

## Grotjohn Heads Electrical & Computer Engineering



**T**imothy Grotjohn officially began his appointment as chairperson of the Department of Electrical and Computer Engineering (ECE) on 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," says Satish Udpa, dean of the College of Engineering.

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. Specific processes studied have included diamond chemical vapor deposition (CVD), amorphous carbon deposition, semiconductor etching, and microwave-generated plasma discharges oper-

ated as ion and radical sources. In coordination with the modeling studies are his plasma diagnostic studies. His recent work looks in particular at mini- and micro-scale plasma discharges and their application.

He received his bachelor's degree (1982) and his master's degree (1984) in electrical engineering from the University of Minnesota, and his PhD in electrical engineering from Purdue University in 1986.

He joined the MSU faculty as an assistant professor in 1987, was associate chairperson for undergraduate studies in the Department of Electrical and Computer Engineering from 2001 to 2005, and served as acting chairperson of the department from June 2005 until his recent appointment as chair. 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.

His scholarly work has resulted in 41 reviewed journal publications, five book sections/chapters,

142 conference papers/presentations, and three patents, with others pending. He has supervised 10 PhD graduates.

Grotjohn was co-chair of the 2006 Institute of Electrical and Electronics Engineers, Inc. (IEEE) International Conference on Plasma Science in Traverse City, Michigan; served as session chair at the 2006 International Workshop on Microwave Discharges; was session organizer (Electron, Ion, and Plasma Sources) at the IEEE International Conference on Plasma Science in 2004; and served as technical area co-coordinator for Plasma Diagnostics at the IEEE International Conference on Plasma Science in 2000 and 2001.

He is also a member of the American Society for Engineering Education, Eta Kappa Nu, Sigma Xi, Phi Kappa Phi, the Materials Research Society, and the American Vacuum Society.

Grotjohn succeeds Satish Udpa, who served as chairperson of the ECE department from 2001 until 2005, when he was named acting dean of the college. 🌱

## Mukkamala Receives NSF CAREER Award



**R**amakrishna Mukkamala, assistant professor of electrical and computer engineering, has received an NSF CAREER Award for his project: "Inte-

grated Research and Education in Cardiovascular Signal Processing for Automated and Less Invasive Monitoring of Central Hemodynamics." The goals for this project are to develop and advance signal processing techniques to quantify important hemodynamic measures: cardiac output, ejection fraction, left atrial pressure, and central arterial blood pressure, based on measurements

of peripheral blood pressure and/or minimally invasive measurements of right ventricular or pulmonary artery pressure. The project results will impact the development of improved patient monitoring and the development of less invasive measures in cardiology.

The Faculty Early Career Development (CAREER) Program, the National Science Foundation's most prestigious award for new faculty members, recognizes and supports the early career-development activities of teacher-scholars who are most likely to become the academic leaders of the 21st century. Awardees are selected on the basis of creative career-

development plans that effectively integrate research and education within the context of the mission of their institution.

Mukkamala's educational plan focuses on incorporating biomedical engineering into high school and women's engineering outreach programs at Michigan State University, introducing the discipline with a novel hands-on project in rudimentary Cardiopulmonary Signal Processing (CSP) and offering a short course on basic signal processing concepts to life scientists.

See NSF award abstract at [www.nsf.gov/awardsearch/showAward.do?AwardNumber=0643477](http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=0643477). 🌱

