Graduate Study in Atomic, Molecular and Optical Physics

www.physics.utoledo.edu

Degrees offered: Masters of Science (M. S.), M. S. Education, Ph. D. in physics; joint M. S. program with Electrical Engineering and Computer Science.

Faculty: 20 total Physics & Astronomy tenured and tenure-track faculty. Faculty in Atomic, Molecular, and Optical Physics (AMO): Song Cheng, Robert Collins, Bo Gao, Thomas Kvale, Brian Bagley, Larry Curtis, Robert Deck, and David Ellis

Atomic, Molecular, and Optical Physics course offerings

- Plasma physics, atomic physics, spectroscopy, optics (one semester each, offered occasionally)
- Accelerator physics (offered occasionally)

Research areas

- Atomic and molecular transition probabilities and oscillator strengths (Cheng, Federman, Curtis)
- Ion/atom collision processes, secondary emission of electrons from surfaces, photodetachment (Kvale)
- Semi-empirical techniques for structure of highly excited molecules and atoms (Curtis)
- Theory of atomic structure and spectra, including high-performance computational techniques (Ellis)
- Quantum theories of two-atom, few-atom, and many-atom systems, including Bose-Einstein condensates (Gao)
- Theory and design of optical integrated circuits, components, and devices (Bagley, Deck)
- Optical characterization of materials, optical design (Collins)

On-campus research facilities

- Heavy ion and negative ion accelerators, atomic collision center, vacuum ultraviolet spectrometer, etc.
- Two Beowulf computer clusters, routine access to Ohio Supercomputer Center, Internet 2

Application Information

Undergraduate GPA 2.7 or better (competitive). Provide official transcript and 3 letters of recommendation. GRE General test is required; GRE subject test in Physics is strongly encouraged. Deadline: Completed applications for fall should be at the Graduate School by January 15 to be considered in the first round. International students: TOEFL iBT ≥80 (IBT strongly preferred).

Assistantships: Stipend is competitive; tuition is waived.

For more information and to apply: www.physics.utoledo.edu

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