

Scott M. LaBrake
Accelerator Manager and
Lecturer of Physics and Astronomy

Work Address

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Education:

- Ph.D., Department of Physics, The University at Albany, The State University of New York, 2003
Thesis: Glass Capillary X-Ray Waveguides
- M.S., Department of Physics, The University at Albany, The State University of New York, 1997
- B.S., in Physics (minors in Applied Mathematics and Chemistry) Siena College, 1995

Teaching Experience

- Lecturer of Physics and Accelerator Manager, Union College, 2003 – Present
- Visiting Assistant Professor of Physics, Union College, 2000-2003
Maintain department's 1.1 Million Volt Pelletron Particle Accelerator
Academic Advisor
Senior Thesis and Senior Writing mentor for eleven students (Physics 495)
Developing Sophomore Research Seminar on Energy and the Environment
Taught Modern Experimental Physics course (Physics 300)
Wrote Laboratory Manual for Modern Experimental Physics
Taught course on Heat, Light and Fluid Mechanics for Physics majors and Engineers (Physics 123)
Taught, along with four other instructors, an introductory course for declared physics majors using the Pelletron Particle Accelerator (Physics 100)
Taught first- and second-term introductory physics courses for majors and engineers in an integrated laboratory and lecture format (Physics 120 and Physics 121).
Taught first- and second-term introductory physics (with associated laboratory) courses for students in the Life Sciences (Physics 110 and Physics 111).

General Education courses in astronomy (Astronomy 50 and Astronomy 51) with associated laboratories.

- Adjunct Professor of Physics and Physics Department Technician, Siena College, 1997-2000
Taught first- and second-term introductory physics laboratory courses majors.
Taught first- and second-term introductory physics laboratory courses for students in the Life Sciences.
Taught General Education courses in Astronomy.
Rewrote laboratory manuals for introductory physics I and II sequence.
Integrated new computer software into the lecture and laboratory general and digital electronic courses.
- Adjunct Professor of Physics, Hudson Valley Community College, summer 1999
Taught second-term introductory physics course (with associated laboratory) for majors and engineers.
- Adjunct Professor of Physics, The University at Albany, The State University of New York, 1999
Taught first- and second-term introductory physics laboratory courses for students in the Life Sciences.
- Teaching Assistant, The State University of New York at Albany, 1995-2000
Taught first- and second-term introductory physics laboratory courses for majors.
Taught first- and second-term introductory physics laboratory courses for students in the Life Sciences.
Teaching Assistant of the Year, 2000

Research Experience

- The State University of New York at Albany, 1998-2003
Thesis work on x-ray waveguides, in particular the excitation, propagation, and exit diffraction of the x rays by the waveguide. Included were surface roughness effects on the propagation of x rays by the glass capillary waveguides.
- The State University of New York at Albany, 1997-1998
Project on Differential Scanning Calorimetry to measure phase transformation of Cobalt Boride compounds.
- The State University of New York at Albany, 1996
Project on Rutherford Backscattering Spectroscopy to deduce material thickness of Tantalum/Tantalum Nitride thin films deposited on Silicon Wafers.

Professional Organizations and Societies

- American Physical Society
- Optical Society of America
- Sigma-Pi-Sigma

Publications

- *Instructor's Solution Manual* to accompany Physics for the Life Sciences by Jay Newman. – Springer, In Press, Publication date fall 2008.
- *Student Study Guide and Selected Solution Manual* to accompany Physics for the Life Sciences by Jay Newman. – Springer, In Press, Publication date fall 2008.
- The Asymptotic Reciprocity Theorem: Applications to – In Production
- Orbital Angular Momentum of X Rays in Glass Capillary Waveguides – In Production

Conferences Attended

- 19th International Conference on the Application of Accelerators in Research and Industry (CAARI), Fort Worth, Texas, August 2007

Undergraduate Research Projects Directed and Student Presentations

- The Radial Distribution of Heavy Metals as a Function of Distance from a Coal Fired Power Plant in Western New York, Steven Po-Chedley, Senior Thesis, 2007 - 2008
- Computer Program and Interface for GUPIX software for Spectral Analysis of PIXE Data using VPython, Brandon Bartell, Summer 2007
- A Study of Fiber Optics, Shawn Wamser, Senior Writing Experience, Fall 2007
- Automating the Pelletron Particle Accelerator using Lab View - On-line Accelerator controls and systems, Adam Sadelik, Winter & Spring 2007
- A Theoretical and Experimental Study of Sonoluminescence, Luther Vucic, Senior Thesis, 2006 – 2007
- An Investigation of Mercury in Selected Seafood using PIXE on the Pelletron Particle Accelerator, Alex Krickx, Senior Thesis, 2006 - 2007
- Bone Density Distribution in the Symphyseal Region of the Anthropoid Mandible Using Quantitative Micro Computed Tomography, Matt Roginski, Senior Thesis Physics Representative Reader, 2006 - 2007
- Analysis of Hans Groot's Kill Sediment using RBS and PIXE on the Pelletron Particle Accelerator, Alyssa Maloney, Senior Thesis, 2004 - 2005
- Analysis of Mississippi River Water from Western Illinois using PIXE on the Pelletron Particle Accelerator, Sophomore Scholar's Project, Lauren Carlson, 2005
- Planar Dielectric X-Ray Waveguides – An introduction to boundary value problems in theoretical physics, Sophomore Scholar's Project, Lauren Canepari, 2003-2004
- Planar Metallic X-Ray Waveguides, Kevin Udway, Rochester Symposium for Undergraduate Research, 2000

Professional Service

- Union College
Preparing solution manual for Physics for the Life Sciences by J. Newman
Health Professions Advisory Committee Member
Radiation Safety Committee Member

Campus Safety Committee Member
Directed Senior Thesis projects
Directed Sophomore Scholar project
Faculty Advisor for first year students
MCAT Preparatory Course instructor for physics section of MCAT's
Accelerator and Observatory Open Houses
Participated in searches for Visiting Faculty and Chair of Department
Participated in Tenure review/3rd year review processes for junior faculty

- Siena College
Directed undergraduate research project
Rewrote laboratory manuals for introductory physics I and II sequence

Community Service

- Observatory Open house for three 3rd grade classes from Roessleville Elementary School, 2003 - Present
- Observatory Open house for 6th-7th grade honors classes from Mohonnasen School, 2003
- Astronomy Nights, Roessleville Elementary School 1st, 3rd and 4th grade classes, 1998-present
- Spaghetti Dinner, Roessleville Elementary School, 1997-present

Other Experiences

- Co-Owner – Classico Hairstyling and Barbering
- Paper Machine Mechanic, International Paper Company, Engineering and Maintenance Department, summers 1993-1996