

Biographical Sketch (updated 9/01)

STEVEN W. BARWICK

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A. Education:

Massachusetts Institute of Technology	Physics	B.S. 1981
University of California-Berkeley	Physics	M.A. 1983
University of California-Berkeley	Physics	Ph.D 1986

B. Appointments:

2000-present Professor of Physics, University of California-Irvine
1995-2000 Associate Professor of Physics, University of California-Irvine
1990-1995 Assistant Professor of Physics, University of California-Irvine
1986-1990 Research Physicist, University of California-Berkeley

C. Publications:

i. Important Publications

“*Scientific Potential of the AMANDA-II High Energy Neutrino Detector*”, Proc. 27th
Inter. Cosmic Ray Conf, [Hamburg, Germany,2001];
http://www.copernicus.org/icrc/papers/icc1247_p.pdf

“*Observation of High Energy Atmospheric Neutrinos with AMANDA*”, E. Andres, *et al.*,
Nature, 410(2000)441.

“*Results from the AMANDA High Energy Neutrino Detector*”, E. Andres, *et al.*, Nucl.
Phys. B, 91(2001)423; Proc. XIX Inter. Conf. Neut. Phys. Astrophys. (Neutrino 2000),
Sudbury, Canada. [astro-ph/0009242]

“*High Energy Cosmic Neutrinos*”, Steven W. Barwick, *Physica Scripta*, T85 (2000)106; [astro-ph/ 9903467]

“*The AMANDA Telescope: Principle of Operation and First Results*”, E. Andres, *et al.*, *Astropart. Phys.*13(2000)1.; astro-ph/9906203.

ii Other publications

“*Search for Point Source of High Energy Neutrinos with AMANDA*”, E. Andres, *et al.*, in preparation, to be submitted to *Astrophys. J.*, 2001.

“*Cosmic Ray Positrons at High Energies: A New Measurement*”, S. W. Barwick, *et al.*, *Phys. Rev. Lett.* 75(1995)390.; astro-ph/9505141.

Transparencies from presentations at professional meetings:

<http://www.ps.uci.edu/~amanda/transparencies.html>

Recently submitted publications to refereed journals can be downloaded from:

<http://www.ps.uci.edu/~amanda/documents.html>

D. Synergistic Activities:

Member of High Energy Neutrino Assessment Panel (HENAP), 2000-present

Lecturer at SLAC Summer Institute, 2000

Research supervision of 4 REU students between 1996 and 2001.

Sponsorship of a female graduate student, Lisa Gerhardt, 2000.

Service on NAS/NRC Astronomy and Astrophysics Survey Committee (Decadal Survey), 1999.

Member of Scientific Assessment Group for Non-Accelerator Physics (SAGENAP).

Public Lectures at University and Elementary School.

Development of Interactive Web page: <http://www.ps.uci.edu/~amanda> to nurture public interest in AMANDA.

Award for Outstanding Contributions to Undergraduate Education, 1999.

Award for Educational Website of the Year, 1999.

E1: Collaborators:

1. AMANDA-II:

Lars Bergstrom (Stockholm), Willi Chinowsky (LBL), Doug Cowen (Pennsylvania), Allan Hallgren(Uppsala), Francis Halzen (Wisconsin), Per Olof Hulth (Stockholm), Albrecht Karle (Wisconsin), Doug Lowder (Berkeley), Robert Morse (Wisconsin), David Nygren (LBL), Buford Price (Berkeley), Hector Rubinstein(Uppsala), G. Smoot (Berkeley), Christian Spiering (DESY-Zeuthen), Robert Stokstad (LBL), Christian Walck (Stockholm), Ralf Wischnewski (DESY-Zeuthen).

2. Other recent collaborators:

James J. Beatty (PSU), Stephan Coutu (PSU), Dietrich Muller (Chicago), James Musser(Indiana), Simon Swordy(Chicago), Greg Tarle(Michigan), Andy Tomasch(Michigan)

E2. Graduate and Postdoctoral Advisors:

P. Buford Price (1982-1990), University of California-Berkeley

E3. Thesis Advisor and Postgraduate-Scholar Sponsor:

Rodin Porrata, “*The Energy Spectrum of Pointlike Events in AMANDA-A*”, 1997 (Ph.D)

Eric Schnieder, “*A Measurement of the Flux of Secondary Cosmic Ray Muons and Protons in the Earths’s Atmosphere*”, 1997 (Ph.D)

Scott Young, “*A Search for Astrophysical Sources of High Energy Neutrinos using AMANDA*”, 2001 (Ph.D)

Wenqing Wu, “*A Study of High Energy Cascades in the IceCube Detector*”, 2000 (Ph.D)

Dave Ross, “*Design and Characterization of a Signal Transport System using Optical Fiber and Analog Modulation Laser Diode Transmission*” 2001, (MA)

Patrick C. Mock, Postdoctoral student

Rodin Porrata, Postdoctoral student

John Kim, Postdoctoral student

Stephan Hundertmark, Postdoctoral student

Yuan Yan, Postdoctoral student

F. Research

Particle Astrophysics: Co-spokesperson for the Antarctic Muon and Neutrino Detector Array (AMANDA), the largest detector in the world dedicated to the observation of high energy neutrinos from cosmic sources. The era of multi-messenger astronomy started with the commissioning of AMANDA in January, 2000. The design of AMANDA, located more than a mile below the surface of the South Pole, involved the development of several technological and analysis-related innovations to achieve the desired goals of highly reliable operation, straightforward expandability, and reasonable cost.

Cosmic Ray Physics: Participated in the High Energy Antimatter Telescope (HEAT), a balloon-borne detector designed to measure the positron abundance in the galaxy. I, along with members of my group, designed the subsystem and managed the program that tested, constructed and integrated the electromagnetic calorimeter into the HEAT payload.