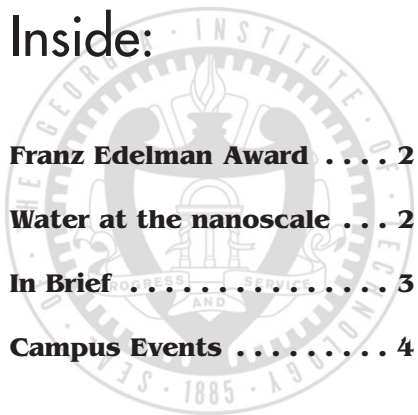


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THE WHISTLE

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THE GEORGIA INSTITUTE OF TECHNOLOGY

Leadership reorganized within Office of the Provost

Faculty forum held to address planned structure

*Michael Hagearty
Institute Communications
and Public Affairs*

Seven months into his tenure as the Institute provost, Gary Schuster has announced changes to his organization that will provide a tighter leadership structure while planning for future growth in Georgia Tech's size and complexity.

The structure both rethinks the duties of current positions and realigns the priorities within the Provost's Office. Changes were presented during a special faculty forum held last week in the Student Center Theater.

Taking cue from his experience as dean of the College of Sciences, Schuster said he hoped to encourage swifter action by distributing decision-making into the organization, giving greater latitude to other administrators within the structure.

"Those people who have the expertise and the specific knowledge should have the responsibility and the authority for making decisions," he said. Doing so will also enable him to concentrate his energy on advancing the Institute's core academic functions.

Senior leadership within the Office of the Provost will consist of Schuster, as well as the senior vice provost for Research and Innovation and the senior vice provost for Academic Affairs, currently occupied by Charles Liotta and Anderson Smith, respectively.

There will be minor shifts in responsibility. Liotta, for example, will not only manage Tech's \$350 million research portfolio, but also oversee the commercialization of innovation, ensuring the Institute takes maximum advantage of the intellectual property developed by its community. His role as dean of Graduate Studies will transition under Smith, in Academic Affairs.

Other changes will also impact Academic Affairs, where two new positions — vice provost for International Initiatives and vice provost for Graduate and Undergraduate Studies — will bolster

Institute leadership and oversight.

With its growing portfolio of international partnerships and educational opportunities, Georgia Tech needs someone who can support its global operations and bring greater focus to its international programs. A search committee, led by College of Management Dean Steve Salbu, will be evaluating candidates in the coming weeks.

The other vice provost position will ensure the continued refinement and enhancement of students' academic experience. In that role, the vice provost will vet new academic programs and be responsive to the needs of its students. Ivan Allen College Dean Sue Rosser will lead a committee to identify that individual.

It was also announced that the duties of Jack Lohmann, the vice provost for Institutional Development, were changing. Now, as vice provost for Academic Review and Faculty Development, Lohmann will oversee the complex process of establishing new academic programs, support career development for academic personnel and ensure institutional compliance with the Southern Association of Colleges and Schools (SACS) and the Board of Regents.

Finally, Schuster indicated his intention to bring greater emphasis to and advocacy for Tech's diverse academic community. "Georgia Tech is justifiably proud of its commitment to diversity, and those efforts have been largely successful. One of the things we're including in the organizational structure is a focus on diversity, both on underrepresented minorities and women."

Describing himself as an experimentalist, Schuster said he was looking forward to learning how these changes will improve the organization's capacity to move forward strategically.

The presentation, along with a comprehensive organizational chart, is available on Web site for the Office of Provost.

For more information...
Office of the Provost
www.provost.gatech.edu

Cornell chemist named dean for College of Sciences

*Michael Hagearty
Institute Communications
and Public Affairs*

Following a national search, the Georgia Institute of Technology's College of Sciences has new leadership. This week, Georgia Tech announced that Paul Houston, a Cornell University professor and administrator, will be its newest dean.

Houston succeeds Gary Schuster, who assumed duties as Tech's provost last fall. Houston previously served as senior associate dean of Cornell's College of Arts and Sciences, where he balanced a diverse set of departments and programs. Schuster said Houston's qualifications — a respected professor and researcher who understands the process of conducting faculty business — matched the needs of the College.

"As a fellow chemist, I have been familiar with Paul's work for a number of years," he said. "What impressed me most are the breadth of his interests and the rigor of his research. Given his knowledge and experience, I have no doubt he will bring the same enthusiasm in guiding the College of Sciences to new heights."

Houston indicated he would like to continue the work Schuster began, positioning Tech's core science departments to meet modern research challenges in fields such as bioinformatics, photonics and nanoscience.

