

# NETWORKS

DEPARTMENT OF ELECTRICAL &amp; COMPUTER ENGINEERING

## Alumni Give Valuable Input

Who is attending graduate school? How many of you got jobs with your BS degree? These were some of the questions that the ECE department used in a recent survey of alumni. The goal of the survey was to find out more about what alumni were doing with their ECE degrees—how the department might better prepare students for careers; meet the needs of employers who hire ECE graduates; and interact better with alumni.

This first survey, which was conducted through e-mail, was sent to graduates from 2000 to 2005 to establish baselines for tracking alumni after a specific number of years following graduation, and to track particular classes, such as the class of 2004, as years pass. A smaller section of the graduates will be regularly surveyed. This survey included 692 ECE graduates. The overall response rate for Computer Engineering graduates was 37 percent, the largest being 40 percent for the 2005 graduates, and the lowest 16 percent for the 2001 graduates. The overall response rate for Electrical Engineering graduates was 46 percent, with a rate of 56 percent for 2005 graduates, and 19.4 percent for 2001 graduates.

*continued on page 3*

## Thermoelectric Research Takes Spotlight Improvements in Efficiency Help Fuel Results

When you think of alternative energy sources, thermoelectrics may not immediately come to mind, but MSU and the College of Engineering have an impressive team of researchers working on the cutting edge of this alternative energy source. "Our research really started before the big quest for alternative energy sources, but the current interest in alternative energy sources certainly has helped to bring thermoelectrics into the limelight," says Timothy Hogan, an associate professor in electrical and computer engineering and one of the primary researchers in thermoelectrics at MSU.

Hogan came to MSU 10 years ago and almost immediately became part of the ongoing thermoelectric work. "Tim, as an electrical engineer, could do more sophisticated measurements of the materials," says Mercuri Kanatzidis, who can speak with authority

because the MSU thermoelectric research started with his groundbreaking work on materials. Kanatzidis was a University Distinguished Professor in Chemistry at MSU until 2006, when he left to take the Charles E. and Emma H. Morrison Chair in Chemistry at Northwestern University in Evanston, Ill. He continues as an important part of the MSU thermoelectric team, specializing in property measurements and evaluation of the stoichiometry of thermoelectric materials.

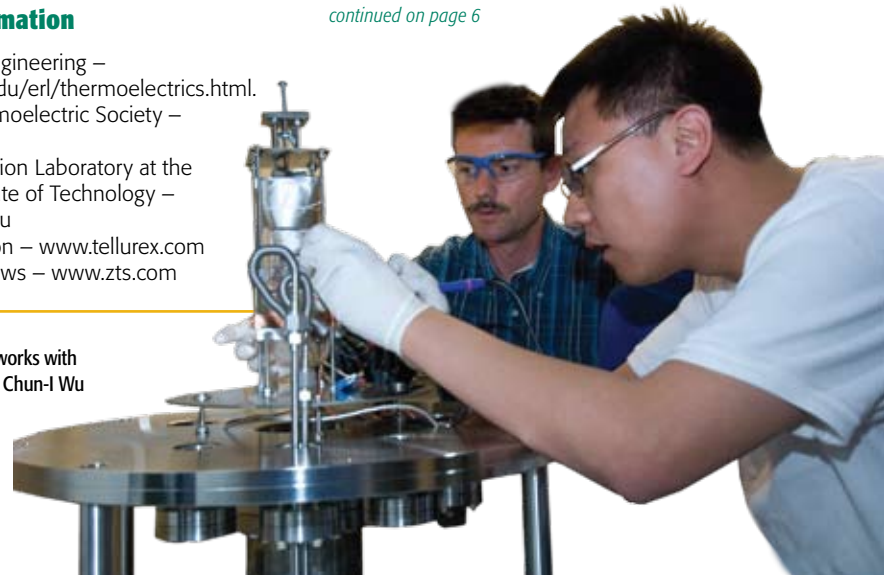
For those of you who walked away from MSU with an engineering degree but do not know much about thermoelectrics, it is the study and application of effects resulting from the interaction of the thermal and electrical properties of certain types of materials. Using temperature gradients, thermal energy can be used to generate electricity – those are the Seebeck and Thomson effects – and electri-

*continued on page 6*

### For more information

MSU College of Engineering – [www.egr.msu.edu/erl/thermoelectrics.html](http://www.egr.msu.edu/erl/thermoelectrics.html)  
International Thermoelectric Society – [www.its.org](http://www.its.org)  
NASA's Jet Propulsion Laboratory at the California Institute of Technology – [www.caltech.edu](http://www.caltech.edu)  
Tellurex Corporation – [www.tellurex.com](http://www.tellurex.com)  
Thermoelectric News – [www.zts.com](http://www.zts.com)

Tim Hogan, left, works with graduate student Chun-I Wu in the lab.





