



APPLIED PHYSICS

Presented By:

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Applied Physics Programs at CSUCI

Applied Physics at CSU Channel Islands currently runs (i) a Minor in Applied Physics (particularly attractive to Math and Computer Science majors), (ii) an Emphasis in Medical Imaging (within the Biology major) and (iii) a number of popular interdisciplinary General Education courses (such as the Physics of Music, and the Physics of Art and Visual Perception). It proposes to run a Major in Applied Physics starting in the Fall of 2008.



Students graduating from the Applied Physics programs will be able to:

- explain the fundamental concepts of physics;
- analyze and solve problems by applying information in a novel context;
- formulate hypotheses and devise and perform experiments to test hypotheses as individuals and in a team;
- apply current technology and scientific methodologies to analyze and solve problems in various scientific, professional and community settings;
- use and critically evaluate current technical/scientific research literature, online information, and information related to scientific issues in the mass media;
- communicate in written and oral forms key concepts in physics and general scientific issues with interested citizens and professionals;
- work co-operatively as part of a research team;
- learn independently and maintain life-long learning in the sciences and technology.



Internships

Our programs include an internship, a supervised professional working and learning experience, for upper-division students. Currently four of our students are doing internships in medical imaging with the Radiology Department of Los Robles Hospital. Last summer a student did her internship with Engineering World Health, which offers physics and engineering students an opportunity to improve the healthcare in underserved areas. She worked in a hospital in Tanzania installing refurbished medical equipment and training staff in its use, and repairing broken equipment. Another student constructed an air sampler to remotely monitor upper air quality, and this will be carried on a 1100 cu. ft. blimp.



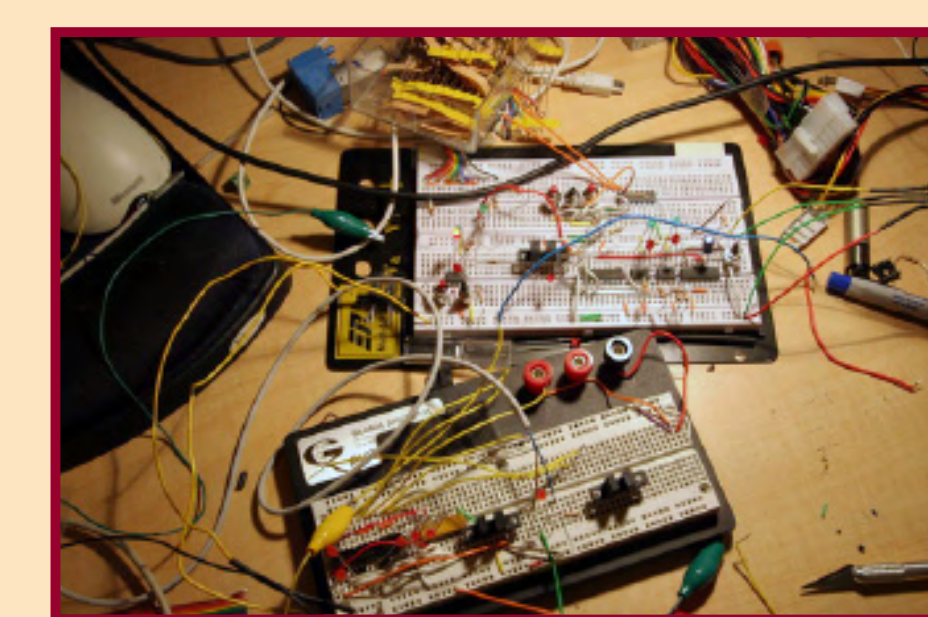
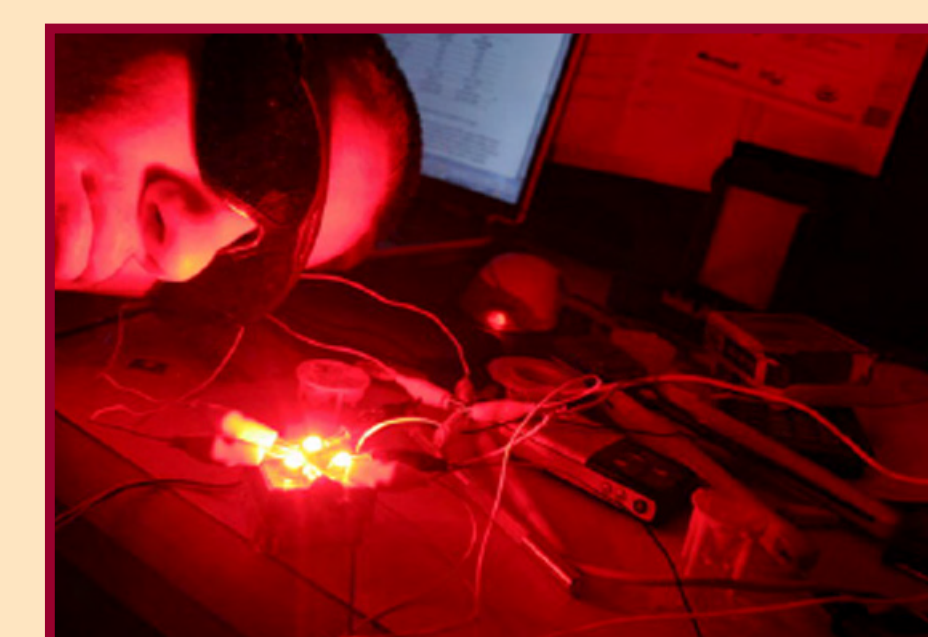
What is Applied Physics?