"Research strengths like these form a great base of both infrastructure and knowledge from which to attack new problems, bring new faculty research programs to Georgia Tech, develop new teaching programs and inspire new commercial ventures," he said. "The challenge for me as the next dean will be to strengthen and expand the College in areas where Georgia Tech has scientific advantages due to infrastructure or collaborative capabilities."

Professionally, Houston is regarded as a researcher who seeks opportunities for interdisciplinary collaboration. He has some ideas for fostering that kind of activity at Tech, but stressed that it won't be the only measure of success.



Paul Houston

"Strengthening the sciences is important both for the health of the College and for the future growth of the Institute. It is neither necessary nor desirable that all the improvement in the College of Sciences be in fields with some overlap with engineering or computation, but it is likely that these areas of overlap will be among those that can find the most support from both internal and external funding sources," he said.

At Cornell, Houston led an active research group in the fields of materials and physical chemistry, pursuing lines of investigation in photodissociation dynamics, crossed molecular beam studies of reactions, light emitting devices, and exploration of biofilms. He chaired the Department of Chemistry and Chemical Biology from 1997 to 2001.

Anselm Griffin, chair of the School of Polymer, Textile and Fiber Engineering and head of the search committee, said Houston's experience stood out.

"Our committee found Dr. Houston to be an excellent candidate, whose academic and administrative record was without peer. With much enthusiasm, we welcome him to Georgia Tech," he said.

Houston earned his bachelor's degree at Yale University in 1969 and his doctorate at MIT in 1973. He held a postdoctoral fellowship at the University of California, Berkeley before joining the faculty at Cornell as an assistant professor in 1975.

QUOTE
UNQUOTE

"We're now learning some of the dirty secrets behind this fast-growing economy. And the dirty secret is they're cutting corners in making things."

—Fei-ling Wang, a professor in the School of International Affairs, on international concern surrounding the quality and safety of Chinese agricultural goods. In recent weeks, tainted Chinese pet food ingredients has sickened thousands of dogs and cats in the United States. (International Herald-Tribune)

Tech researcher wins international competition

Megan McRainey
Institute Communications
and Public Affairs

A Georgia Tech project has won an international competition that singles out the best operations research project by an organization.

Every year, the Franz Edelman competition recognizes outstanding examples of operations research projects that have transformed companies, entire industries and people's lives. Operations research uses advanced analytical methods to help make better decisions and is a disciplined way to improve organizational performance in a wide variety of situations, in nearly any type of organization in the public or private sector.

This year's finalists included Coca-Cola, the U.S. Coast Guard, Hewlett-Packard and Daimler-Chrysler. Previous winners have included Motorola, Merrill Lynch, Canadian Pacific Railway and IBM.

Eva Lee, an associate professor in the School of Industrial and Systems Engineering, worked with Marco Zaider, head of Brachytherapy Physics at Memorial Sloan-Kettering Cancer Center, to devise sophisticated optimization modeling and computational techniques to implement an intraoperative 3-D treatment planning system for brachytherapy — the placement of radioactive "seeds" inside a tumor — that offers a safer and more reliable treatment.

Lee's optimization models and

algorithms guide doctors toward the most effective dose provided by each radioactive seed, the shape of the organ being treated, the locations of tumor cells within the organ and critical structures for which radiation doses should be limited, the sensitivity of tissues to radiation, and the expected shrinkage of the organ after treatment. The system's goal is to provide consistent tumor-killing radiation doses to the tumor cells while limiting potentially damaging doses to nearby critical structures.

"The system can be used in real time," she said. "The patient can come in, the imaging is done, and we can then do the planning and implantation right away. There is no delay between the imaging, planning and implantation of the seeds."

The real-time intraoperative planning system eliminates pre-operation simulation and post-implant imaging analysis. Based on the range of costs of these procedures, Lee estimates conservatively that their elimination nationwide could save on the order of \$450 million a year for prostate cancer care alone.

By exposing healthy tissue to lower doses of radiation, the system reduces treatment complications by 40 percent to 65 percent and has a profound impact on the cost for interventions to manage side effects. As a result, patients experience less pain and have faster recoveries.

National distribution of this system will allow achievement of consistent treatment planning across different



The work of Associate Professor Eva Lee has the potential to become standard practice in health care as a less invasive, less costly way to treat cancer.

clinics, thus reducing the variability in the quality of treatment plans. The resulting plans limit urethral dose, decrease operator dependency and reduce the influence of the learning curve associated with prostate brachytherapy. These all have important consequences for the outcome of treated patients.