## from the Chair

**TIMOTHY GROTJOHN**

Greetings to all the alumni and friends of the MSU Department of Electrical and Computer Engineering. I am excited to take on the role of chairperson for the department after serving as the acting chairperson for almost two years and as a faculty member in the department since 1987.

The department has seen a number of significant changes and improvements, especially over the past several years, including an increase in faculty to 37, the formation of new research centers, an increase in research funding by a factor of three to \$7.5M, an increase in the number of PhD students, improvements to the undergraduate program with industry-sponsored senior design projects, and a growth of new research areas including biomedical engineering and nondestructive evaluation.

As the ECE department looks to the future, we need to continue to build on these improvements and look for the next set of advancements. The core attributes the department is striving for include increased national stature and ranking, BS degree graduates who are quickly starting successful careers or succeeding in graduate school, and MS and PhD graduates who are becoming leaders in industry, government, and academia.

The ECE department is advancing its educational, outreach, and research program in several ways this academic year. The College of Engineering started a freshman engineering design program to allow new students to get hands-on experience with design and teamwork at the beginning of their MSU program. The college and department are also working to provide more opportunities for students to get beyond-the-classroom experience through internships, cooperative education, undergraduate research, and study abroad. It is becoming increasingly important for graduating seniors to have these experiences as they enter the workforce or go to graduate school. We hope all of our graduates can have these beyond-the-classroom experiences in the near future.

MSU has an outstanding history of strong study abroad programs and international outreach efforts. As a new facet of this international reputation, Michigan State University is establishing an instructional site at Dubai International Academic City, Dubai, United Arab Emirates. One of the majors to be offered in this program is a BS degree in Computer Engineering. (See story at right.) This is a great opportunity to expand our programs and create new friends, alumni, and opportunities abroad.

The ECE department's research and graduate programs continue to grow. Eighteen PhD students completed their programs during this past academic year. That's an all-time high. In addition, this year we are proceeding with three new faculty hires to continue building the strength of our research and education programs.

I want to conclude by inviting you to stay in contact with the ECE Department. It is the collective ideas of the students, faculty, staff, alumni, employers of our graduated students, and friends that will continue to build the ECE department. 🌱

## ECE Offers Program in Dubai

The Department of Electrical and Computer Engineering (ECE) is expanding its global reach. MSU recently signed an agreement to open a not-for-profit program in the Dubai International Academic City (DIAC), near Dubai City in the United Arab Emirates. One of the BS programs offered will be in computer engineering. Classes are expected to begin in the fall of 2008. MSU is the first North American university to have a presence in the DIAC.

This fall ECE Chairperson Tim Grotjohn visited Dubai and the site that will house the MSU programs. He says "students in the computer engineering program in Dubai should have the same curriculum and academic experiences that students here on campus have." (See photos on page 8.)

Dubai City is a fast growing area with regional and world influence. It has attracted world-wide attention through innovative real estate projects and sports events. The DIAC, whose purpose is to meet the increasing demands for higher education in the area, is located about 20 minutes from the Dubai business district.

Each undergraduate program will admit about 40 students. Faculty will come from MSU and from new hires from the region who have been approved by the home MSU departments. Tuition has not yet been set. The building that will house the MSU program is under construction.

"This is a great opportunity to expand our programs and create new opportunities abroad," says Grotjohn.

## ECE Names New Chair

Timothy Grotjohn has been named chairperson of the Department of Electrical and Computer Engineering. His appointment was effective May 10, 2007. "Professor Grotjohn's wealth of technical and administrative expertise will help meet the aspirations and goals of both the department and the college," said Satish Udpa, dean of the College of Engineering.

Grotjohn received his bachelor's degree ('82) and his master's degree ('84) in electrical engineering from the University of Minnesota. He earned his PhD in electrical engineering from Purdue University in 1986. He joined the MSU faculty as an assistant professor in 1987, served as associate chairperson for undergraduate studies in the department from 2001 to 2005, and has been acting chairperson of the department since June 2005. He received the college's Withrow Excellence in Teaching Award in electrical and computer engineering in 2002, the Withrow Distinguished Scholar Award in 2004, and the Withrow Exceptional Service Award in 2005.

