THE 2007-2008 ANNUAL REPORT OF THE

Nuclear and Radiological Engineering
and
Medical Physics Programs
MESSAGE FROM THE PROGRAM CHAIR

I am pleased to present the seventh edition of the annual report for the Nuclear and Radiological Engineering and Medical Physics (NRE/MP) Programs. During the past academic year, our faculty worked hard to improve and enhance our academic programs. The nuclear engineering program developed two new graduate courses (fast reactors, radiation shielding) and is reviving a graduate nuclear materials course. A series of three undergraduate courses are also being revised to expand and further strengthen the coverage of undergraduate reactor physics and related advanced mathematics.

The medical physics program expanded its graduate curricula by introducing several new courses in addition to creating a new instructional laboratory course that will provide students hands-on learning experience in computational radiation treatment planning. The expanded Master of Science curriculum requires 40 credit hours of course work, clinical experience, and thesis research (optional). The Ph.D. program requires 12 additional hours of course work as well as dissertation research and the qualifying exams.

The program successfully proposed and received funds from the Institute to expand the AREVA radiation detection laboratory and to purchase workstations for the new computational radiation treatment planning laboratory. The five-year Department of Energy and Industry matching grant program, which was completed this academic year, generated 243 undergraduate scholarships and a topping graduate fellowship. It also supported research in thermal-hydraulics, laboratory renovation, equipment upgrades, and student travel to technical conferences.

I would like to introduce Professor William (Bill) Wepfer, who replaced retired Professor Ward Winer as the new school chair on January 1, 2008. Bill started as an assistant professor in mechanical engineering at Georgia Tech in 1980 and became a professor in 1993. After serving as the Woodruff School Associate Chair for Graduate Studies for 13 years, he was appointed Vice Provost for Distance Learning and Professional Education in 2003. I look forward to working with Bill and the faculty in achieving our goals for the NRE/MP programs.

I hope that you enjoy reading this report, and I look forward to your continued support of our programs. Please feel free to contact me if you have comments or wish to discuss the programs.

Farzad Rahnema
Professor and Chair of the NRE/MP Programs
October 2008
Atlanta, Georgia

LETTER FROM THE WOODRUFF SCHOOL CHAIR

I am delighted to share my strong support for the Woodruff School’s Nuclear and Radiological Engineering and Medical Physics programs. While the past year has been one of transition for the Woodruff School, Georgia Tech has entered its own transition as we celebrated Wayne Clough’s remarkable tenure as president and now begin a search process that will result in the naming of the next president of Georgia Tech. Transition, change and renewal are an integral part of life and provide tremendous opportunities for the Woodruff School to advance our programs for the benefit of our students, faculty, staff, alumni, and friends.

Our NRE/MP faculty has done a great job, and through their efforts, our undergraduate and graduate programs are both ranked in the top ten nationally. This past summer, I spent a week as a participant in the ANS French Section Tour of France’s nuclear energy infrastructure. France’s nuclear power program is very impressive. This experience gave me a deeper appreciation of the tremendous benefits of nuclear energy. With the rebirth of the U.S. nuclear industry centered in the Southeast, our nuclear and radiological engineering program has a unique opportunity for national and international leadership. We already have the second largest undergraduate nuclear engineering program in the United States and are focusing on growing our graduate programs. An interdisciplinary approach that leverages Georgia Tech’s breadth and depth of technical expertise in such areas as materials, fuel cycles and separations, sensors, large-scale systems and design, and bioengineering and the medical application of nuclear materials will be an important key to our future success. The U.S. nuclear renaissance also requires that mechanical, electrical, civil, and chemical engineering undergraduate students be exposed to and educated in the basics of nuclear power. This provides our program with exciting opportunities to make a major impact at the undergraduate level.

Our ability to succeed is dependent upon many people but especially upon our alumni, industry and government representatives, and friends. Although we greatly appreciate the generous support from the State of Georgia, current trends clearly demonstrate that henceforth we will have to function with reduced State funding. Among our most important needs include growth of the faculty, retention of our current faculty, and scholarship and fellowship support for our students with a special emphasis on growing our graduate programs. With your help we can provide the resources needed to improve our competitive position and provide the best comprehensive education in nuclear and radiological engineering and medical physics within an environment that fosters discovery and innovation.

William J. Wepfer
Eugene C. Gwaltney Jr. School Chair
Atlanta, Georgia
October 2008

CONTENTS

The Academic Year in Review........................................1
Programs ........................................................................2
Degrees ..........................................................................5
Scholarships ....................................................................6
Fellowships ......................................................................7
Enrollment ........................................................................7
Faculty ...........................................................................9
Staff .............................................................................10
Awards and Honors .........................................................10
Research .........................................................................11
Facilities ..........................................................................12
Contributors ....................................................................12
Advisory Boards ..............................................................13
THE ACADEMIC YEAR IN REVIEW

SOCIALS AND COOKOUTS
The beginning of the fall 2007 term saw a flurry of social events in the Woodruff School. We held our first-ever ice cream social for undergraduate students. Mayfield ice cream was served by faculty members. In early September, the annual Woodruff School Graduate Cookout for new and returning graduate students, faculty, and staff was held on the lawn between the MARC and MRDC building. Later in September the NRE/MP program had its annual fall cookout to welcome all new and returning students to Georgia Tech. A tee-shirt with the theme We Are Into Heavy Metal was given to the students, and lunch was served. This was a very nice opportunity for new and returning students to meet and talk with faculty and staff members.

ORIENTATION
In addition to the advising of all undergraduate students through the FASET program, upon matriculation into the graduate program students attend the Woodruff School’s graduate orientation program titled, Getting Started in the Woodruff School and then attend a program specially designed for NRE/MP students. Information on the degree programs, the curricula, faculty, and student activities were provided.

RESEARCH FAIR
On August 27, 2007, the NRE/MP programs held its first-ever Research Fair, whose main goal was to provide juniors, seniors, and new graduate students an overview of the research opportunities in the programs. Twelve faculty members from Georgia Tech, Emory University, and the Medical College of Georgia gave brief presentations about their current research and told of opportunities for interested students. There was also a short presentation about the President’s Undergraduate Research Awards.

SENIORS HONORED AT DINNER
Twelve NRE undergraduate students were invited to attend the annual senior honors dinner in September 2007. The purpose of this dinner is to honor graduating seniors and to encourage them to attend graduate school. An invitation to the dinner is based on academic record: a grade point average of 3.5 or above.

