

Inside:

Microbes research 2
 Best Practices Challenge . 3
 In Brief 3
 Campus Events 4



THE WHISTLE

FACULTY/STAFF NEWSPAPER

Volume 31, Number 38 • November 13, 2006

THE GEORGIA INSTITUTE OF TECHNOLOGY

GT Lorraine elects a new president; plans for growth

A strategic plan to enhance Tech's global perspective

*Michael Hagearty
 Institute Communications
 and Public Affairs*

Yves Berthelot, a professor in the School of Mechanical Engineering who earlier this year was appointed director of Georgia Tech Lorraine (GTL), will assume additional duties as its president.

At its October meeting, the Assemblée Générale (Board of Directors) of Tech's European campus asked Berthelot to chair the board as president, and named School of Electrical and Computer Engineering Chair Gary May as one of its members. Board members represent France's local authorities, such as the city of Metz and the region of Lorraine, as well as Georgia Tech.

Berthelot will fill the vacancy left by the resignation of Jean-Lou Chameau. As director, Berthelot will oversee all administrative, operational and financial responsibilities for all research and academic programs at GTL and coordinate operational relations with local and national institutions in France. He will also play a key role in the strategic development of GTL: implementing a vision for its growth in collaboration with senior administrators and faculty members in Atlanta, GTL faculty and its European partners.

The decision comes at an important time, as GTL begins to take steps toward implementation of its five-year strategic plan, formulated by several working groups over the past nine months.

"GT Lorraine is poised for substantial growth in the next few years," Berthelot said. "Such growth must be thoughtfully planned."

Established in 1990, GTL offers undergraduate and graduate courses taught in English in electrical and computer engineering, mechanical engineering and computer science. In planning for its future, two core values were underscored: the quality of its educational and research scholarship and international collaborations.



Dr. Berthelot will be president and director of Georgia Tech Lorraine, the Institute's first international campus.

An overview of GTL's strategic plan notes that any projected growth must be accompanied by a commitment to excellence and with parallel growth in infrastructure and personnel. With help from, among other sources, Georgia Tech's International Plan, GTL seeks to double enrollment at the European campus by 2011.

To accommodate that growth, though, it will be necessary to improve the laboratory facilities. Citing inadequate lab space in the GTL building, the plan recommends renovating the building infrastructure and acquiring new facilities in advanced materials, secure networks and computer science.

Another way GTL plans to take advantage of its strategic location in northeast France is by seeking greater international collaborations. One important partnership was formed earlier this year with France's Centre National de la Recherche Scientifique (CNRS), creating a joint international research unit (unité mixte internationale — UMI) to focus on telecommunications and innovative materials research. Such agreements are expected to generate additional transatlantic alliances and exchanges of ideas.

"We want to be recognized as one of the very best models for an international presence of a United States University in Europe," Berthelot said.

For more information...
Georgia Tech Lorraine
www.georgiatech-metz.fr

Pandemic flu expert stresses preparedness at campus forum

*Elizabeth Campell
 Institute Communications
 and Public Affairs*

The Georgia Tech Pandemic Influenza Task Force organized a highly informative brown bag lecture about preparations for a possible flu pandemic by the State of Georgia and Georgia Tech. J. Patrick O'Neal, medical director of the Georgia Division of Public Health's Office of Emergency Medical Services, impressed the audience with his thorough knowledge and thoughtful concern about a range of issues related to a possible pandemic outbreak.

A pandemic is different from other emergencies, he explained, because the traditional system of local authorities relying on assistance from larger governmental resources in responding to a local emergency will not apply. During a pandemic, all states and nations will be responding to their own crises and unable to help their neighbors. As Secretary of Health and Human Services Michael Leavitt recently put it, "Any local government that fails to prepare (for an influenza pandemic), expecting the federal or state government to bail them out, will be tragically wrong."

O'Neal provided a brief history of the three pandemics during the past century in 1918, 1957, and 1968. The Spanish Flu Pandemic of 1918 was the most devastating with an estimated 50 million deaths worldwide. He emphasized that H5N1 avian flu virus, which public health officials are currently monitoring, has not yet developed the ability to pass from human to human, and all the cases to date have passed from birds to humans.

O'Neal encouraged the audience to get the seasonal flu vaccine each year which, although it will not protect one from getting the pandemic flu strain, it would reduce the chances of people contracting both the seasonal and the potential pandemic flu strains at the same time. Avoiding this double infection will reduce the chances of the H5N1 virus going through the reassortment process with a seasonal flu virus and combining characteristics, such as easy transmissibility from human to human, with the severe viral strain's characteristics.