Grotjohn's research interests include the modeling, design, diagnostics, and applications of plasma-assisted materials processes and processing machines. A strong focus of his work is the use of models, including electromagnetic, plasma dynamic, and plasma chemistry models, for the design and control of microwave plasma reactors used for materials processing. His recent work looks at mini- and micro-scale plasma discharges and their application.

Grotjohn was co-chair of the 2006 Institute of Electrical and Electronics Engineers, Inc. (IEEE) International Conference on Plasma Science in Traverse City, Michigan. He also served as session chair at the 2006 International Workshop on Microwave Discharges.

# Alumni Give Valuable Input In Survey (continued from page 1)

Here is a sampling of the questions and the responses:

## 1 Does the ECE program prepare its graduates for a variety of career paths including engineering positions directly after program completion?

84 percent of the Computer Engineering (CpE) respondents and 88.5 percent of the Electrical Engineering (EE) respondents stated they were employed in engineering positions. Adjusting for those in graduate school, and those who had been employed until recently, 91.2 percent of the CpE respondents and 94 percent of the EE respondents are considered employed in the field. Graduates, as shown by the variety of their employers, have the broad knowledge that allows them to obtain employment easily. They also follow a variety of career paths without flocking to one employer or one industry.

## 2 Do alumni apply to engineering graduate schools or other professional graduate-level schools?

Twenty-one percent of the CpE respondents and 30 percent of the EE respondents are continuing their formal education or have already received graduate degrees, either on a full-time or part-time basis. While most continue to study Computer/Electrical Engineering, others applied their engineering problem solving background to pursue a variety of graduate degrees, including biophysics, law, medicine, and business. Graduate schools for which ECE graduates have successfully competed for entrance include Michigan State University, the University of Southern California, Harvard, Johns Hopkins, Wayne State, Purdue, and Princeton.

## 3 What about eventual leadership in technical, organizational, and entrepreneurial arenas?

Many employers of ECE graduates expect the first couple years of the graduate's career to be a mentored apprenticeship with senior engineering oversight. By the third year, graduates are expected to migrate to

project leadership roles. Consistent with this expectation 30 percent of the most recent CpE graduates and 27 percent of the EE graduates from 2004 and 2005 report some type of technical leadership role. This number increases to 45 percent and 47 percent of the graduates from 2000.

The achievement of this objective is also measurable by recognitions and authorship of technical reports. The forms of recognition reported vary from the presentation of research and technical papers to outstanding performance awards. In the survey 79 percent of CpE and 80 percent of EE respondents have published one or more internal reports and 8 percent and 12 percent have shared their expertise with the professional community outside their organization through oral presentations or technical papers.

It is primarily the 2003 and 2004 graduates who report a first promotion, with 2001 and 2002 graduates reporting more than one promotion and their establishment as lead engineers or project leaders.

## 4 How do alumni maintain and increase technical and/or broad expertise through lifelong learning?

The survey established that 21 percent of CpE and 30 percent of EE graduates are pursuing post-graduate education or have received an advanced degree. Additionally, 85 percent of all respondents regularly read technical journals and papers and participate in short courses, technical conferences, workshops, etc. Both of these measures indicate that the graduates of the program are maintaining or increasing their knowledge and expertise through lifelong learning.

## 5 How do graduates share their expertise to the benefit of the larger community?

A high number of graduates (35 percent CpE and 37 percent EE) have shared their expertise with the larger community

through civic and community activities and duties, even though many of these graduates are new and not established in their communities. Examples include involvement in Big Brothers and Big Sisters, volunteer coach, volunteer referee, work on community projects, and involvement in homeless projects.

As a follow-up to the e-mail survey, a graduates' focus group meeting was also held. This alumni group consisted of 20 percent of the 2005 alumni that responded to the original survey. A summary of the primary views expressed by this group were:

- They had been well prepared for the work and the graduate school environment.
- They would have liked more design experience within their courses.
- They had graduate school offers, as an alternative to working in industry.
- They would like to be more directly involved with both other alumni and undergraduate students.
- Many of the graduates would like to go to graduate school, but finding time to pursue a graduate degree is difficult because of full-time employment and other responsibilities.
- More than 70 percent were involved in community and/or professional activities.

Many thanks to all who participated in this survey. The ECE department greatly appreciates your input. Alumni feedback is important to the department. If you did not respond to this survey, there will be other surveys. Make sure to keep your postal and e-mail address current, so we can contact you. We also welcome input on an ongoing basis. Just e-mail the department at [ECE\\_Mailbox@egr.msu.edu](mailto:ECE_Mailbox@egr.msu.edu).