FAMILY WEEKEND
Each year, Georgia Tech’s Family Weekend attracts large crowds to campus and the Saturday football game. In conjunction with the activities planned by the Alumni Association, the Woodruff School holds an Open House for the families of our undergraduate students. Parents have the opportunity to attend one of the two Information Sessions about the Woodruff School’s curricula and programs available to the students, such as study abroad. There are opportunities to ask questions and to talk with the undergraduate academic advisors.
RECRUITING

The NRE/MP Programs vigorously recruit undergraduate and graduate students to the NRE/MP programs at Georgia Tech. This has paid off in the continued increases in the number of enrollees in the past few academic years. On the undergraduate side, we hold information sessions with the Program Chair for undeclared freshmen in the College of Engineering and the College of Science; go to Connect with Tech and other high school recruiting programs organized by the Institute’s Office of Admissions; and participate in the Georgia Tech Majors Fair.

To encourage students to attend graduate school at Georgia Tech we participate in the Exchange List program, where schools in the United States swap their information for all junior and senior students. In addition, we hold one or two luncheons with selected seniors from Biomedical Engineering, Chemical Engineering, Electrical and Computer Engineering, Mechanical Engineering, Mathematics, and Physics to discuss graduate school opportunities at Georgia Tech in nuclear and radiological engineering and medical physics. We also invite top applicants from other colleges and universities around the country to visit the Georgia Tech campus and meet with NRE/MP faculty; participate in Woodruff School graduate student recruiting events; and attend events such as the Seniors Honors Dinner.

SEMINARS

Numerous seminars are given by visitors, faculty, and thesis students in the NRE and MP programs during the fall and spring semesters. Doctoral students in nuclear engineering and medical physics are required to take two hours of credit in Seminar-Nuclear Engineering, NRE 8011 and 8012. The seminars given by faculty and visitors in the past academic year are as follows:


PROGRAMS

ACCREDITATION

Georgia Tech has institutional accreditation from the Commission on Colleges of the Southern Association of Colleges and Schools (SACS) to award bachelor’s, master’s, and doctoral degrees. The undergraduate program for the bachelor of science in nuclear and radiological engineering (BSNRE) is accredited by the Engineering Accreditation Commission of ABET, Baltimore, Maryland. The Woodruff School will undergo an ABET review of our undergraduate program in October 2008. For more information about our undergraduate programs go to www.nre.gatech.edu.; see, in particular, the sections on accreditation and undergraduate programs. The Georgia Tech Cooperative Program is accredited by the Accreditation Council for Cooperative Education.

RANKINGS

Georgia Tech and its programs continue to be highly regarded. For the 10th consecutive year, U. S. News & World Report ranked Georgia Tech as one of the top ten public universities in the nation for undergraduates:

- Georgia Tech is ranked 35th overall among public and private universities in the nation;
- Georgia Tech ranks 7th nationally among public universities for undergraduates;
- Georgia Tech’s College of Engineering, the nation’s largest, is ranked number 4 for its programs;
- The undergraduate Nuclear and Radiological Engineering Program is ranked 9th in the nation;
- The co-op and graduate research programs are listed as “Programs To Look For”;
- Tech ranked 47th on the “Great School’s Great Prices” list.

THE UNDERGRADUATE DEGREE PROGRAM

The undergraduate program in nuclear and radiological engineering leads to the Bachelor’s of Science in Nuclear and Radiological Engineering (B.S.N.R.E.) degree. The strength of the undergraduate curriculum is its breadth and balance in many of the fundamental areas of nuclear and radiological engineering. The vitality of the undergraduate program at Georgia Tech is evidenced by the fact that it is now the second largest program in the country.

UNDERGRADUATE ADVISEMENT

All students are encouraged to meet and contact the undergraduate advisor, Ms. Camellia Henry, who advises on academic issues, rules and regulations, class schedules, and on-campus resources. Students may make an appointment with the undergraduate advisor through www.nre.gatech.edu (see Undergraduate Programs). There is also an Advisement web site to help students more easily reach their academic advisors and to help them through the advisement process and the Georgia Tech curricula. In addition, an NRE faculty member is assigned to each undergraduate student upon entry to the program. The faculty mentor is responsible for course advising, professional development, and assisting the students with career planning and research opportunities.

[Image]

[Image]
THE ACADEMIC COMMON MARKET
The Academic Common Market (ACM) is an interstate agreement for sharing educational programs and facilities that allows students to participate in selected programs not offered in their home states without having to pay out-of-state tuition charges. The Southern Regional Education Board coordinates the activities of the Academic Common Market for the sixteen participating states. Georgia Tech currently participates in the ACM for the BSNRE program: Alabama, Arkansas, Delaware, Kentucky, Louisiana, Maryland, Mississippi, South Carolina, Virginia, and West Virginia. In order to participate in the ACM program, a student must apply for admission and be accepted at Georgia Tech. To continue in the program, students must maintain “Good Academic Standing,” be a full-time student, make satisfactory progress toward the undergraduate degree, complete the program within five calendars years or six for students participating in the cooperative program, and maintain the appropriate grade point average.

UNDERGRADUATE RESEARCH
Georgia Tech encourages undergraduate students to participate in quality and substantive research. NRE 4699 is the undergraduate research course for juniors and seniors and qualifies as an elective for NRE majors. NRE 4698 is for research internships, where students are paid for working on a project either part-time or full-time.

In the past academic year, six NRE students did undergraduate research: four students took NRE 4699 for credit and two students took NRE 4698 for pay. In addition, in summer and fall 2008, seven NRE students are enrolled in undergraduate research: one in NRE 4696 and six in NRE 4699.

Four students received President’s Undergraduate Research Awards (PURA). PURA funds requests by a student/faculty team to support undergraduate student involvement in faculty research. The awards are for student salaries and travel expenses for the student to attend professional meetings to give presentations. NRE students and their faculty mentors who received PURA funds in the past academic year are: Robert Adams (Wilfred van Rooijen, advisor); Kevin Connolly (Farzad Rahnema, advisor); Devin Dannemiller (Wilfred van Rooijen, advisor); and Caroline Stratton (Sam Shelton, advisor).

PROFESSIONAL PRACTICE PROGRAM
The Division of Professional Practice at Georgia Tech offers four unique programs: the Undergraduate Cooperative Program, the Undergraduate Professional Internship, the Graduate Cooperative Program, and the Work-Abroad Program. More than 3,000 Georgia Tech students currently participate in the four programs.

According to Tom Akins, Executive Director of the Division of Professional Practice, “Our co-op numbers are remaining pretty steady. Our growth is coming in the intern and work-abroad programs. We are looking to beef up the numbers in the graduate co-op, targeting more United States citizens because many employers need citizens due to security clearances. With the energy situation, we are seeing a rebound in demand for NRE’s. It seems that in spite of the economy, employers, including the federal government, are really gearing up and hiring a lot of co-ops and interns in anticipation of retiring baby-boomers.”