Applied physics is the interface between science and technology, between the laboratory and industrial practice. It applies the concepts and models of physics to practical technological applications, products, processes and services. Applied physics is essentially an inter-disciplinary undertaking, interacting with mathematics, computer science, engineering, the life sciences, medicine and other disciplines. Applied physicists use their understanding and skills at the new scientific and technological frontiers that are developing rapidly at the interface between more traditional disciplines, e.g. biophysics, biomedical engineering, bioinformatics, materials science,

and medical imaging. They have the flexibility to adapt to changing technological requirements and the ability to make meaningful contributions to modern, interdisciplinary investigations.

Unlike more traditional physics programs, the Applied Physics curriculum is a "physics-in-technology" program providing students with hands-on experience and skills that are immediately applicable to the workplace. There is a huge demand for such expertise, both locally and nationally. The programs enjoy strong support from locally-based companies such as Teledyne Scientific & Imaging (formerly Rockwell Scientific), Semtech, Shell Solar

and others, who see it as a local source of future applied scientists, and Los Robles Medical Center and Kaiser Permanente, who have a growing need to recruit imaging specialists.



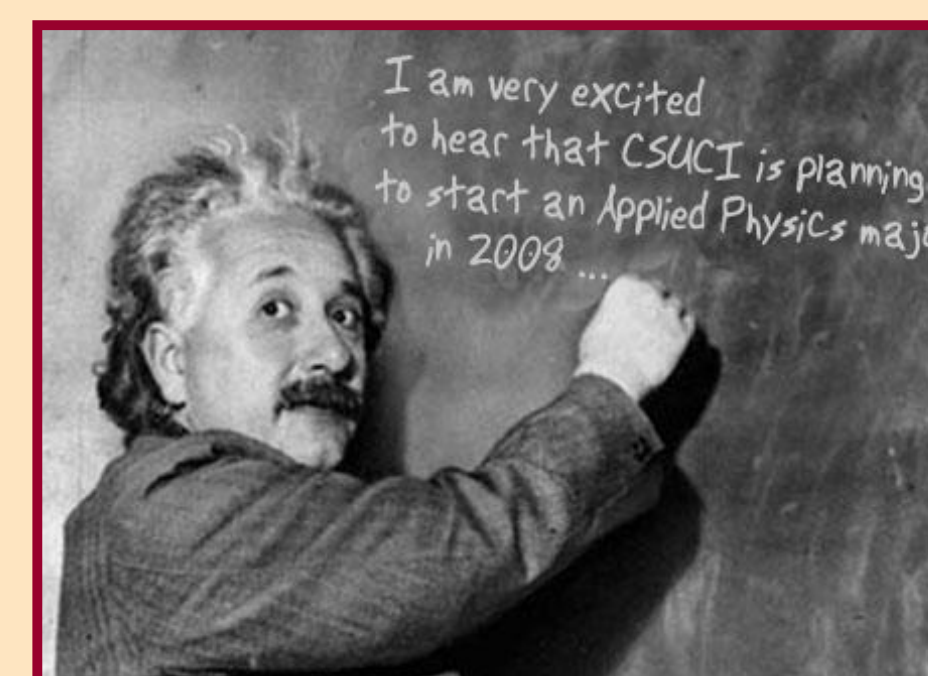
The Proposed Major in Applied Physics

The proposed BS degree in Applied Physics will offer two emphases – in Technology, and in Physical Sciences. Each will share a core of common courses, supplemented with additional courses specific to each emphasis.

The Emphasis in Technology is designed to produce graduates with strong problem-solving, technical, industrial and management skills. This will enable them to obtain professional employment on graduation in research and development in industry or in the public sector in, for example, electronics, semiconductors, medical technology and telecommunications. Through appropriate selection of electives, students can concentrate on selected areas within applied physics and pursue further study in graduate or professional schools, for example in Experimental

Physics, Computer Engineering, Materials Science, Biomedical Engineering, or Medical Physics.

The Emphasis in Physical Sciences is designed to provide students with a broad foundation in applied physics as part of a liberal education in the sciences. This program is particularly appropriate for students interested in such careers as teaching, public service, business, scientific equipment sales or science journalism. It can serve as the depth and breadth of study necessary for securing a Single Subject Teaching Credential in Science at the high school and middle school levels.



World Year of Physics

We organized a very successful series of seminars by distinguished speakers to celebrate the World Year of Physics (WYP 2005). The presentations were enthusiastically attended by our own students and faculty, by students from local schools and Community Colleges, and by the local community. A series of ten seminars covered subjects ranging from black holes and gravitational lensing, to symmetries in nature, to applications of the photoelectric effect to high-end sensors.

