

IGERT FELLOWSHIPS AT RENSSELAER

THz science and technology is one of the most intriguing and challenging research fields to emerge in the 21st Century. In less than a decade, this previously hidden section of the electromagnetic spectrum has caught the imagination of scientists around the world. THz research will transform future computing and communication systems while providing unprecedented opportunities for biomedical imaging. Rensselaer researchers have played a leading role in the quest to understand the science and the use of THz radiation.

Rensselaer Polytechnic Institute has been awarded a grant for the Integrated Graduate Education and Research Traineeship (IGERT) entitled **Terahertz Science and Technology – A Studio-Based Approach** by the U.S. National Science Foundation. This grant will fund 15 fellowships in interdisciplinary graduate study in THz spectroscopy and imaging, THz data transfer and networking systems, and THz electronics. Each fellowship will cover full tuition and provides a stipend of \$27,500 (\$30,000 pending on NSF approval) and is renewable. To be considered, candidates must plan to pursue a Ph.D in the THz science and technology areas. Women and minority students are especially encouraged to consider this excellent opportunity.

PARTICIPATING INSTITUTES AND DEPARTMENTS

- Rensselaer Polytechnic Institute, NY
Physics, Applied Physics and Astronomy
Electrical, Computer and Systems Engineering
Biology
Biomedical Engineering
- Morehouse College, GA, Physics
- Wadsworth Center, NY, Division of Molecular Medicine

INTERNATIONAL PARTNERS

University of Applied Sciences and Arts, Germany
Tera-BRIDGE and INTERACT Network

INDUSTRIAL SUPPORTERS

IBM, AT & T, TI, GE, Schoffstall Ventures

CANDIDATE PROFILE

To be successful, the students nominated should possess the following characteristics:

- Must be United States citizen
- Possess excellent GPA and GRE scores
- Qualified for admission to the PhD program at Rensselaer
- Able to provide faculty recommendations supporting the nomination

FACULTY NOMINATION PROCESS

Faculty members may select up to three candidates for consideration. Complete and return the IGERT Fellowship Nomination Form by fax (518) 276-6680 or by e-mail to physics-IGERT@rpi.edu. IGERT

Fellowship Nomination Form is included as last page of this document.

STUDENT APPLICATION PROCESS

Secure faculty recommendations that demonstrate your potential for success at Rensselaer and qualification for the IGERT Fellowship. Submit your application materials to [Graduate Admissions](#). In your *Statement of Background and Goals*, please make it clear that you are interested in being an IGERT Fellow.

Register below in order to notify the IGERT Fellowship Committee that you are applying for an IGERT Fellowship.

- [On-line Registration for IGERT Fellowship](#)
- [Graduate Application](#)

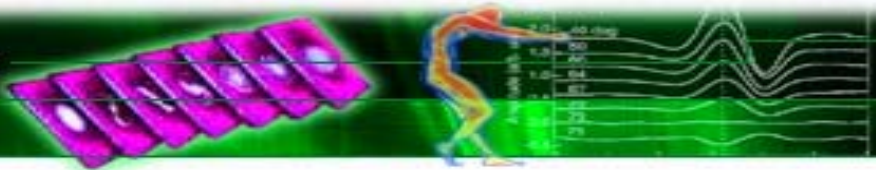
GRADUATE ADMISSIONS

Graduate Admissions
Rensselaer Polytechnic Institute
110 8th St.
Troy, NY 12180-3590
Admission@rpi.edu
<http://gradadmissions.rpi.edu>

PHYSICS DEPARTMENT/IGERT FELLOWSHIP COMMITTEE

IGERT Fellowship Committee
Department of Physics
Rensselaer Polytechnic Institute
110 8th St., Troy, NY 12180-3590
e mail: physics-IGERT@rpi.edu
<http://www.rpi.edu/dept/phys/IGERT.pdf>

TIMELINE	Fall entrance	Spring entrance
Fellowship application deadline	January 15	August 15
Fellowship award notification	March 1st	September 15
Student enrollment decision deadline	April 15	October 15



PARTICIPATING FACULTY

Xi-Cheng Zhang, Physics and ECSE,

<http://www.rpi.edu/~zhangxc/>

Dr. Zhang is J. Eric Jonsson Distinguished Professor of Science. Dr. Zhang's interests include nanoscale THz emitters, high resolution THz microscope, and biosensors.

