

**Ph. D. Program in Medical Physics and
Graduate Study in Biological Physics at
The University of Toledo**

**Main Campus (MC),
Health Sciences Campus (HSC)**

**(www.physics.utoledo.edu,
hsc.utoledo.edu/depts/radther/)**



Degrees offered: M. S., M. S. E., Ph. D. in physics; concentrations in materials science; joint M. S. program with Electrical Engineering and Computer Science; Ph. D. concentration in medical physics offered jointly with Dept. of Radiation Oncology

Faculty: 24 physics and astronomy (additional hires planned fall 2007); 4 radiation oncology and radiology

Medical physics-related course offerings: Current Issues in Biological Physics and Medical Physics, Modern Physics Laboratory, Accelerator Physics (MC); Radiation Detection and Measurement, Physics of Radiation Therapy, Radiation Biology, Radiation Protection and Regulation, Radiation Physics I and II, Radiation Dosimetry I and II, Survey of Clinical Radiation Oncology, Anatomical Structure and Function, Brachytherapy, Practical Measurements, etc. (HSC)

Relevant campus research facilities: heavy ion accelerator, negative ion accelerator; two Beowulf computer clusters, Internet 2, routine access to Ohio Supercomputer Center (MC); high-energy dual- and triple-photon linear accelerators; dosimetry and quality control test equipment, Wellhoffer computerized beam scanning system, test phantoms, multichannel analyzer scintillation detectors, autogamma and liquid scintillation counters, diode and thermoluminescent dosimetry systems, chromic film & MOSFET dosimetry systems (HSC)

Research areas

Biological physics (MC): DNA structure and bonding to cancer drugs, phase transition in hyaluronic acid (Lee)

Applied accelerator-based physics (MC): Applications to radiation therapy (Kvale)

Medical physics — radiation oncology (HSC): Hyperbarric medicine (Feldmeier); treatment of gastrointestinal cancer (Dobelbower); radiation beam modeling with Monte Carlo simulation techniques, optimization in IMRT delivered external beam radiotherapy, stereotactic radiosurgery, intra-operative radiation therapy, and three-dimensional dosimetric analysis and quantitative bremsstrahlung SPECT imaging for β -emitting radiopharmaceuticals (Parsai)

Medical physics — diagnostic radiology (HSC): Tomosynthesis imaging techniques in mammography, perfusion techniques for functional MRI and BOLD functional MRI, MR proton spectroscopy, diagnostic imaging system performance testing (Dennis)

Administrative

For admission: BS in physics or equivalent, GPA 2.7 or better. Provide official transcript and 3 letters of recommendation. GRE General and Physics sections encouraged. *Deadline:* Completed applications for fall should be at the Graduate School by 15 January in order to be considered in the first round. *International students:* TOEFL \geq 213, GRE General required. *Admission to medical physics program:* acceptance by medical physics faculty and satisfactory performance in first year of graduate study

Assistantships: Stipend is competitive. Tuition is waived. For more information and to apply: www.physics.utoledo.edu
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19 September 2007