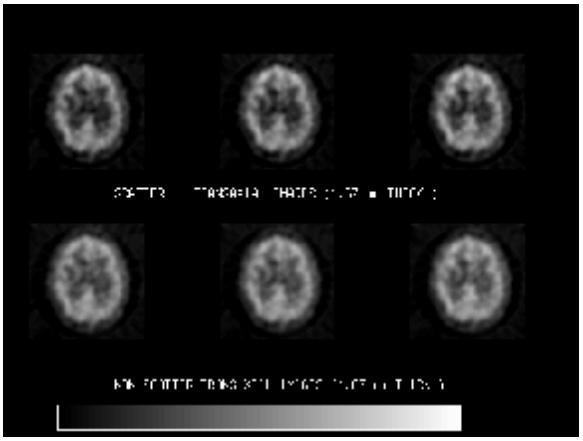
The Physics Department at Kenyon College

The Kenyon Physics Department offers a wide range of classes, including "general education" physics and astronomy courses, calculus and non-calculus based introductory surveys, and advanced courses in theoretical and experimental physics.

Physics lies at the heart of the natural sciences. To take an obvious illustration: almost any piece of modern scientific instrumentation is based on principles of optics, electronics, or nuclear physics -- and such apparatus usually has its origins in fundamental work done by physicists. The central role of physics and its close ties to other sciences are also evident in the composition of the Kenyon physics faculty, which has wide-ranging expertise in medical imaging technology, nonlinear science, semiconductor optics, information theory, and astronomy. There is scarcely a "traditional" physicist among us, yet we share a belief in the value of a rigorous core of training in physics as a basis for multi-disciplinary scientific work.

The Physics Department fosters a collaborative atmosphere among the faculty and students. Students work together in many courses and participate as colleagues in major departmental projects. Faculty and students also gather every Friday at noon in Peirce Hall for lunch.



High spatial resolution images used to probe brain function , formed by detection of gamma ray photons emitted from radioactively tagged tracers. Such images are the subject of active research at Kenyon, where we are pursuing means of improving the spatial resolution of nuclear medical imaging techniques through sophisticated computational methods.

Miller Observatory CCD image of the Moon's surface, showing the lunar Alps and crater Plato.

The Physics Program. Over the past several years, the Physics Department has developed an innovative curriculum in its lecture courses and instructional laboratories:

- We led the physics community in developing a full range of undergraduate physics labs using computer-based video imaging technology.
- We have created a new sequence of introductory physics courses, which emphasizes modern concepts of quantum theory and nuclear physics in the first year of physics study.
- We have initiated a first-year seminar in which entering students can immediately begin to study current topics in physics.
- We support the extensive use of laboratory computing and other advanced technology in our laboratories at all levels.
- We have strengthened our astronomy program by the creation of an astronomy minor and the building of the Franklin Miller Observatory.

Student Achievement. The best measure of our department is the success of our students, both in summer research opportunities and in their pursuits after Kenyon

- Physics students have participated in summer research in physics both at Kenyon and at other institutions. For example, a recent student worked on a summer research project in low temperature thermometry for the Space Shuttle. In 1998, a Kenyon physics major won the Tomsich Science Award for his research into quantum chaos. Additionally, many Kenyon physics students participate in the Kenyon Summer Science Scholars program.

- Physics students have also gone on to post-graduate study at some of the best institutions in the country. Recent physics majors have continued at Berkeley, Harvard, Johns Hopkins, University of Chicago, University of Colorado, University of Texas, and many other institutions. Many of these students have entered graduate programs in physics, but others have studied geophysics, astrophysics, atmospheric science, electrical engineering, biomedical engineering, medicine, and meteorology.

- Other physics graduates have gone on to "real jobs" after Kenyon. A significant number of these have entered secondary teaching, bringing an unusual level of expertise to high school science classes around the country. Others have gone into technical industries such as electronics design, computer programming and systems management, engineering, and consulting.

For more information:
Check out our web page:
http://physics.kenyon.edu/
Write to: Department of Physics,
Kenyon College, Gambier, OH 43022
(Phone 740-427-5069).
Or e-mail a faculty member.

The Physics Faculty:

Katharina Christandl (Ph.D. Ohio State, 2005)
Kat Christandl's research currently focuses on creating a 2D optical lattice on a chip, in order to produce devices suitable for use as memory components in neutral atom quantum computing applications. (christandlk@kenyon.edu)

Thomas B. Greenslade, Jr. (Ph.D. Rutgers, 1965).
Professor Emeritus and author of over 150 articles, Tom Greenslade writes on topics in the history of physics, as well as lecture demonstrations and laboratory experiments developed at Kenyon.

John D. Idoine (Ph.D. Harvard, 1979), **Dept Chair**
John Idoine is a specialist in nuclear medical imaging and maintains close ties with medical imaging research centers in Massachusetts and Scotland. (idoine@kenyon.edu)

Jan Kmetko (Ph.D. Northwestern, 2002)
A biological physicist, Jan Kmetko studies protein crystallization and structure using X-ray diffraction techniques. (kmetkoj@kenyon.edu)

Chris LaSota (Ph.D. Wm & Mary, 1999)
Chris LaSota's research involves computational modeling of complex systems through the use of cellular automata. (lasotac@kenyon.edu)

Franklin Miller, Jr. (Ph.D. Chicago, 1939)
Franklin Miller, professor emeritus of physics, received the Millikan Award in 1970 from the AAPT for his work with single-concept films and his widely-used introductory textbook.

Frank C. Peiris (Ph.D. Notre Dame, 1999)
Frank Peiris works in the overlap region between physics and chemistry, characterizing the physical and optical properties of II-VI semiconductor materials. (On leave, 2005-2006)

Benjamin W. Schumacher (Ph.D. Texas, 1990)
Ben Schumacher, a theoretical physicist, probes the deep and surprising relationships between quantum mechanics, information theory, computation, and thermodynamics. (schumacherb@kenyon.edu)

Timothy S. Sullivan (Ph.D. Washington, 1986)
Tim Sullivan's research has involved characterizing nonlinear flow patterns in fluids, as well as studying the optical properties of colloidal solids with collaborators at Lucent Technologies. (On leave, 2005-2006)

Paula C. Turner (Ph.D. Rochester, 1995)
Paula Turner images the nuclei of colliding galaxies at infrared wavelengths to understand the nature of their compact central sources. At Kenyon she has been responsible for the development and construction of the Miller Observatory. (turnerp@kenyon.edu)