Georgia Tech Health Services Director Cindy Smith then provided an overview of the Institute's

Pandemic continued, page 3

Car-sharing plan offers new commuting options

*Michael Hagearty
 Institute Communications
 and Public Affairs*

Employees who use carpooling or alternative transportation to commute to work now have access to a rental car service for off-campus appointments.

Flexcar, a membership based car-sharing program, has begun offering its service in the Atlanta area. This program provides members access to a variety of new, fuel-efficient vehicles located on campus, as well as throughout the Midtown and downtown areas.

The Office of Parking and Transportation has entered into an agreement with Flexcar in an effort to help reduce single occupancy cars on campus, reduce pollution, and reduce demands on parking spaces.

Currently, Georgia Tech has four cars on campus, located in designated spots at Technology Square, the Student Center, the Graduate Student Living Center and the State Street parking deck.

The all-in-one pricing plan includes gas, unlimited mileage, primary insurance, 24-hour assistance, maintenance, cleaning and a parking space for each vehicle.

Tech employees who join the program will also enjoy discounted rates. Those who don't have a Georgia Tech parking permit receive additional benefits, including free rentals and waived fees.

For more information...
Parking and Transportation
www.parking.gatech.edu

QUOTE

UNQUOTE

"While a steadfast CIO might be able to make purchasing decisions entirely on the basis of price, quality and other appropriate criteria, conflicts of interest should be avoided. ...temptation can lead us to make inappropriate decisions; given this fact the most prudent thing is to avoid tempting conflict of interest scenarios in the first place."

—Steven Salbu, dean of the College of Management, on the practice of vendor-sponsored junkets and other largess aimed at influencing corporate purchasing.
(CIO Magazine)

Microbes employ chemicals in competition for food

Research suggests bacteria may be aggressive foragers

Jane Sanders
Research News

A new study suggests microbes may compete with large animal scavengers by producing repugnant chemicals that deter higher species from consuming valuable food resources — such as decaying meat, seeds and fruit.

Ecologists have long recognized microbes as decomposers and pathogens in ecological communities. But their role as classic consumers that produce chemicals to compete with larger animals could be an important and common interaction within many ecosystems — and one that scientists often overlook, according to the authors of a paper published this week in the journal *Ecology*.

"There is the notion that these spoiled resources are not that important," said Mark Hay, a professor in the School of Biology, who led a team of graduate students conducting the research. "But when you total them up, they are appreciable, especially in marine ecosystems."

"Microbes that can hold onto these resources and use them for their own growth would be advantaged over microbes that could not prevent their resource from being consumed by animals," Hay added. "If microbes could produce chemicals that prevented crabs or fishes from using these resources, then those microbes should gain an advantage and become more abundant."

Spoiling it for other animals

As part of an interdisciplinary graduate training program funded by the National Science Foundation, Hay, two of his faculty colleagues and four doctoral students tested this notion with a field and lab study they began at the Skidaway Institute of Oceanography near Savannah in 2002. They were prompted by an assertion made in a paper published in 1977 by ecologist Dan Janzen, who suggested that microbes are rotting fruits, molding seeds and spoiling meat to make these resources repugnant to other animals, allowing microbes to consume them instead.

To test whether aged meat attracts fewer consumers than fresher meat, researchers baited crab traps with menhaden — a fish typically used for bait — that had been rotting in a pool of warm water — some of it for one day and the rest for two days. They also baited other traps with freshly thawed menhaden, which contained relatively few microbes.

Many more animals were attracted to the freshly thawed bait than the rotten fish. "So we assumed that had to do with palatability," Hay said. "It could have been that the predators didn't smell the rotten fish, but that's not consistent with what we know about carrion on the roadway. It



Researchers Deron Burkepile and Brock Woodson were among a team of ecologists who tested whether aged meat attracts fewer consumers than fresher meat. They baited crab traps with menhaden and set them in the marshes near Skidaway Island, Ga.

could have been that the predators smelled it, but didn't want it."

Researchers assessed their questions about feeding by conducting laboratory experiments. To eliminate food avoidance because of texture, they fed stone crabs, lesser blue crabs and striped hermit crabs test foods made from pureed forms of either the freshly thawed menhaden or the rotten bait. Researchers found that, no matter the rotten bait's texture, stone crabs avoided eating the rotted, microbe-laden food, but readily consumed the freshly thawed menhaden containing few microbes.