Special thanks to Elias Strangas, associate professor, Garth Motschenbacher, director of employer relations for the College of Engineering, and Brian Wright, research technologist, who conducted this survey and compiled the data.

– Vanessa L. Mitchner

# Faculty and Staff Networks



**Erik D. Goodman**, professor, received the MSU Alumni Club of Mid-Michigan Quality in Undergraduate Teaching Award. He was one of two faculty

members university-wide to receive the honor. The award recognizes teachers who take pride in and are committed to quality teaching, and who demonstrate substantial continuing involvement in undergraduate education.



**Hassan Khalil**, University Distinguished Professor and associate chairperson, was named a fellow of the International Federation of Automatic Control

for his contributions to singular perturbation theory, nonlinear feedback control, and control education.



**Ramakrishna Mukkamala**, assistant professor, received an NSF CAREER Award for his project: "Integrated Research and Education in Cardiovascular Signal

Processing for Automated and Less Invasive Monitoring of Central Hemodynamics."

The goal of this project is to develop and advance signal processing techniques to quantify important hemodynamic measures. The project results will impact the development of improved patient monitoring and the development of less invasive measures in cardiology.



**Lalita Udpa**, professor, has been selected as a fellow of two national societies. She most recently was selected as a fellow of the Institute of Electrical and Electronics

Engineers, Inc. (IEEE), effective January 1, 2008. She received this prestigious honor in recognition of her contributions to the development of

forward and inverse electromagnetic nondestructive evaluation methodologies.

Earlier this fall Udpa was selected as a 2007 fellow of the American Society for Nondestructive Testing (ASNT). The award was presented at the society's November conference in Las Vegas, Nevada.



**Greg Wierzba**, associate professor, received the Outstanding Teaching Award at the 2007 annual meeting of the American Society for Engineering Education (ASEE), North Central Section, held in March in Charleston, West Virginia.



**Ning Xi**, John D. Ryder Professor, was named a fellow of the Institute of Electrical and Electronics Engineers (IEEE) effective January 1, 2007. This honor was awarded

to Xi for his contributions to the field of nanorobotic manipulation and assembly. His research interests include robotics, manufacturing automation, micro/nano systems, and intelligent control and systems.

## 2007 Withrow Teaching Excellence Award



**Shanker Balasubramaniam**, associate professor, received a Withrow Teaching Excellence Award at the 17th annual Engineering Awards Luncheon

in March. This award recognizes faculty and staff who have demonstrated excellence in instructional and scholarly activities and rendered distinguished service to the university and the student body.

Balasubramaniam teaches both undergraduate and graduate courses in electromagnetics. Students have found him to be extremely effective in conveying the practical importance of the subject matter without compromising any

of the depth or rigor. His friendly demeanor and relaxed approach encourage students to go to him with questions outside of class.

## 2007 Gloria Stragier Award



**Vanessa L. Mitchner**, editorial assistant, was honored with the Gloria Stragier Award at the 17th annual Engineering Awards Luncheon in March. This award,

which was initiated in 1996, is presented annually to non-academic staff members in the College of Engineering who have served the college for a minimum of five years and demonstrate exceptional job performance and leadership skills.

Mitchner, who has been with the department for nine years, has a "can-do" attitude. "Let's ask Vanessa," is a phrase commonly heard in the office. Mitchner is always looking for ways to improve the department's image and often attends student functions to act as the "unofficial" photographer.

## 2007 Withrow Distinguished Researcher Award



**Edward J. Rothwell**, professor, received a Withrow Distinguished Researcher Award at the 17th annual Engineering Awards Luncheon in March. This award is

given to professors who have more than five years of service to the university.

Rothwell, an IEEE fellow, is an internationally recognized contributor in the area of transient electromagnetic theory. Two of his most significant accomplishments are the E-pulse technique for radar target discrimination, and self-structuring antennas with radiating systems that can dynamically adapt to the environment. The impact of these techniques is such that they represent the state of the art more than a decade after they were first introduced.

# Alumni Networks

## Simmons Receives John D. Ryder Alumni Award



**George H. Simmons** (BS '73, PhD '81) received the John D. Ryder Electrical and Computer Engineering Alumni Award at the annual College of Engineering Alumni Awards Banquet in May. Established in

2004, this award commemorates the outstanding professional contributions of John D. Ryder, former dean of the College of Engineering and a professor in the department. The award is given on the basis of contributions to furthering the mission of the department.