With support from the National Science Foundation, National Institutes of Health and Whitaker Foundation, Lee has also been working with medical specialists on improving treatments for breast, lung, cervical, brain and liver cancers.

"The cancer instances are really hard to solve, and our team has worked very hard in advancing the algorithmic frontier. Now we can use this in many different applications, and it works very well for improving local tumor control," Lee said. "I feel really good about seeing this applied in the clinic to improve treatment to patients."

Georgia Tech



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Institute Communications and Public Affairs
Wardlaw Center
177 North Avenue
Atlanta, Georgia 30332-0181

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At the nanoscale, water flows like molasses

David Terraso
Institute Communications
and Public Affairs

In its bulk liquid form, water is a disordered medium that flows very readily. When most substances are compressed into a solid, their density increases, but water is different. When water freezes, it becomes less dense. For this reason, scientists reasoned that when water is compressed (as it is in a nanometer-sized channel) it should maintain its liquid properties and shouldn't exhibit properties that are akin to a solid. Several earlier studies came to that very conclusion — that water confined in a nano space behaves just like water does in the macro world. Consequently, a number of scientists considered the case closed.

But when Georgia Tech experimental physicist Elisa Riedo and her team directly measured the force of pure water in a nanometer-sized channel, they found evidence suggesting that water was organized into layers. She conducted these measurements by recording the force placed on a silicon tip of an atomic force microscope as it compressed water. The

water was confined in a nanoscale thin film on top of a solid surface.

"Since water usually has a low viscosity, the force you would expect to feel as you compress it should be very small," said Riedo, an assistant professor in the School of Physics. "But when we did the experiment, we found that when the distance between the tip and the surface is about one nanometer, we feel a repulsive force by the water that is much stronger than we would expect."

As the tip compresses the water even more, the repulsive force oscillates, indicating that the water molecules are forming layers. As the tip continues to increase its pressure on a layer, the layer collapses and the water flows out horizontally.

"In effect, the confined water film behaves effectively like a solid in the vertical direction by forming layers parallel to the confining tip and surface, while maintaining its liquidity in the horizontal direction where it can flow out — resembling some phases of liquid crystals," said Uzi Landman, a Regents' professor in the School of Physics.

Riedo and Landman conducted

their experiments in several different environments. It was found that the layering effect was more pronounced when water was placed on top of hydrophilic surfaces that allow water to wet the solid surface, such as glass. When the water was confined by hydrophobic surfaces, the effect was still present but less pronounced.

At the same time Riedo's team was measuring the vertical force exerted on the tip by the confined water film, they also measured the film viscosity by measuring the lateral force. They found that when water was placed on a hydrophilic surface, the viscosity began to increase dramatically — by a factor of 1,000 to 10,000. Hydrophobic surfaces did not experience such increase in viscosity.

"Water is a wonderful lubricant," said Riedo, "but it flows too easily for many applications. At the one nanometer scale, water is a viscous fluid and could be a much better lubricant."

Riedo and Landman's next steps are to introduce impurities in the water to study how that affects its properties.

NASA hires College for leadership training

Brad Dixon
College of Management

NASA's Johnson Space Center recently selected Georgia Tech's College of Management to provide leadership training for engineers, scientists and technologists who will be instrumental in extending the agency's reach deeper into space.

"We are extremely proud that NASA selected the College to design and deliver customized leadership training that will play a key role in NASA's new Vision for Space Exploration programs," said Dan Stotz, director of executive programs for the College.

NASA officials say they are placing high priority on management and leadership training to prepare the agency for future space exploration. The Johnson Space Center's organizational functions include the Constellation Program Office, which is responsible for the overall development of space vehicles and infrastructure.

Tech's training program for the Johnson Space Center will last a total of 15 days, broken into five three-day modules between June 2007 and November 2008, including courses on leadership, project management, vendor relationships, risk management and systems engineering.

The Georgia Tech Research Institute and the School of Industrial and Systems Engineering will assist the College of Management with the training.

The program's 30 participants — including many former astronauts — will be active in developing NASA's Crew Exploration Vehicle to replace the Space Shuttle, which is scheduled for retirement in 2010. Other major goals of NASA's Constellation Program Office include launching the Crew Exploration Vehicle by 2014, completing the International Space Station and leading human and robotic missions to Mars and other destinations.

"We're very excited about this terrific opportunity to employ Georgia Tech's strengths in management and technology to help NASA fulfill its ambitious mission," says College of Management Dean Steve Salbu. "Our College does an excellent job of customizing leadership development programs for a wide variety of companies and organizations."

