (QCD161:P545:1990)

"Report of the Fixed Target Heavy Quark Working Group" with J. Butler et al., ANL-HEP-CP-90-25 1989.

## Lawrence Wiencke - Full Publication List

“A New Technique for Online and Offline High Speed Computation” with E.P. Hartouni et al, Real Time Computer Applications in Nuclear Particle and Plasma Physics, Williamsburg VA, May 1989.

“Exclusive XI-Production in 15-GeV – 28-GeV Neutron-Proton Collisions” with M. Church et al., in Berkeley 1986, Proceedings, High Energy Physics, **2** 1365 (1986).

“Some Preliminary Results from BNL E766 on  $PP \rightarrow PPK0(s)K\pi$ ” with E.P. Hartouni et al., BNL Workshop: Glueballs 1988:0408 (QCD161:B58:1988).