Simmons is the chief operating officer of Simpler Networks in Bedminster, N. J., where he is responsible for product line management, including micro-electro mechanical systems (MEMS) research and chip development, hardware and software systems development, and product manufacturing.

Simmons is past president and CEO of Cibernet, located in Bethesda, Md., where he managed a turnaround of the venture capital-backed wireless services business, improving customer relationships and cash flow while developing a strong management team and improving the service delivery platform technology. The company was recently sold to MACH for over \$200 million.

In addition to his MSU degrees, Simmons received an MS in electrical engineering from the University of Michigan ('74), and a Master of Management degree from Northwestern University ('91). He subsequently worked at AT&T Bell Laboratories (now Alcatel-Lucent) from 1974 to 2002, including an assignment in Beijing, China (1995-97), where he was vice president of the Network Wireless business. His team was the first equipment manufacturer to build and successfully generate a CDMA network call in China.

As vice president of Research and Development Operational Excellence for Lucent (1997-98), George led the development and

implementation of new engineering processes for complex telecom network solutions in five North American and international projects. The quality of this work earned his team the Bell Laboratories Presidents award for R&D Operational Excellence. He was named vice president and general manager of Lucent's newly acquired \$1 billion Access Technology business in 1998. He led the product unit in designing, developing, and selling ATM access data network equipment. Under his leadership the product portfolio expanded and revenue grew from \$60 million per year to over \$200 million per year.

Simmons has received many awards, including the Lucent Wireless Explorers Award ('97) and the Lucent Wireless CDMA Award ('97). He also received two patents: Circuit for Eliminating Spurious Pulses in a Dial Pulse Stream ('81), and Optical Data Link Extension for Data Communication Networks (1987). He supports his alma mater through corporate donations. He is on the MSU Black Alumni (MSUBA) Endowment Campaign committee and formerly served on the board of directors. Simmons is also a life member of Kappa Alpha Psi fraternity.

George and his wife, Grayce, live in Columbia, Md. They have two adult children: daughter, Gina, and son, Gavin.

## Crocker Receives GEM Award

**Jerome Crocker** (MS '01), a senior engineering consultant with Booz Allen Hamilton, won the 2007 GEM Student Leadership Award from the Black Engineer of the Year Awards Conference, held in February. The award honors a person who has successfully used a GEM fellowship to achieve outstanding outcomes. Crocker received his GEM fellowship to pursue graduate electrical engineering work at MSU after getting a BS in electrical engineering at Morgan State University.

Adding a much-needed measure of perspective and context to his work, he participates in programs such as "Project CEO," at a community development center. He also works closely with the National Society of Black Engineers (NSBE) and the Society of Women Engineers (SWE), and lends support to these organizations by mentoring up-and-coming engineers. He also

created a job conduit for Morgan State University students by founding an organization that creates work opportunities for them.

GEM is the National Consortium for Graduate Degrees for Minorities in Engineering and Science Inc. The GEM fellowship programs are designed to offer opportunities for underrepresented minority students to obtain MS degrees in engineering and PhD degrees in engineering and the natural and physical sciences through a program of paid summer internships and graduate financial assistance.

## Hopwood Named ECE Chair at Tufts



**Jeffrey A. Hopwood** (PhD '90) was recently named the chairperson of the Electrical and Computer Engineering Department at Tufts University, Medford, Mass. For his PhD work he studied electron

cyclotron resonance plasmas. He also received MS and BS degrees from MSU in 1987 and 1985 respectively. He joined IBM at the T. J. Watson Research Center in 1991 as a post-doctoral fellow in the advanced materials laboratory. Following his post-doc, Hopwood joined Northeastern University in Boston, Mass., in 1993 and was promoted to the rank of full professor in 2006. He became a member of the ECE department at Tufts in September 2006 and was named chair on September 1, 2007.

---

## Donation Information

ECE alumni have been generous in making donations and giving gifts and endowments to the department. If you would like information on the current needs of the department, please contact Timothy Grotjohn at grotjohn@msu.edu. General information about establishing an endowment or planning a gift from your estate to benefit the department is available by contacting Engineering Development at 517-355-8339 or egrdevel@egr.msu.edu.

---

# Thermoelectric Research Takes Spotlight (continued from page 1)

cal energy can be used to transport heat – that’s the Peltier effect. So, thermoelectrics can be used for either power generation or cooling. Many contemporary uses have been for cooling. The current MSU research focuses on the development of devices for power generation to convert waste heat to electricity. Thermoelectric devices are solid state with no macroscopic moving parts. The major advantage of thermoelectrics is that devices made using them are reliable and quiet, and they can operate in hostile environments. The major disadvantage has been their poor efficiency.