For more information...

College of Management
www.mgt.gatech.edu

IN BRIEF:

University System of Georgia seeks senior leadership

University System of Georgia Chancellor Erroll B. Davis Jr. has announced that he is initiating a national search to fill the position of executive vice chancellor and chief academic officer (EVC/CAO). This is a senior leadership position that reports directly to the Chancellor.

Beheruz Sethna, president of the University of West Georgia, has been serving as the interim EVC/CAO since last June. A search committee orchestrating a national search expects to recommend candidates for the position to the chancellor in August.

The EVC/CAO is responsible for meeting the academic needs of more than 260,000 students and approximately 10,000 University System faculty members. For more information, visit www.usg.edu.

Savannah ATDC names director

Georgia Tech's Advanced Technology Development Center (ATDC) has named Jason Burr director of its Savannah office. With nearly a decade of experience as a venture capitalist, Burr brings to Savannah expertise in the areas of strategic planning, governance, market analysis and fundraising.

Burr came to Savannah from Ann Arbor, Mich., where he was a venture capitalist with Arbor Partners, focused on information technology and enterprise software companies. He was also a co-founder and director of the Michigan Venture Capital Association, where he worked closely with the governor and state legislature to craft the Michigan Early Stage Investment Act that created a \$150 million fund to help the state's high-tech start-up companies obtain investment capital.

Housed at the Savannah campus of Georgia Tech, ATDC is charged with increasing the technology business base in the area by helping entrepreneurs launch and build successful companies.

Dressing down

The Office of Human Resources recently issued a statement concerning workplace attire.

Quoting the Human Resources Manual, "It is the policy of Georgia Tech that each employee's dress and grooming be appropriate for our work environment."

The normal dress code is relaxed during the summer to provide a more practical and comfortable clothing standard. This policy is in effect at the beginning of the summer semester and ending after the Labor Day holiday. It is the intent that each employee may choose to wear less formal attire as long as the clothing does not negatively affect the Institute's image.

Supervisors are responsible for determining appropriate dress for each specific work situation or environment. When dealing with customers and the public, attire should be consistent with a positive business image.

In addition, those employees whose jobs require them to wear uniforms and/or whose attire must meet prescribed safety standards are not covered by this policy.

For more information, refer to section 5.8 of the Human Resources Manual at www.admin-fin.gatech.edu/human.

Awards & Honors

The American Society of Mechanical Engineers has named Professor **Jerry Ginsberg** (Mechanical Engineering) as recipient of its 2007 Per Bruel Gold Medal for Noise Control and Acoustics for "significant contributions as a scientist in the areas of sound-structure interactions and vibration of complex systems; and as an educator, for outstanding mentoring and for authoring a series of seminal textbooks on engineering dynamics for both engineering educators and practitioners."

Regents' Professor **C.P. Wong** (Materials Science and Engineering) has been selected for the 2007 Sigma Xi Monie A. Ferst Award, given annually to an educator in engineering or science who has made "notable contributions to the motivation and encouragement of research through education."

Ingrid Hayes, director of undergraduate admission, was recently awarded the President's Award for Excellence for recognition of her outstanding contributions and extraordinary service to SACAC (Southern Association for College and Admission Counseling), a nonprofit, professional association serving secondary schools, colleges and universities in nine states and the Caribbean.

Assistant Professor **Gabriel Loh** (Computer Science) recently received the Faculty Early Career Development (CAREER) Award from the National Science Foundation for his research project titled

"Computer Architecture Foundations for 3-D-Integrated High-Performance Microprocessors."

Associate Professor **Andrei Fedorov** (Mechanical Engineering) was selected for the 2007 Bergles-Rohsenow Young Investigator Award from the Heat Transfer Division of the American Society of Mechanical Engineers.

The Manufacturing Extension Partnership for the U.S. Department of Commerce's National Institute of Standards and Technology has named Georgia Tech Principal Research Associate **Ed Hardison** (Enterprise Innovation Institute) as a "Practitioner of the Year," one of only five to be chosen nationwide in recognition of individuals whose leadership and contributions have made a significant impact on small and medium-sized manufacturers.

The **GTRI Communications Office** and the **Georgia Tech Research News and Publications Office** won a silver medal from the Council for Advancement and Support of Education in the Specific Media Relations category for its entry "Promoting Non-Military Research in a Military-Focused Organization."

Professor **Jye-Chyi (JC) Lu** (Industrial and Systems Engineering) was recently inducted as a Fellow of the American Statistical Association, a recognition that honors outstanding career contributions in the field of statistics.