The Undergraduate Cooperative Program
Students in the undergraduate cooperative program alternate between industrial assignments and classroom studies until they complete four or five semesters of work. Students have the opportunity to develop career interests, become more confident in their career choices, and develop human relation skills through their work experience.

In summer 2007, there were 13 NRE coops, in fall 2007, there were 21 co-ops, and in spring 2008, there were 12 NRE co-ops in the program. The Southern Nuclear Operating Company is the largest employer of nuclear and radiological engineering students.

The Undergraduate Professional Internship
The Undergraduate Professional Internship Program is geared toward students who do not participate in the Cooperative Program, but want some career-related experience before graduation, typically juniors and seniors. In the past academic year, one NRE student participated in the program and worked for the U.S. Nuclear Regulatory Commission.

The Work-Abroad Program
The Work Abroad Program is an immersive academic program designed to complement a student’s formal education with paid practical international work experience directly related to the student’s major. The international work assignments are designed to include practical training, cross-cultural exposure and learning, and acquisition of the skills that will set apart the participating students from their peers. From fall 2007 through summer 2008, one NRE student worked abroad.

FRANK K. WEBB PROGRAM IN PROFESSIONAL COMMUNICATION
The Frank K. Webb Program in Professional Communication was established in 1990 to teach students verbal and written communication skills. The Woodruff School has made the teaching of these skills an integral part of the undergraduate engineering curriculum. The Program Coordinator is Dr. Jeffrey Donnell (Ph.D. in English from Emory University). He instructs the students on how to prepare reports and presentations, reviews project reports, and provides written feedback to the students on their projects, reports, and presentations. He also provides guides to writing skills, sample reports, and lectures on communications skills specific to engineers.

Graduate students receive help with graduate school and fellowship applications. In addition, they receive instruction in communications early in their graduate careers when they are preparing their first manuscript, be it a proposal, a journal article, or a conference presentation.

STUDY-ABROAD PROGRAMS
Georgia Tech strongly believes in the importance of an international experience for both undergraduate and graduate students that would allow them to be globally competent upon graduation. Three NRE undergraduates participated in study-abroad programs in summer 2007: Kelly Kisling (GTL Summer Program), Preston Murray (Oxford Summer Program), and Shruti Vellore (Sydney Summer Program). Five students participated in summer 2008: Jonathan Paprocki (Shanghai Summer Program), Karen Scarbrough (Yonsei Summer Exchange Program), David Koch (French LBAT), Karen McMahon (GTL Summer Program), and David Nesbitt (Oxford Summer Program).
THE FIVE-YEAR BS/MS PROGRAM
Outstanding sophomores and early juniors in the Nuclear and Radiological Engineering Program are invited to apply to the Five-Year BS/MS Degree Program. Students can earn two degrees in a five-year period; having a master’s degree provides a tremendous advantage when entering the job market. Graduate course work begins in the senior year. Dr. Farzad Rahnema advises all the BS/MS students once they have matriculated into the graduate program.

In the past academic year four NRE students (3 NRE/NE, 1 NRE/MP) were accepted into the program in a future term, currently through fall 2010. There are twenty students in the BS/MS program. There are 14 NRE/NE students: Timothy Cahill, Alexander Chao, Emily Colvn, Kevin Connolly, Stephen Garth, Benjamin Good, David Hartangruber, David Koch, Samuel Lafountain, Alexander Lynn, Jordan Rader, Min-Hee Sayer, Shane Stimpson, and Travis Zipperer. Additionally, there are six NRE/MP students: Alice Cheung, Nivedh Manohar, Sara Rahnema, Jackson Renegar, Caroline Stratton, and Shruti Vellore.

Six students received their master’s degree in the past academic year: Five in summer 2007: Obert Chen (NRE/MP), Daniel Hyer (ME/MP), Perry Johnson (NRE/MP), Brian Lockwood (ME/NRE), and James Weathers (NRE/ME); Sarah (Brashear) Scarboro (NRE/MP) received her degree in spring 2008.

THE MASTER OF SCIENCE DEGREE IN MEDICAL PHYSICS
The Master of Science in Medical Physics (M.S.M.P.) degree program is intended to prepare students for productive careers as medical physicists and is consistent with the requirements recommended by the American Association of Physicists in Medicine. The expanded degree program went into effect in fall 2008, and requires 40 credit hours to complete.

The clinical rotation and laboratory course of the medical physics program is designed to familiarize students with a hospital/clinical environment. The clinical rotation requires four-hundred contact hours, and is offered during the summer semester. The course is divided into three parts: clinical rotation (two days/week), laboratory (two days/week), and academic day (one day/week). The clinical rotation is designed to expose students to the daily activities of the clinical physicist as well as special procedures involving patients. The laboratories are designed to provide clinical and practical exposure in radiation therapy, diagnostic imaging, and nuclear medicine. The academic day is designed for the class to discuss AAPM reports and other issues with the course coordinator. The time is also reserved for guest speakers, demonstrations, and/or student presentations.

THE MEDICAL PHYSICS PROGRAM BY DISTANCE LEARNING
The master’s degree in medical physics can be completed through the distance-learning program in approximately three years. The admission and course requirements, and the degree received are the same as for on-campus students. Students can fulfill the clinical rotations and laboratories at their own facilities, but they will need more than one semester to complete the course. A distance learning physicist (supervisor) is assigned to each student and has a board certification in an appropriate subspecialty. In fall 2007, 16 MP students were enrolled in the distance program, and in fall 2008, 14 students are enrolled. In summer and fall 2008, five new students matriculated into the program.

Graduate-level courses are available on the Internet, video-on-demand downloads, videoconferencing, and DVD/CD’s. There were 18 MP/NRE courses taught for the distance program: three in summer 2007, including the clinical rotation, seven in fall 2007, and eight in spring 2008. Five master’s (non-thesis) degrees were awarded to MP distance learning students in the past academic year.

THE PH.D. IN MEDICAL PHYSICS (AN NE OPTION)
The doctoral degree requires 52 semester hours of course work beyond the bachelor’s degree. Of the course work hours, 34 are in a major area, which must be in a coherent subject area appropriate to MP. Nine semester hours completed for the master’s degree with thesis may be counted toward this requirement. There should be nine hours in a minor area that is intended to provide depth in an area not directly needed for the Ph.D. research or related to the principal area of expertise, and nine electives, which may be different than the major or minor, or could be applied to the major or minor area.
STUDENT GROUPS

There are a number of organizations for NRE/MP students to join. These organizations offer a unique opportunity to learn about the many facets of nuclear and radiological engineering and medical physics, provide an opportunity to meet practicing professionals, and provide valuable service to the program.