Currently, Hogan and a team of researchers are working on the problem of poor efficiency in thermoelectric materials and devices, and they are making progress. That’s evident by the kinds of grants that the thermoelectric team is receiving. The latest in a series of grants that are fueling the research is from the Strategic Environmental

Research and Development Program (SERDP), funded by the U. S. Departments of Energy and Defense and the Environmental Protection Agency. MSU is a subcontractor on this grant and is working with the Pacific Northwest National Laboratories, a U.S. Department of Energy research laboratory in Richland, Wash., and Tellurex Corporation, a Michigan company that specializes in the engineering and manufacture of thermoelectric modules. With the SERDP grant, the MSU thermoelectric team will fabricate unicouples which can be used for power generation in thermoelectric devices or generators. “This is a very practical application for thermoelectrics. The unicouples can power batteries in remote areas,” says Hogan.

The MSU research has scaled up over the last five years in the area of power generation, and there are currently two major efforts. One is looking at shipboard applications through funding from the Office of Naval Research (ONR) as part of the Multi University Research Initiative (MURI). The other involves using thermoelectrics for diesel engine applications with funding from the U. S. Department of Energy (DOE). The ambitious goal of the DOE project is to determine how to recover waste heat from the exhaust of an over-the-road (OTR) truck and convert it to electricity to run accessories on the vehicle. “Thermoelectrics will not replace the internal combustion (IC) engine,” says Hogan. “We are talking about a 5 to 10% system-wide improvement in efficiency in IC engines.”

As with many projects at MSU and the College of Engineering, Hogan is quick to point out that this is a team effort that cuts across many engineering disciplines and includes other MSU researchers as well as businesses and government agencies. “The best thing about MSU is the willingness of researchers to work cross discipline, cross campus, all working together,” says Hogan.

What is unique about the thermoelectric research at MSU is that it is not focused on just one aspect of the research and development process, but rather includes the entire spectrum from basic research in thermoelectric materials through the development of prototype thermoelectric modules and on to integrating the modules into a practical, functioning thermoelectric generator.



**Tim Hogan (left) talks with graduate students (from left) Chun-I Wun, Muhammad Khan, Muhammad Farhan and Jonathan D’Angelo.**

The current push this fall is to increase the amps coming out of the thermoelectric devices. “Right now we are getting about 3 amps. That’s good for us. The goal we would like to see is above 7 amps,” says Hogan. To get there, the team needs improvements in the materials used. New powder processing methods and a hot press that was recently installed in the Energy & Automotive Research Laboratories are making improvements possible. “We definitely hope to see results by the end of the calendar year,” says Hogan.

He is not the only faculty member from the ECE department working on thermoelectrics. Professor Fang Zheng Peng is working with a team of researchers to solve some of the problems that the thermoelectrics team is facing, especially in the area of power electronics and motor drives.

Thermoelectrics has come on the radar screen with continued research worldwide. Hogan is one of the organizers of a symposium on thermoelectrics at the Materials Research Society (MRS) Conference that was held in late November in Boston. The overall MRS conference deals with many different materials issues. “Over the years the interest in thermoelectrics has grown. This year more than 175 abstracts on thermoelectrics have been submitted for the symposium,” says Hogan. “There is no question that there is worldwide interest in thermoelectrics.”

As with all alternative energy projects, results are measured in small steps. The MSU thermoelectric research is no exception. However, when Hogan says there will be results, “definitely by the end of the year,” you know that Hogan and the entire College of Engineering/MSU team will make it happen. 🌱

– Jane L. DePriest

## Diverse Group Works on Thermoelectrics

Thermoelectric research at Michigan State University is a team effort that includes seasoned researchers from many fields of specialization as well as PhD and postdoctoral students. The core group of researchers, in addition to Tim Hogan, includes:

**Eldon Case**, professor, Department of Chemical Engineering and Materials Science, MSU College of Engineering.

**Mercouri Kanatzidis**, formerly MSU Distinguished University Professor of Chemistry, now Charles E. and Emma H. Morrison Professor of Chemistry at Northwestern University.

**S. D. Mahanti**, professor, Department of Physics and Astronomy, MSU College of Natural Science.

**Donald Morelli**, professor, Department of Chemical Engineering and Materials Science, MSU College of Engineering.

**Fang Zheng Peng**, professor, Department of Electrical and Computer Engineering, MSU College of Engineering.

**Jeffrey Sakamoto**, assistant professor, Department of Chemical Engineering and Materials Science, MSU College of Engineering.