"Even when the stone crabs were handed the rotten fish, they didn't want to eat it," Hay said.

"They are not passively waiting on the bottom of the marsh floor for ... wastes that are not useful to anybody else."

Next, researchers tested whether microbes directly affected the palatability of microbe-laden, rotting food. They placed menhaden in two different pools for two days — one group in seawater where microbes were allowed to grow naturally and the other in seawater with an antibiotic added to suppress microbe growth. In the lab, stone crabs readily ate both freshly thawed menhaden and fish that had soaked in water with antibiotics, but refused to eat the rotten fish not protected from microbial attack.

To determine if reducing bacterial growth affected an animal's ability to find the bait, researchers repeated the trapping experiment, but used newly thawed fish, fish soaked in antibiotic treated water and fish aged

without antibiotics. They found that both freshly thawed bait and aged, antibiotic-treated bait attracted animals more frequently than traps containing aged, microbe-laden menhaden.

Chemical warfare

Then researchers extracted various compounds from the microbe-laden bait to test whether chemicals produced by the microbes were indeed responsible for these feeding and attraction behaviors.

They found that chemical extracts composed of numerous compounds suppressed stone crab feeding when added to otherwise palatable fish flesh. But of the several specific compounds they isolated and identified, none by themselves had this effect, Hay noted. So the researchers could not pinpoint a single compound causing the behaviors.

"But we can say the effect is chemical because we got rid of the nutrient and texture aspects of the bait and determined that it's something in this fraction of the bait's chemistry," Hay said. "It's either a complex mix of chemicals or perhaps something we destroyed during our lab test processes or maybe a chemical present in a very small amount that we failed to identify. There's uncertainty about this."

What's certain is that microbes are an omnipresent part of the ecosystem, Hay said. "They are not passively waiting on the bottom of the marsh floor for the rest of the community to deliver feces and other wastes that are not useful to anybody else," he added. "They are also trying to grab what they can at the start."

Hay hopes the research will make ecologists think more critically about the broad role of microbes in the ecosystem. Microbes are often omitted or relegated to a minor role in food web diagrams, but they should be depicted as direct competitors with larger animals, he said.

Georgia Tech



THE WHISTLE

Editor: Michael Hagearty

Photos by Rob Felt, unless noted

Published by Institute Communications and Public Affairs.

Publication is weekly throughout the academic year and biweekly throughout the summer.

Archived issues of *The Whistle* can be accessed electronically through the Georgia Tech Web page, or directly at www.whistle.gatech.edu.

Calendar submissions e-mailed to editor@icpa.gatech.edu, or faxed to 404-894-7214 must be sent at least 10 days prior to desired publication date. Classified submissions are on a first come, first serve basis. For more information, call 404-894-8324.

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

Georgia Tech is a unit of the University System of Georgia.

Georgia Tech's Best Practices Challenge begins

This week marks the start of the annual Georgia Tech Best Practices Challenge, an initiative intended to acknowledge the creative and innovative ways departments are improving processes, using information technology and motivating people.

"Our Best Practices Challenge is now in its third year and, with the elimination of the Board of Regents (BOR) best practices competition, it has become even more important," said Hal Irvin, executive director of Organizational Development. "Everyone benefits when departments share proven administrative solutions with their colleagues who can learn from and apply new ideas."

The Institute encourages all faculty and staff to share the knowledge of success by participating in the Challenge. The program continues to be a forum for the Tech community to create, share

and adopt best practices related to the following categories:

- **People Strategies:** hiring, development, retention and motivation of people including faculty, administrative, research and student employees
- **Research, Finance and Institute Operations:** daily management of research development, academics, facilities and administrative responsibilities
- **Academic and Student Services:** experience of and services provided to undergraduate, graduate, distance, study abroad and professional education students
- **Information Technology:** innovative, enabling applications of technology at the Institute

Entries will be accepted until Dec. 18. Complete details regarding the Challenge criteria, entry forms and awards may be found at www.orgdev.gatech.edu/bp.

Pandemic, cont'd from page 1

preparations, challenges and responsibilities during a possible pandemic. Noting the international nature of its student body and faculty members who frequently travel overseas, she said that Tech was at an increased risk for avian flu, and counseled anyone traveling overseas to check travel recommendations for countries they are visiting.

Tech most likely would participate with health departments to distribute vaccine and in surveillance activities of the outbreak. Also, Georgia Tech has to consider what to do about students who cannot go home during a pandemic and how to provide on going healthcare needs. In preparation for a pandemic, Smith encouraged everyone to get the seasonal vaccine, practice good hygiene, stay home if ill and to stay informed.

