

# PHYSICS

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Jason Deibel, Chairperson

The Department of Physics, as part of the electro-optics program, offers graduate courses in support of the Master of Science and Doctor of Philosophy in Electro-Optics. For more details on the program requirements, see the Electro-Optics (EOP) (<http://catalog.udayton.edu/graduate/schoolofengineering/programsofstudy/electrooptics/>) overview.

## Assistantships

A limited number of graduate assistantships are available for graduate students in the electro-optics program. These generally carry a stipend and tuition remission for the courses required for the degree. Recipients are expected to complete the requirements for the Master's degree in two years. Detailed information and application forms may be obtained from the chair of the physics department or the director of the electro-optics program.

## Courses

### **PHY 520. Solid State Physics. 3 Hours**

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### **PHY 525. Quantum Mechanics I. 3 Hours**

The physical basis of quantum mechanics, wave packets, free particle motion; Schrodinger's equation applied to potential problems; harmonic oscillator and the hydrogen atom; three-dimensional extrapolation and scattering.

### **PHY 570. Computational Physics. 3 Hours**

Computational physics is the use of physics, mathematics and computer science to study the behavior of complex systems by computer simulation. The course refines computational skills by providing direct experience in using a computer to solve physics problems in science and engineering. Prerequisites: MTH 219 or equivalent or permission of department chairperson.

### **PHY 599. Introduction to Lasers. 1-3 Hours**

Laser theory; coherence; Gaussian beams; optical resonators; properties of atomic and molecular radiation; laser oscillation and amplification; methods of excitation of lasers; characteristics of common lasers; laser applications.