**Harold Schock**, professor, Department of Mechanical Engineering and director of the Automotive Research Experiment Station, MSU College of Engineering.

# Student Networks

## ECE Seniors Honored by Trustees

During the past year, MSU's Board of Trustees recognized two graduating seniors from the ECE department. Board of Trustees Awards are granted at each commencement to students having the highest GPA at the close of their last semester in attendance. Both ECE students had a perfect 4.0 grade point average.

Luke Niewiadomski of Grand Rapids, Mich., an ECE major and a member of the Honors College, graduated in December 2006. After graduation, Niewiadomski took a job with Energy Conversion Devices, working as a research scientist on solar cell technology.

Daniel J. Baker of St. Paul, Minn., an ECE major and a member of the Honors College, graduated in May 2007. Baker is the son of Jim and Jean Baker. He is now a graduate student at the University of Illinois and is currently a teaching assistant for Computer Engineering I (similar to ECE 230).

## ECE Student Wins Air Force Scholarship



Professor Hayder Radha, left, presents Matthew Borton with the scholarship.

**Matthew Borton**, an ECE senior, has been awarded an Armed Forces Communications and Electronics Association (AFCEA) General Emmett Paige Scholarship. Matt's parents are both retired from the

U. S. Air Force, which is a major factor in qualifying for this scholarship. In addition candidates must major in specific engineering areas, including electrical engineering. Matt was inspired by Adjunct Professor Hayder Radha's class: ECE 202; Dr. Radha wrote a letter of recommendation for Matt to obtain the scholarship.

Matt speaks Spanish and loves to travel. He has been to Kenya where he volunteered as a basketball coach for teenage orphans. This past summer, Matt participated in a study abroad program in Quito, Ecuador, and then volunteered in the Dominican Republic where he did translations for medical relief teams and helped with building projects. Matt is currently working

on plans to start a campus organization to raise money for Kenyan orphans. "I hope to continue to use the knowledge that I learn at MSU to help others in need around the world," says Matt.

## 2007 Academic Awards

Congratulations to the following students from the electrical and computer engineering department who were recognized for academic excellence and service to the community.

### Outstanding Graduate Student Awards:

Shirish Subhas Karande.

**Service Awards:** David Roy Lenz, Shannon Singer Nicley, and Ke Zhang-Miske.

**2006-2007 Ambassador:** Bryon Thomas.

### Academic Achievement Awards 2007:

Andrew Baczewski, Daniel Baker, Kevin Briere, Janelle Shane, Donald Vanderlaan, Kuandyk Yerzhanov, and Muhammad Junaid Zaheer.

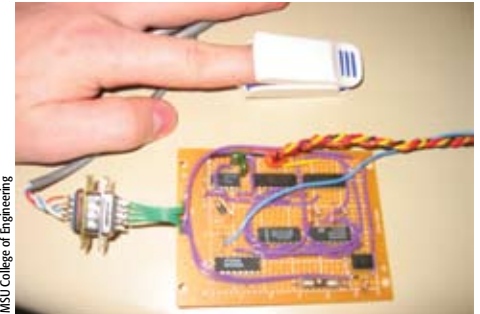
## Students Study in Japan



Andrew Baczewski, left, and Ben Jacobs stand on a walkway on Tokyo's ITech central campus. The sakura (cherry blossoms) were in bloom during their stay in Japan.

by ECE Associate Professor Virginia Ayres while on sabbatical at TITech last year, Jacobs and Baczewski explored tribological performance and radiation resilience of nanoscale carbon onions. Their host, Professor Atsushi Hirata of the TITech Mechanical Engineering Department, welcomed the students in his lab. They went to Japan in March 2007 and stayed until June. The trip culminated in a visit to Osaka where they presented their work at the First International New Diamond and Nano Carbon conference.

**Ben Jacobs**, PhD student, and Andrew Baczewski, an ECE senior at the time, were visiting research assistants at the Tokyo Institute of Technology (TITech) in Japan as a part of an NSF International Research and Education in Engineering initiative. As a continuation of research done



MSU College of Engineering

An engineering student tests a blood oxygen meter.

## Innovative Medical Device Brings Honors to ECE Students

An engineering team from ECE has designed and developed a medical diagnosis device that would allow patients in developing countries, such as China, to be inexpensively screened for a variety of medical problems.