"If Katrina taught us nothing else, we must plan for the worst, and hope for the best," said O'Neal. He encouraged everyone to prepare for a possible outbreak in case officials recommend that the public stay home to slow the spread of the disease, and named Web sites such as Ready America, which provides a checklist and other information to prepare for an emergency.

For more information...

U.S. Health and Human Services informational guide

www.pandemicflu.gov/plan

Ready America

www.ready.gov

Awards & Honors

Assistant Professor **Mitchell Walker** (Aerospace Engineering) has received a grant through the Air Force's Young Investigator Research Program. With the grant, funded by the Air Force Office of Scientific Research, Walker will focus on annular helicon plasma sources for high thrust-to-power Hall thrusters.

For its 2007 Defense Technology marketing campaign, Georgia Tech Distance Learning and Professional Education (DLPE) has been awarded first place by The Learning Resources Network. The campaign was led by **Jennifer Wooley**, account manager, and the creative team of **Shamika Hill** and **Wendy Cromwell**.

Professor **Said Abdel-Khalik** (Mechanical Engineering) will receive the 2006 Outstanding Achievement Award of the American Nuclear Society's Fusion Energy Division, in recognition of "a continued history of exemplary individual achievement requiring professional excellence and leadership of a high caliber in the fusion science and engineering area."

Professor **Catherine Ross** (Architecture) has been named a 2006 fellow by the National Academy of Public Administration.

For his paper "A Theory of Enterprise Transformation," Professor **William Rouse** (Industrial and Systems Engineering) received the Outstanding Journal Paper Award from the International Council of Systems Engineers.

With its annual Golden Torch Academic Awards, the National Society of Black Engineers (NSBE) has recognized OMED Educational Services Director **S. Gordon Moore** as Minority Engineering Program Director of the Year.

Georgia Tech Lorraine Assistant Professor **Nico Declercq** (Mechanical Engineering) received the International Dennis Gabor Award from the NOVOPER Foundation for Technical and Intellectual Creation, honoring young researchers who have made a significant contribution to science.

IN BRIEF:

Open enrollment begins

Between now and Dec. 1, Georgia Tech employees can amend their health care plans for the upcoming year. To make changes, log in to www.techworks.gatech.edu. The site will have information regarding significant changes for 2007, as well insurance rates and comparison charts.

Tennenbaum Institute names director of executive programs

Georgia Tech has announced that William C. (Bill) Kessler has been selected as director of executive programs for the Tennenbaum Institute and professor in the School of Industrial and Systems Engineering.

The director of executive programs for the Tennenbaum Institute serves as the primary interface between the Institute and its external corporate and academic audiences. Kessler's responsibilities will include planning, designing, developing, delivering and managing a portfolio of programs tailored to the needs of senior executives in industry and government. He will also play a leadership role in the Institute's initiatives in the aerospace and defense industry.

"Bill Kessler, in his work with Lockheed Martin, has experienced leading a large-scale transformation first hand. His knowledge base and ability to effectively communicate lessons learned bring a unique capability to the Tennenbaum Institute," said Bill Rouse, executive director of the Tennenbaum Institute. "We are fortunate to have Bill join our team."

Prior to joining the Tennenbaum Institute, Kessler was Lockheed Martin Aeronautics vice president for enterprise initiatives. He holds degrees in aeronautical and engineering sciences from Purdue University and a doctorate in chemical engineering from Washington University in St. Louis.

Aquarium evaluated for accessibility

The Southeast Disability and Business Technical Assistance Center (DBTAC), a project within the Center for Assistive Technology & Environmental Access (CATEA), recently completed an accessibility study of the Georgia Aquarium. The study offered a way for the Aquarium to enhance their efforts by obtaining information on how individuals with disabilities interact with the exhibits and how they feel about the experience.

"People with disabilities want to participate in the same community activities available to their non-disabled counterparts," said Shelley Kaplan, director of the Southeast DBTAC project. "However, due to various physical, programmatic and attitudinal barriers, their experiences are not always as meaningful. Many of these barriers persist because we don't actively engage people with disabilities in developing solutions. This was a unique opportunity to take a first-hand look at how well existing access features enhanced the Aquarium experience."

The study team made suggestions related to features and characteristics such as path lighting or bottlenecks, display height, depth or distance, and interpretation placement, readability, or sufficiency. "The most significant recommendation was to analyze and test key characteristics of current and potential exhibits, before costly or significant changes are implemented," Kaplan said.