Michael Shur, Physics and ECSE,

<http://nina.ecse.rpi.edu/shur/>

Dr. Shur is Patricia W. and C. Sheldon Roberts '48 Professor of Solid State Electronics, Professor of ECSE. Dr. Shur's current research interests include plasma wave electronics, and flexible array of sensors with data processing capabilities (or called sensitive skin).

Gwo-Ching Wang, Physics,

<http://www.rpi.edu/~wangg/>

Dr. Wang is the Chair of the Department of Physics. Dr. Wang's research areas are nanometer scale characterization of physical, chemical, and magnetic properties of surfaces, interfaces, ultrathin films, and nano structures.

Toh-Ming Lu, Physics,

<http://www.rpi.edu/~lut/>

Dr. Lu is R.P. Baker Distinguished Professor of Physics. Dr. Lu's research interests include the fabrication and characterization of integrated nanoscale 3D structures.

Shivkumar Kalyanaraman, ECSE,

<http://www.ecse.rpi.edu/>

Dr. Kalyanaraman's research interests are in the area of computer networking, concentrated around the theme of traffic management and high performance wireless networking.

Peter Persans, Physics

<http://www.rpi.edu/~persap/>

Dr. Persans leads a research program to study growth, stability, and optical characterization of nanocrystalline (II-VI and IV) semiconductors, and the fabrication of semiconductor

nanoparticles with nanometer-thick metal shells.

Morris Washington, Physics

<http://www.rpi.edu/dept/cie/>

Dr. Washington is Clinical Professor of Physics and the Associate Director of the Center for Integrated Electronics. His interests include the optical communication devices and integrated optics.

Ingrid Wilke, Physics,

<http://www.rpi.edu/~wilke/>

Dr. Wilke's research interests are time-domain Terahertz (THz) spectroscopy and ultrafast spectroscopy, biological applications of ultrashort laser pulses, applications of time-domain THz-methods in accelerator physics, and time-domain THz-transmission/reflection spectroscopy of dielectrics and thin films.

Roland Kersting, Physics,

<http://www.rpi.edu/~kerstr/>

Dr. Kersting is Assistant Professor of Physics. His areas of research are ultrafast dynamics of semiconductors, phase coherence of quantum dots, and high resolution THz microscope.

Saroj Nayak, Physics,

<http://www.rpi.edu/~nayaks/>

Dr. Nayak is Assistant Professor of Physics. His research interests are *ab initio* electronic structure calculation, molecular dynamics and Monte Carlo simulation of low dimensional systems including spintronics and nano-catalytic reactions.

Badrinath Roysam, ECSE and Biomedical Engineering,

<http://www.ecse.rpi.edu/>

Dr. Roysam's core research discipline is the study of algorithms and high-speed computer architectures for image processing, and specifically, image analysis. The image analysis applications are mostly focused on the broad area of biotechnology and biomedicine.

Partha Dutta, ECSE,

<http://www.ecse.rpi.edu/>

Dr. Dutta's research interests are semiconductor materials growth, processing and devices, photonics, optoelectronics, nanotechnology, and free space optical communication.

Robert Palazzo, Biology,

<http://www.rpi.edu/dept/bio/info/BIOSITE/FACULTY/people/palazzo.html>

Dr. Palazzo is the Chair of the Biology Department. His research interests are centrosomes and cellular organization, mitosis and early development.

Carmen Mannella,

Wadsworth Center, NY State Department of Health,

<http://www.wadsworth.org/resnr/es/bios/mannella.htm>

Dr. Mannella is the Director of Division of Molecular Medicine at Wadsworth. He and several other Wadsworth scientists are engaged in studies of cells, organelles, and pathogens using sophisticated light and electron microscopic imaging techniques and the NIH-supported Resource for the Visualization of Biological Complexity.

Willie Rockward, Physics,

Morehouse College

<http://www.morehouse.edu/dept/physics/>

Dr. Rockward is Assistant Professor of Physics at the Morehouse College. His research interests are diffractive optics which includes crossed phase elements, micro-optics, intracavity laser systems, and polarization phenomena.

Sabine Dippel, Electrical Engineering, U. of Applied Sciences and Arts, Germany,

[http://www.stud.fh-hannover.de/~dippel/duisburg.h](http://www.stud.fh-hannover.de/~dippel/duisburg.html)

Dr. Dippel is an Associate Professor of Physics and Mathematics. Her research interests are digital imaging processing and image reconstructions.