American Nuclear Society The student section of the American Nuclear society (ANS) is the link for prospective nuclear engineers with their chosen profession. The section holds monthly meetings which feature presentations by practicing engineers. Dr. Wilfred van Rooijen is the group’s faculty advisor.

Student Advisory Committee The Nuclear and Radiological Engineering/Medical Physics Student Advisory Committee acts as a liaison between the NRE administration and students, provides the administration with commentary on the current status of the program, including issues that directly affect the students, and notes items that will improve faculty and student relations. Appointments to the committee are made by the chair of the program, Dr. Farzad Rahnema. The committee is comprised of up to two students from each class, freshman to senior, plus master’s and doctoral students.

PROFESSIONAL SOCIETIES

Many professional societies accept students as members. In addition to the American Nuclear Society, which has a Georgia Tech student chapter, NRE/MP students might be interested in:

American Association of Physicists in Medicine (AAPM) is a scientific, educational, and professional organization that promotes the application of physics to medicine and biology, encourages interest in the profession and provides information.

Health Physics Society is a professional scientific organization that was founded in 1956 to promote the practice of radiation safety.

CAREERS

The job market for engineers generally and for NRE/MP students in particular remained strong during the 2007-2008 academic year. The number of employers visiting Georgia Tech to recruit students remained quite high.

Once again, employment rates for NRE students were exceptionally high and bettered prior year performance. NRE graduates received a starting salary of $55,000 and a $5,000 signing bonus with an 80 percent placement rate. There is little data for the master’s and Ph.D. in NRE/MP. According to Ralph Mobley, Director of Career Services at Georgia Tech, “Clearly the job market for NRE students in the Woodruff School is robust and reflects the continuing need for technical talent and the respect the school enjoys with employers.”

The Woodruff School offers the undergraduate degree in nuclear and radiological engineering (BSNRE) and three graduate degrees (MSNE, MSMP, Ph.D.). In addition, the master’s degree in medical physics can be completed off-campus, through the distance-learning program. This report details various aspects of the degrees awarded in summer 2007, fall 2007, and spring 2008. During these semesters, we granted fifty-one degrees: 25 bachelor’s degrees, 25 master’s degrees (18 MSMP, 7 MSNE), and one Ph.D. (NE).

WOMEN AND MINORITIES

Women were admitted to Georgia Tech in 1956. At the end of spring semester 2008, 21 women in NRE have earned a Ph.D. In the 2007-2008 academic year no women earned their doctoral degree and seven women (5 MSMP, 2 MSNE) received a master’s degree. Four women received bachelor’s degrees.

Georgia Tech voluntarily desegregated its campus in 1962. By the end of spring semester 2008, ten minority students had earned a Ph.D. In the past academic year, no minority student earned a Ph.D., and three received master’s degrees in medical physics. Five minority students received their bachelor’s degrees in the past academic year in NRE.

UNDERGRADUATE DEGREES AWARDED

The Woodruff School granted 25 bachelor’s degrees in NRE in the past academic year.

SUMMER 2007

Lee Tschaep

FALL 2007

Toby Bates

Donald Gibbs

Jeffrey Head

Alex Johnson

Nicholas Mejias

Anthony Schmitz

SPRING 2008

Robert Adams

John Anderson

Ryan Archibald

Benjamin Beeler

Jason Breen

Julia Bunch

Stephen Capecci

Geoffrey Carter

Kimberly Coghill

Brett Czyscon

Eugene Fortune

Benjamin Good

Elijah Holisenbeck

Kelly Kisling

Brian Norman

Jordan Rader

Scott Schmidt

Shruti Vellore

MASTER’S DEGREES (WITH THESIS) AWARDED

In the past academic year, eight master’s degrees (6 MSNE, 2 MSMP) were awarded in which the students wrote and presented a thesis.

SUMMER 2007

CHARLES BECHT, MSNE, Said Abdal-Khalik (advisor), Onset of Flow Instability in Uniformly Heated, Narrow, Rectangular Channels

JARED HOOVER, MSMP, Farzad Rahmeha (advisor), Monte Carlo Modeling of a Varian 2100C 18 MV Megavoltage Photon Beam and Subsequent Dose Delivery Using MCNP5

BRIAN LOCKWOOD, MSNE, Mostafa Ohiaasiaan (advisor), A Tow Dimensional Fluid Dynamics Solver for Use in Multiphysics Simulations of Gas Cooled Reactors
FALL 2007
STEVEN DOUGLASS, MSNE, Farzad Rahnema (advisor), Generalized Energy Condensation Theory
JOSE MARQUEZ DAMIAN, MSNE, Weston Stacey (advisor), Multi-Level Acceleration of Neutron Transport Calculations

SPRING 2008
ERIC BURGETT, MSNE, Nolan Hertel (advisor), A Broad Spectrum Neutron Spectrometer Utilizing a High Energy Bonner Sphere Extension

MASTER’S DEGREES (NONTHESIS) AWARDED
During the past academic year, seventeen students received a course work only (nonthesis) master’s degree (16 MSMP, 1 MSNE):

SUMMER 2007
Mark Boudreaux (MSMP) Perry Johnson (MSMP)
Obert Chen (MSMP) Jason Savarese (MSMP)
Heidi Hurst (MSMP) Edward Van Der Heijden (MSMP)
Daniel Hyer (MSMP) Charles Wells (MSMP)
FALL 2007
Rachel Lai (MSMP) Xin Pan (MSMP)
Thomas Lavin (MSMP) Kelly Wingate (MSMP)
Anant Mandapaka (MSMP)

SPRING 2008
Meng-Sang Chew (MSMP) John Dorr (MSMP)
Katherine Clarke (MSNE) Charles Parisi (MSMP)

DOCTORAL DEGREE AWARDED
In the past academic, one Ph.D. was granted in nuclear engineering.

SUMMER 2007
STEVEN KELLER, Ph.D. NRE, Farzad Rahnema (advisor), Flux-Limited Diffusion Coefficient Applied To Reactor Analysis

SCHOLARSHIPS
Many awards recognize academic achievement, leadership, and outstanding service to the Woodruff School, the College of Engineering, and the Institute. Many undergraduate students in the Woodruff School receive some type of scholarship.

HOPE SCHOLARSHIPS
Almost all of our incoming, in-state students, receive HOPE scholarships, the tuition program financed through the Georgia State Lottery. After completing the first year at Georgia Tech, approximately fifty percent of the freshman class retains their scholarships. Students need to maintain a 3.0 grade point average each term to keep the HOPE scholarship.

PRESIDENT’S SCHOLARS
The President’s Scholars Program identifies students who have excelled in academia and leadership in high school. Financial awards are for four academic years, and students are expected to maintain honors-level academic performance and be involved in campus or community activities. Overall, Scholars have a 3.69 grade point average; enrolled Woodruff School President’s Scholars have a 3.73 GPA. There are 261 President’s Scholars currently enrolled at Georgia Tech in fall 2008. There are 67 new scholars who started at Georgia Tech this fall, and one more who deferred until next fall. Those in the Woodruff School with an NRE major are: Colin Bowers, Caroline Stratton, and Amy Varallo.