Faculty facilitator Tongtong Li, assistant professor, and students Thomas Casey, Kurtis Hessler, Joe Hines, Janelle Shane, and Kevin Scheel, teamed up with students from China and Italy on the project.

"The goal of the project was to develop a low-cost, low-maintenance, user-friendly medical device that can perform multiple biomedical measurements for patients in rural areas," says Li. "The free screening tests can provide immediate medical screening feedback for the patients and help them to determine whether further medical assistance needs to be pursued."

This device performs a number of diagnostic functions; it measures blood pressure, blood oxygen saturation, temperature, and glucose level. Additional features include an online database system for patient records and a wireless infusion bottle monitoring system — tools that would be useful to doctors and other hospital workers.

For its originality and quality of product, the design team has been selected among 30 finalists for the Mondialogo Engineering Award 2007. The five-member team will proceed to the finals of the worldwide engineering contest sponsored by DaimlerChrysler (since renamed Daimler) and the United Nations Educational, Scientific, and Cultural Organization. The competition will take place in December in Mumbai, India. 🌟

# KEEPING IN TOUCH

NAME \_\_\_\_\_

STREET ADDRESS \_\_\_\_\_

CITY / STATE / ZIP \_\_\_\_\_ IS THIS A NEW ADDRESS?  YES  NO

OFFICE TELEPHONE \_\_\_\_\_ HOME TELEPHONE \_\_\_\_\_

E-MAIL \_\_\_\_\_

GRADUATION YEAR \_\_\_\_\_ DEGREE \_\_\_\_\_

CURRENT OCCUPATION \_\_\_\_\_

EMPLOYER \_\_\_\_\_ LOCATION \_\_\_\_\_

News of recent accomplishments, awards, or promotions (Use separate sheet if needed):  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

We want to know what's happening with you! Update us by mail at Attn: Publications, MSU, 3412 Engineering Bldg., East Lansing, MI 48824-1226; by e-mail at [editor@egr.msu.edu](mailto:editor@egr.msu.edu); or by fax at 517.355.2288.

# GIFT INFORMATION

I/we wish to make a gift/pledge in the amount of \$ \_\_\_\_\_ designated for: \_\_\_\_\_

My/our total gift will be paid as indicated:

- Check payable to "Michigan State University"
- Credit card charge to:  MasterCard  Visa  Discover  AmEx

CARD NUMBER \_\_\_\_\_ EXP. DATE \_\_\_\_\_

NAME AS IT APPEARS ON CARD \_\_\_\_\_

SIGNATURE \_\_\_\_\_

A pledge of the following duration (maximum 5 years): \_\_\_\_\_  
Enclosed is my first payment of \$ \_\_\_\_\_  
Please send pledge reminders:  Annually  Quarterly  Semiannually  
beginning: \_\_\_\_\_ MONTH \_\_\_\_\_ YEAR

- This pledge replaces all other outstanding pledges.
- This is a joint gift with my spouse: \_\_\_\_\_ SPOUSE'S NAME

I or  my spouse (check one) works for a matching gift company:

EMPLOYER(S) \_\_\_\_\_

Please return to: Engineering Development, MSU, 3536 Engineering Building, East Lansing, MI 48824-1226, or make your gift online at [www.givingtomsu.edu](http://www.givingtomsu.edu)

**Department of Electrical & Computer Engineering**  
Michigan State University  
2120 Engineering Building  
East Lansing, MI 48824

Nonprofit Org.  
U.S. Postage  
**PAID**  
East Lansing, MI  
Permit #21

CHAIRPERSON **Tim Grotjohn**

TEL (517) 355-5066  
E-MAIL [ECE\\_Mailbox@egr.msu.edu](mailto:ECE_Mailbox@egr.msu.edu)  
WEB [www.egr.msu.edu/ece](http://www.egr.msu.edu/ece)

EDITOR **Jane L. DePriest**

*MSU is an affirmative-action, equal-opportunity employer.*



Photo by Thomas F. Wolff

MSU is establishing an instructional site at Dubai International Academic City in Dubai, United Arab Emirates. The building (above) that will house the program is currently under construction. At left, Tim Grotjohn, chair of the ECE department, and Thomas Wolff, associate dean for undergraduate studies in the College of Engineering, recently visited Dubai and the site of the new program. Grotjohn (left) and Wolff are shown here at the Ibn Battuta Mall. See story on page 2.

**FOR OFFICE USE ONLY**

APPEAL CODE: 00975

STAFF RESP:

ALLOCATION: