

Professional Goal: To support strong communities of learning and inquiry in the physical sciences, with a focus on the use of visualizations and technology. Currently engaged in educational research and administration in informal science education and teacher professional development.

PROFESSIONAL PREPARATION

- Columbia University, Teachers College, PhD program in Science Education, Fall 2004 – present
Dissertation proposal accepted, 4/12/07: "Supporting the effective utilization of scientific visualizations for teaching topics in earth and space science."
- NASA Graduate Student Research Fellow in Astrophysics Education through Marshall Space Flight Center, Fall 2004 – Fall 2007.
"Engineering and Astrophysics Education: A study of methods and theories for teaching lunar science and exploration and their application for developing educational programs and materials."
- Columbia University, Continuing Studies Program, Astrophysics II, 1998
- Denison University, BS in Physics and Astronomy, 1996. *Senior thesis*, "Cataclysmic Variable Stars and CCD Image Reduction Using IRAF."

APPOINTMENTS

University of Louisville, August 2007 - present
Director, Gheens Science Hall & Rauch Planetarium
Instructor, Department of Teaching and Learning
College of Education and Human Development

- Responsible for directing the planetarium as well as research in the areas of informal, science, and technology education. Supervise team of educators in the production and delivery of educational and public programming and products. Lead the development of various professional development programs for educators and supervisors.

American Museum of Natural History, July 2001 – August 2007
Astrophysics Education Manager

- Responsible for the research, development, and delivery of educational programming for teachers, students, and families in the physical and space sciences. Serve as education specialist for media and exhibition development. Supervise team of educators in the production and delivery of educational and public programming and products. Produce and direct special public events. Develop and lead various professional development and public programs for educators and supervisors. Offer continued support for astrophysics outreach programs throughout the museum.

The Horace Mann School, Riverdale, New York, 1996-2001
Upper School Science Teacher, Physics and Astronomy

- Responsible for the planning and teaching of honors and AP physics and astronomy courses. Computerized, updated, and maintained the school physics lab. Coached Science Olympiad Team. Founded and advised the Astronomy Club.

Columbia University Summer Research Program for Science Teachers, 1997-1998
Astrophysics Laboratory Research Assistant

- Responsible for performing research and translating the experience back into the classroom setting through curriculum development. Work resulted in publication.

LIST OF PUBLICATIONS

Popular Books

- Ultimate Space, 10 Book Series published by Scholastic (*in-press*)
- Space University, 12 Book Series with kit of materials and access to accompanying web site (www.scholastic.com/space) published by Scholastic. Titles include: *the Universe, Space Travel, Earth's Neighborhood, the Search for Life, Exploring Other Worlds, Living on the ISS, Amazing Astronomy, Stars and Galaxies, and Cosmic Questions*. Author of *Cosmic Questions*, published fall 2004. Current circulation of series is over 250,000.

Publications

- Connolly, Rachel, et. al. "Tips from the Field," *The Science Teacher*, January 2006.
- Stroud, Connolly, Groome, Sheppard. "Towards a Methodology for Informal Astronomy Education Research," *Astronomy Education Review*, 5(2), <http://aer.noao.edu/cgi-bin/article.pl?id=229>
- Stroud, Connolly, Groome, Sheppard. Reprint of "Towards a Methodology for Informal Astronomy Education Research," *Planetarian*, September 2007, 36(3), 20-26.
- Connolly, et. al. "A Field Trip to the Moon: a Research-Based Model for Creating and Evaluating a Visualization-Based Museum Program," *in press*.

Abstracts

- Helfand, D.J., et. al. 12/1998, "Optical Identification of 700 Radio Sources in Sixteen Square Degrees of the FIRST Survey," *Bulletin of the American Astronomical Society*, **30**, 1307

Educational Materials

- Education specialist for various museum resources and publications, including *Discovering the Universe* (<http://education.amnh.org/moveable/astronomy/>), *The Search for Life: Are We Alone?* (<http://www.amnh.org/resources/programs/searchforlife>), *Einstein Educators Guide* (www.amnh.org/resources/exhibitions/einstein/), *Hall of Meteorites Teacher's Guide* (<http://www.amnh.org/education/resources/halls/meteorites/>), *Discover Exploratorium/AMNH*.

Conference Proceedings

- AAS, May 2007, poster presentation, "A Field Trip to the Moon: Using Cutting-Edge Scientific Visualizations in Astronomy Education."
- NARST, April, 2007, presenter, "Arts and Science Course in a Museum."
- Astronomical Society of the Pacific, EPO conference, September, 2006, presenter, "Visualizations in Science Education: Toward a Developer's Toolkit."
- National Science Teacher Association (NSTA) Convention, April 2006, presenter, "Using Scientific Visualizations in Education."
- National Association for Research in Science Teaching (NARST), Annual Meeting 2006, "Effects of a High School Summer Internship Program on Students' Science Attitudes, Science Self-efficacy, and Locus of Control."
- National Association for Research in Science Teaching (NARST), Annual Meeting 2006, "Introducing Written Questioning Opportunities in an Informal Environment."
- Astronomical Society of the Pacific, EPO conference, September, 2005, presenter, "Tapping Interest in Astronomy Education: Tools & Methods from an Informal Setting."
- NSTA Convention March 2003, presenter, "What's Up? Association of Astronomy Educators Mini-Sessions," and "Science Education Resources at the American Museum of Natural History."
- "The Consortium for Undergraduate Research and Education in Astronomy," Berger, Rachel, Education and Public Outreach Poster Session, AAS/AAPT meeting, January 2001.

SYNERGISTIC ACTIVITIES

Informal Education

New York City Center for Space Science Education

- Consultant on the development and opening of an Aeronautics Engineering Laboratory and a NASA Challenger Center. Engaged in on-going program and content support.

American Museum of Natural History

- Member and speaker at NASA Explorer Institute Focus Group, "Seeing the Universe: Visualizing Space for Informal Science Education Audiences."
- Served as co-curator of *Discovering the Universe*, Museum's Moveable Museum exhibition (<http://www.amnh.org/education/outreach/moveable/>).
- Education and content advisor for *Look Up!*, children's planetarium show presented in Hayden Planetarium.
- On development team for The Learning Lab, a hands-on demonstration area in the Einstein Exhibition (<http://www.amnh.org/exhibitions/einstein/>).
- Developed and presented Distance Learning Classes via videoconferencing.
- Lead educational programmer on following large-scale events; *Marsapalooza MER outreach*, *Astronomy Day*, *UN Space Week*, *Space Experiment Module Integration for STS-107*.

- On development team for Saltz Expedition Centers, a series of hands-on demonstration carts themed on topics in Light, Telescopes, and Planets.
- Co-developed and taught *From Einstein to Hawkings Course* for the Hayden Planetarium (<http://research.amnh.org/users/wyatt/Hayden/fromEtoH.html>).
- NASA Explorer Institutes 2005*
- Co-Investigator with Anita Sohus (JPL), "Museum Alliance Phase II," infrastructure development.
- Founding researcher and current member of the *Informal Science Education Research Group in Astronomy (ISERGA)*, <http://www.iserga.org/>
- Amateur Astronomy Association of New York City*, Board Member, June 2004 – present.
- University of Chicago, Center for Cosmological Physics*, Participant in Origin and Structure in the Universe, a cosmology short course for Planetarium Staff.
- Brooklyn Children's Museum, Spring 1998 and 1999*, Scientist in Residence, responsible for developing and teaching workshops in physics and astronomy for grades 2-8.

Formal Education

-*GOAL after school program at PS 171*

Developed an after school science program curriculum and engaged in action research with elementary school teaching team.

-*Jordan Teachers College*

Part of a team that traveled to Jordan in the summer of 2006 to observe and assess the teacher-training infrastructure for the country. Resulted in a Preliminary Needs Assessment report.

-*Teacher Renewal for Urban Science Teaching (TRUST)*

Member of development team and educators in this year-long program for Earth Science teachers, funded by NSF and in collaboration with Brooklyn and Lehman Colleges.

-*Museum Resources for Teaching Life, Earth, and Space Sciences*

Guest educator in the Lehman College course for middle and high school teachers.

-*Consortium for Undergraduate Research and Education in Astronomy (CUREA)*, Summer 2000

Staff educator at this 2-week intensive course in observational astronomy designed for physics and astronomy undergraduates at Mt. Wilson Observatory, California. Program participant in 1994.

-*Global Kids: School for Global Citizenship, opened fall 2004*

Science Curriculum Specialist and member of advisory panel.

-*Amateur Astronomy Association of New York City*

Developed and taught *Introduction to Astrophysics Course*. Section 1 Fall 2003 and Section 2 scheduled for Spring 2004.

Project STIR

- Developed and taught "Teaching Physics Through Astronomy," a three session course on using the universe in the classroom. Presented to 40 physics educators in fall 2002.

Review of Educational Materials

Goddard Space Flight Center: Imagine the Universe

- Reviewer for *What's Your Cosmic Connection to the Elements?* Information and Activity Book (<http://imagine.gsfc.nasa.gov/docs/teachers/elements/>).

COLLABORATORS AND OTHER AFFILIATIONS

Dr. Neil de Grasse Tyson, *Hayden Planetarium, American Museum of Natural History*

Dr. Maritza MacDonald, *American Museum of Natural History*

Dr. O. Roger Anderson, *Columbia University Teachers College*

Ryan Wyatt, *California Academy of Science*

Dr. Laura Danly, *Griffith Observatory*

Dr. James Sweitzer, *Science Communications Consultants*

Dr. Keith Sheppard, *SUNY Stony Brook*

Nick Stroud, *New York City Center for Space Science Education*

National Science Teacher Association

Sigma Pi Sigma, National Physics Honor Society

Association of Astronomy Educators

American Association of Physics Teachers, 1996-2001

Amateur Astronomy Association of New York City