WOMEN IN ENGINEERING EXCELLENCE AWARDS
Each year the Women In Engineering (WIE) Program celebrates the academic success and leadership achievements of women engineering students at the Excellence Awards Banquet, which is sponsored through a grant from Kimberly Clark Corporation. This year 576 women, representing 37 percent of the undergraduate female engineering students at Georgia Tech, qualified for this event by earning an overall GPA of 3.35 or higher. Ninety-five scholarships totaling over $100,000 were awarded to outstanding female engineering students. NRE student Amy Varallo received a Boeing scholarship based on her sustained academic record.

NUCLEAR ENGINEERING SCHOLARSHIPS
Unique scholarship opportunities exist for Georgia Tech undergraduate students in nuclear and radiological engineering. The scholarships are based on academic excellence. In the 2007-2008 academic year, 49 NRE undergraduate students held scholar-ship. Sponsoring organizations and their recipients are: McCallum Turner: Alice Cheung, Jesse Coyle, Katherine Dextraze, Manan Jani, Samuel Lafountain, Nivedh Manohar, Anthony Minarik, Min-hee Sayer; McCallum Turner/DOE: Nathaniel Allgood, Benjamin Beeler, Stephen Garth, Zachary Glass, Frank Grammens, Ryan Hall, Ryan Hon, David Koch, Mary Kownack, Alexander Lynn, Alexander Moore, James Peters, William Shannon, Christopher Verst; Southern Nuclear: Thomas Batson, Benjamin Bowers, David Hartmangruber, Madeleine Phillips, Evan Schwartz, Amy Varallo; Southern Nuclear/DOE: Jonathan Barth, Jared Bomer, Baron Carleton, Raron Clare, Timothy Flaspoehler, Kelly Kisling, Sarah Maddox, Jordan Rader, Jackson Renegar, Megan Schroeder, Shane Stimpson, Caroline Stratton, Lisandro Vazquez; USEC: Benjamin Good, Benjamin Mosher; USEC/DOE: Josh Andrews, Timothy Cahill, Edward Shalda, Shruti Vellore; Georgia W. Woodruff Scholarship (4 year): Kevin Connolly.
Students enrolled in the Nuclear and Radiological Engineering and Medical Physics programs are excellent, as shown by the class profiles of the new undergraduate and graduate students for fall 2008. The total enrollment for fall semester 2008 is 227 (158 undergraduate students, 36 master’s degree students, and 33 doctoral students. The NRE program is one of the largest in the United States.

Of the 41 entering students, thirteen are Georgia residents and 28 are out-of-state residents. The students are from: Alabama (6), Arkansas (1), Florida (3), Georgia (13), Louisiana (1), Maryland (3), Massachusetts (1), North Carolina (1), New Jersey (1), South Carolina (7), Tennessee (1), Texas (1), and Virginia (2). No international students entered the program in summer or fall 2008.

FELLOWSHIPS

What follows is a list of the major fellowships held by NRE and MP graduate students from July 1, 2007 to June 30, 2008.

ADMIRAL HYMAN RICKOVER GRADUATE FELLOWSHIP
Justin Pounders
DEPARTMENT OF ENERGY
Christopher Sommer
GEORGIA TECH PRESIDENT’S FELLOWSHIP
Steven Hamilton
NANT/INPO FELLOWSHIP
Ryan Manger
NATIONAL SCIENCE FOUNDATION
GRADUATE RESEARCH FELLOWSHIP
Megan Blackburn
U.S. ARMY
Michael Shannon
WOODRUFF FELLOWSHIP
Megan Blackburn
Steven Douglass
Steven Hamilton

FRESHMAN CLASS PROFILE (2008)
Average SAT Score (out of 1600)
Nuclear Engineering 1342
Georgia Tech 1337
High School Grade Point Average
Nuclear Engineering 3.75
Georgia Tech 3.75
Number of Incoming Freshmen (fall and summer)
Nuclear Engineering 37
Transfers 4
Demographics
Females 13
Males 28
Georgia Residents 13
Out-of-State Residents 28
Internationals

NEW GRADUATE CLASS PROFILE (2008)
Number of Applicants
Nuclear Engineering 43
Medical Physics 69
Total 112
Number Accepted
Nuclear Engineering 19
Medical Physical 30
Total 49
Number Admitted
Nuclear Engineering 7 (37%)
Medical Physics 19 (63%)
Total Admitted 26 (53%)
Average BS Grade Point Average
Nuclear Engineering 3.54
Medical Physics 3.47
Average 3.51
Average GRE Scores
Verbal (out of 800)
Nuclear Engineering 534
Medical Physics 532
Quantitative (out of 800)
Nuclear Engineering 760
Medical Physics 747
Writing (out of 6)
Nuclear Engineering 4
Medical Physics 4.5
Gender
Males 14
Females 10
International 2
Master’s Degree
MSNE 4
MSMP 9
MS (distance) 6
Ph.D. Degree
Nuclear Engineering 3
Medical Physics 4
ENROLLMENT IN NRE/MF BY GENDER AND ETHNICITY (FALL 2008)

<table>
<thead>
<tr>
<th>Category</th>
<th>Bachelor’s</th>
<th>Master’s</th>
<th>Ph.D.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>131</td>
<td>6</td>
<td>24</td>
<td>181</td>
</tr>
<tr>
<td>Females</td>
<td>27</td>
<td>12</td>
<td>7</td>
<td>46</td>
</tr>
<tr>
<td>Total</td>
<td>158</td>
<td>36</td>
<td>33</td>
<td>227</td>
</tr>
<tr>
<td>Asian</td>
<td>17</td>
<td>5</td>
<td>0</td>
<td>22</td>
</tr>
<tr>
<td>Black</td>
<td>9</td>
<td>3</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Hispanic</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Native American</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Multiracial</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>White</td>
<td>126</td>
<td>27</td>
<td>23</td>
<td>176</td>
</tr>
<tr>
<td>International</td>
<td>1</td>
<td>1</td>
<td>10</td>
<td>12</td>
</tr>
</tbody>
</table>

ENROLLMENT IN THE NUCLEAR AND RADIOLICAL ENGINEERING PROGRAMS BY DEGREE LEVEL

<table>
<thead>
<tr>
<th>Year</th>
<th>Undergraduates</th>
<th>Graduates</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008-2009</td>
<td>158</td>
<td>69</td>
<td>227</td>
</tr>
<tr>
<td>2007-2008</td>
<td>174</td>
<td>68</td>
<td>242</td>
</tr>
<tr>
<td>2006-2007</td>
<td>151</td>
<td>69</td>
<td>220</td>
</tr>
<tr>
<td>2005-2006</td>
<td>141</td>
<td>74</td>
<td>215</td>
</tr>
<tr>
<td>2004-2005</td>
<td>115</td>
<td>55</td>
<td>170</td>
</tr>
<tr>
<td>2003-2004</td>
<td>95</td>
<td>37</td>
<td>132</td>
</tr>
<tr>
<td>2002-2003</td>
<td>87</td>
<td>44</td>
<td>131</td>
</tr>
<tr>
<td>2001-2002</td>
<td>56</td>
<td>45</td>
<td>101</td>
</tr>
<tr>
<td>2000-2001</td>
<td>35</td>
<td>47</td>
<td>82</td>
</tr>
<tr>
<td>1999-2000</td>
<td>26</td>
<td>45</td>
<td>71</td>
</tr>
<tr>
<td>1998-1999</td>
<td>23</td>
<td>61</td>
<td>84</td>
</tr>
<tr>
<td>1997-1998</td>
<td>26</td>
<td>61</td>
<td>87</td>
</tr>
<tr>
<td>1996-1997</td>
<td>33</td>
<td>78</td>
<td>111</td>
</tr>
<tr>
<td>1995-1996</td>
<td>45</td>
<td>83</td>
<td>128</td>
</tr>
<tr>
<td>1994-1995</td>
<td>59</td>
<td>105</td>
<td>164</td>
</tr>
<tr>
<td>1993-1994</td>
<td>63</td>
<td>117</td>
<td>180</td>
</tr>
<tr>
<td>1992-1993</td>
<td>72</td>
<td>122</td>
<td>194</td>
</tr>
<tr>
<td>1991-1992</td>
<td>72</td>
<td>97</td>
<td>169</td>
</tr>
<tr>
<td>1990-1991</td>
<td>83</td>
<td>89</td>
<td>172</td>
</tr>
<tr>
<td>1989-1990</td>
<td>101</td>
<td>78</td>
<td>179</td>
</tr>
<tr>
<td>1988-1989</td>
<td>111</td>
<td>79</td>
<td>190</td>
</tr>
<tr>
<td>1987-1988</td>
<td>135</td>
<td>74</td>
<td>209</td>
</tr>
<tr>
<td>1986-1987</td>
<td>149</td>
<td>69</td>
<td>218</td>
</tr>
<tr>
<td>1985-1986</td>
<td>139</td>
<td>73</td>
<td>212</td>
</tr>
<tr>
<td>Totals</td>
<td>2149</td>
<td>1739</td>
<td>3888</td>
</tr>
</tbody>
</table>

*In 1984 the School of Nuclear Engineering became part of the School of Mechanical Engineering.
Co-op students are usually excluded from the number of enrolled undergraduates; however at times the numbers were reported with the co-ops included. There is no way to differentiate and the numbers are reported as is.
FACULTY

ACADEMIC FACULTY

Said I. Abdel-Khalik, Southern Nuclear
Distinguished Professor
Ph.D., University of Wisconsin, 1973
Reactor engineering and thermal-hydraulics, two-phase flow and heat transfer, and inertial fusion technology
• Fellow of ANS and ASME

Sang H. Cho, Associate Professor
Ph.D., Texas A&M University, 1997
Radiation oncology physics, Monte Carlo method, nanoparticle-aided radiation/thermal therapy, and nanoparticle-aided cancer molecular imaging

Chaitanya S. Deo, Assistant Professor
Ph.D., University of Michigan, 2003
Structure property relationships in nuclear materials, radiation effects in materials for nuclear energy, and identifying atomic mechanisms in defect mobility and interaction in crystalline solids

Nolan E. Hertel, Professor
Ph.D., University of Illinois, 1979
Radiation shielding, neutron dosimetry, radiological assessment, radioactive waste management, and high-energy particle transport
• Fellow of HPS

Bojan Petrovic, Professor
Ph.D., Pennsylvania State University, 1995
Reactor physics, advanced reactor design, transport theory, stochastic methods, and industrial and medical applications of nuclear technology

Farzad Rahnema, Professor and Chair of the Nuclear and Radiological Engineering and Medical Physics Programs
Ph.D., University of California, Los Angeles, 1981
Reactor physics, perturbation and variational methods, computational transport theory, and criticality safety
• Fellow of ANS

Weston M. Stacey, Jr., Fuller E. Callaway Professor in Nuclear Engineering
Ph.D., MIT, 1966
Fusion engineering, plasma physics, and reactor physics
• Fellow of ANS and APS

Wilfred van Rooijen, Assistant Professor
Ph.D., University of Delft, The Netherlands, 2006
Gas cooled fast reactors, fuel cycle physics, neutronics, coated particle fuel technology, and reactor physics

C.-K. Chris Wang, Professor
Ph.D., Ohio State University, 1989
Radiation detection, micro-dosimetry, radiation biophysics modeling, and neutron nodalities for cancer treatment

RESEARCH FACULTY

Dwayne Blaylock, Research Engineer II and Interim Manager of the NRE/MP Laboratories
M.S.N.E., Georgia Institute of Technology, 1997
Decommissioning and decontamination, long-lived neutron activation analysis, radiation shielding, and computer modeling

Eric Burgett, Temporary Research Engineer I and Staff Health Physicist, Office of Radiological Safety Radionuclide identification using plastic scintillators; radiation detectors; and material testing for neutron shielding materials
Provides support to maintain compliance of a broad scope research license

Dennis Sadowski, Research Engineer II
M.S., University of Illinois at Chicago, 1986
Thermal sciences, and design and construction of experimental equipment

Dingkang Zhang, Research Engineer II and Student Recruiting Coordinator
Ph.D., Georgia Institute of Technology, 2005
Development of radiation transport methods for neutronics analyses in reactor cores; hybrid diffusion/coarse mesh transport method for Pebble Bed Reactors; and the development of coupled photon/electron transport methods for dose estimation in medical physics applications. Coordinates the recruiting of graduate and undergraduate students to the NRE/MP programs; coordinates the clinical rotation experience for medical physics students in the distance-learning program; and coordinates approval of the facilities used for the clinical rotation portion of the medical physics program.

AFFILIATED FACULTY

Srinivas Garimella, Professor
Ph.D., Ohio State University, 1990
Sustainable technologies, phase change in microchannel and compact heat exchangers, and heat and mass transfer in binary mixtures.
• Fellow of ASME

S. Mostafa Ghiaasiaan, Professor
Ph.D., University of California, Los Angeles, 1983
Multiphase flow, aerosol and particle transport, microscale heat transfer, and nuclear reactor thermodynamics
• Fellow of ASME

Sheldon Jeter, Associate Professor
Ph.D., Georgia Institute of Technology, 1979
Thermodynamics, energy systems, and heat transfer
Zongjian (Z.J.) Cao, Professor, Department of Radiology, Medical College of Georgia, Ph.D., Indiana University, 1986. Medical imaging including single photon emission computed tomography (SPECT) and positron emission tomography (PET), medical image reconstruction theory, medical image quality and quantitation, and internal dosimetry. Diplomate, American Board of Science in Nuclear Medicine, 1995.

Eric Elder, Assistant Professor of Radiation Oncology and Associate Director of Medical Physics, Department of Radiation Oncology, Emory University School of Medicine, Ph.D., Georgia Institute of Technology, 1997. Image guided radiation therapy, adaptive radiation therapy, experimental medical physics, and radiation dosimetry. Diplomate, American Board of Radiology, Therapeutic Radiologic Physics, 1997.

Zach Fowler, Assistant Professor of Radiation Oncology, Emory University School of Medicine, M.D., University of Maryland, 2000. Use of radiation therapy and investigative chemotherapy agents for lung carcinomas, application of nanotechnology to radiation oncology, and the development of software tools for automated radiation.

Timothy Fox, Assistant Professor of Radiation Oncology and Director of Medical Physics, Department of Radiation Oncology, Emory University School of Medicine, Ph.D., Georgia Institute of Technology, 1991. Medical physics, intensity modulated radiation therapy, optimization, biomedical imaging, and image guided radiation therapy. Diplomate, American Board of Radiology, Therapeutic Radiologic Physics, 1997.

Tom Hu, Assistant Professor of Radiology, Director, Small Animal Imaging Program, Medical College of Georgia, Augusta, Georgia, Ph.D., Carnegie Mellon University, 2001. Cardiac Magnetic Resonance Imaging methods to analyze biological/biomedical problems, imaging techniques to detect myocardial calcium homeostasis modulations, and collaborative and preclinical translational research to solve biomedical problems.

Nasser Maleki, Director of Medical Physics, Memorial Health University, Medical Center, Savannah, Georgia, Ph.D., University of Nebraska, 1981. Internal organ motion during radiation treatment, Image Guided Radiation Therapy, application of implantable passive and active markers for organ motion detection, and development of modern quality management techniques in radiation therapy.

Justin Schwartz, Part-time Instructor, Jack E. Crow Professor of Engineering, National High Magnetic Field Laboratory, Florida State University, Ph.D., MIT, 1990. Development of high temperature superconducting materials for high field magnetics, and functional nanocomposites and magnetic materials for power applications. Fellow of IEEE.

Tristan Utschig, Senior Academic Professional, Scholarship and Assessment of Teaching and Learning, Center for the Enhancement of Teaching and Learning, Georgia Tech, Ph.D., University of Wisconsin. Analysis of thermal systems for fusion applications.

The Henry L. Fisher Jr. Fellowship Endowment was established in 2005 to be used for graduate fellowships in the Woodruff School, with a preference for students in Nuclear and Radiological Engineering. Mr. Fisher graduated in 1973 with a bachelor’s degree in nuclear engineering. He passed away in 2006.

The student chapter of the American Nuclear Society received a certificate of distinction for the 2006-2007 school year. This is awarded to chapters in Good Standing who have accomplished certain tasks as outlined by the professional society.

Chaitanya Deo was awarded the Nuclear Regulatory Commission faculty development grant with $150,000 and $50,000 in matching funds from the School per year over three years.


Nolan Hertel was appointed as one of the 29 delegates from the Health Physics Society to the 12th International Congress of the International Radiation Protection Association in Buenos Aires, Argentina, a meeting that will be held in October 2008.

Justin Schwartz is the editor-in-chief of IEEE Transactions on Applied Superconductivity.

Chris Wang was promoted to the rank of Professor.

The student chapter of the American Nuclear Society received a certificate of distinction for the 2006-2007 school year. This is awarded to chapters in Good Standing who have accomplished certain tasks as outlined by the professional society.
Georgia Tech is a major center for advanced technology in Georgia and the southeast. The Institute conducts research of national significance, provides research services and facilities to faculty, students, industry, and government agencies, and supports the economic and technological growth of the state of Georgia. Research operations are carried out through schools, centers, and laboratories.

In fiscal year 2008, Nuclear and Radiological Engineering faculty in the Woodruff School earned funds for new projects or received additional funds for the continuation of multiple-year projects. Some examples are:

**Said Abdel-Khalik**
- Southern Nuclear Operating Company Distinguished Chair (Southern Nuclear Operating Co.)

**Sang Cho**
- Feasibility Study for Noninvasive Molecular Imaging of Breast Cancer Using (U.S. Army);

**Chaitanya Deo**
- Materials Science for Advanced Nuclear Energy (Nuclear Regulatory Commission);

**Nolan Hertel**
- Research Program for Exposure-Dose Reconstruction (Centers for Disease Control);
- Simulation and Testing of Various Radiation Survey Meters (TKC Integration Services);
- An Innovative Approach to Precision Fission Measurements (U.S. Department of Energy);
- Analysis and Modeling of the Spallation Product Inventory Mercury (Oak Ridge National Lab);
- Dosimetry for Standoff Active Interrogation (Idaho National Engineering Lab);

**Bojan Petrovic**
- Modeling of Compton Scattering in Remote-Handled Waste Drum (Westinghouse);

**Farzad Rahnema**
- An Innovative Three-Dimensional Heterogeneous Coarse-Mesh Transport Method (U.S. Department of Energy);
- An Advanced Integrated Diffusion/Transport Method (U.S. Department of Energy);
- GNEP Readiness at Georgia Tech (U.S. Department of Energy);

**Sheldon Jeter**
- Loop Timing Chain, U.S. Patent 4,027,792, June 7, 1977
- Tufting Needle, U.S. Patent 4,015,551, April 5, 1977

**Bojan Petrovic**

**Dennis Sadowski**
- Parallel Porting Valve Assembly, U.S. Patent 5,232,018, with William F. Rush and Hyman A. Todres, August 3, 1993
The Neely Building

12

With construction to begin on the third floor sometime during 2009. The plans are currently being finalized during the fall 2008 semester. Radiation Physics Laboratory, and three separate areas for a neutron for the current neutron radioisotope sources and the Southern Nuclear redesign. The new design of the area includes a large high-bay space for NRE/MP radiation laboratories the space is undergoing a major additional growth of faculty and graduate students. In the lower level graduate students. The latest third floor plans also include areas for NRE/MP student use, library and reading room, and office space for faculty and staff. The building was built in 1970.

UPDATE ON THE MOVE TO BOGGS

Over the 2007-08 academic year, the NRE/MP programs were working with architects to design the preliminary layout of the third floor and the lower level radiation laboratory areas in the new Boggs location. The third floor has been designed with faculty office and laboratory spaces as well as a NRE/MP program administration area. Also included on the third floor are: The AREVA Radiation Detection Laboratory, the new computational radiation therapy physics laboratory, a NRE/MP classroom, a high performance computing room, a large computer room for NRE/MP student use, library and reading room, and office space for graduate students. The latest third floor plans also include areas for additional growth of faculty and graduate students. In the lower level NRE/MP radiation laboratories the space is undergoing a major redesign. The new design of the area includes a large high-bay space for the current neutron radioisotope sources and the Southern Nuclear Radiation Physics Laboratory, and three separate areas for a neutron generator, a medical linear accelerator, and an ion beam accelerator. The plans are currently being finalized during the fall 2008 semester with construction to begin on the third floor sometime during 2009.

REMOTE FACILITIES IN MEDICAL PHYSICS

The following facilities have been approved by the medical physics program. These remote facilities can be used by distance learning medical physics students to meet the clinical rotation requirements in the curricula.

- Athens Regional Medical Center, Athens, Georgia
- Alliance Medical Physics, LLC. Alpharetta, Georgia
- Cancer Care Northwest, Spokane, Washington
- The Cooper Health System, Camden, New Jersey
- Intermountain Radiation Therapy and LDS Hospital, Salt Lake, Utah
- Jablonski Physics Services, Inc. St. Elizabeth Regional Medical Center, Lincoln, Nebraska
- Maryland Regional Cancer Center Silver Spring, Maryland
- McComas Enterprises, Inc., Gloucester, Virginia
- Medical College of Georgia, Augusta, Georgia
- Medical Physics Consultants, Arlington, Texas
- Northeast Georgia Health Systems, Gainesville, Georgia
- Northside Hospital, Atlanta, Georgia
- Samaritan Health Services, Corvallis, Oregon
- Satilla Regional Cancer Treatment Center, Waycross, Georgia
- The Reading Hospital & Medical Center, West Reading, Pennsylvania

CONTRIBUTORS

The list includes donors who have designated gifts to the Nuclear and Radiological Engineering and Medical Physics Programs in the Woodruff School between July 1, 2007 and June 30, 2008. To contribute to the School or if you have questions about establishing an endowment, contact Tom Lawley, director of development, at (404) 385-8345 or by e-mail to tom.lawley@me.gatech.edu.

Alumni, Friends, and Students

- Thomas A. Coleman, PHYS, 1971
- Louis B. Long, PHYS, 1966
- Mahnaz Rahnema, Friend
- Charles A. Sparrow, NS, 1969
- Weston M. Stacey, PHYS, 1959

Corporations, Foundations, and Organizations

- Area NP, Inc.
- McCallum-Turner Inc.
- Southern Nuclear Operating Company

Faculty and Staff

- Farzad Rahnema
- Nolan E. Hertel

TESTIMONIAL

BEN FORGET (Ph.D. NE 2006)

Assistant Professor, Department of Nuclear Science and Engineering
Massachusetts Institute of Technology, Cambridge, Massachusetts

My initial inclination for Georgia Tech was based mainly on the possibility of getting away from the cold Canadian winters, but after my campus visit and meeting with my eventual advisor I discovered that there was more to it. I quickly realized that the students, staff and faculty would offer me a great opportunity to learn.

My graduate experience at Georgia Tech served as great preparation for my current career. My advisor listened to my aspirations from the beginning and promoted my involvement in teaching, grant writing and research. The experience I have gained has proven invaluable.

I think the major strength of the graduate program at Georgia Tech is the commitment of the faculty and staff to the success of the students. I think very highly of the education I have at the Woodruff school.
THE NRE/MP ADVISORY BOARD

The role of the Woodruff School Advisory Board is to recommend strategic directions; suggest broad-based curriculum changes; and consult with the Program Chair and the faculty on important issues. The agenda at the fall meeting consisted of an overview of the NRE/MP programs; a review of academic results in the programs; a review of the ABET plans; lunch with NRE/MP students; a review of program needs; a discussion of the strategic plan; and meetings with new faculty members in NRE/MP. The spring meeting in May 2008 was a chance for the new School Chair, Dr. William Wepfer, to meet with the advisory board.

Jeffrey A. Benjamin
Senior Vice President for Commercial and International Nuclear Projects
CH2M Hill
Englewood, Colorado

Thomas A. Coleman
[BSPhys 1971, MSNE 1973] Vice President of Federal Services Framatome-ANP Lynchburg, Virginia

Joseph P. DeRoy
Vice President, Operations Support Entergy Jackson, Michigan

Ken S. Folk
Manager, Core Analysis Southern Nuclear Operating Company Birmingham, Alabama

James A. Lake

William R. McCollum Jr.
[BSEE 1973, MSNE 1974] Chief Operating Officer Tennessee Valley Authority Chattanooga, Tennessee

Dana Christensen
Associate Laboratory Director, Nuclear Programs ORNL Oak Ridge, Tennessee

Jeffrey Gasser
[BME 1983] Executive Vice President/Chief Nuclear Officer Southern Nuclear Operating Company Birmingham, Alabama

Kyle H. Turner

James A. Lake

Lawrence J. Ybarondo

Andrew Karellas
Professor of Radiology Director of Radiologic Physics Radiology Department University of Massachusetts Worcester, Massachusetts

George Zdasiuk, Ph.D.
Corporate Vice President Director, Ginzton Technology Center Chief Technology Officer Varian Medical Systems Mountain View, California

James Rawson
Warren Professor and Chair, MD Radiology Department Medical College of Georgia Augusta, Georgia

ACKNOWLEDGMENTS

This report is edited and produced by Rona Ginsberg, Director of Communications for the Woodruff School. Craig Moonshower designed the document. Most of the photographs were taken by Gary Meek and Caroline Joe. Additional photos are from the Georgia Tech or the Woodruff School archives. Thanks for Tom Akins, Dwayne Blaylock, Shauna Bennett-Boyd, Dimeta Diggs-Butler, Debbie Gulick, Melody Foster, Glenda Johnson, Tom Lawley, Randy McDow, Kristi Mehaffey, Ralph Mobley, Rekka Patel, Mimi Philobos, Farzad Rahnama, Chante Singleton, David Stone, Valerie Spradling, Bill Wepfer, Wayne Whitman, Melinda Wilson, Sheila Williams, and Dingkang Zhang for providing information for this report. We gratefully acknowledge the financial support of the Woodruff Endowment to the Georgia W. Woodruff School of Mechanical Engineering.