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THE WHISTLE

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Improving communication links among nation's first responders addressed at two-day forum

Sean Selman
Institute Communications and Public Affairs

Experts from federal, state and local governments as well as the private sector gathered at a forum sponsored by Georgia Tech two weeks ago to examine communication and technology problems facing the nation's homeland security officials.

The Georgia Information Sharing and Integration Forum was sponsored by the Center for Emergency Response Technology, Instruction and Policy (CERTIP) in collaboration with the White House Office of Homeland Security. The forum was the first of four scheduled throughout the country at which White House officials hope to examine best practices for information integration and sharing developed by first-response agencies, private industry sources and state and local governments.

"Information security and the sharing of information among first-response agencies will be crucial for our nation's homeland defense efforts," President Wayne Clough said during opening remarks. "Georgia Tech is prepared to make a major contribution in this area of research."

Beyond the expertise available through the College of Engineering, Clough said, the Institute stands ready and able to assist in a variety of areas critical to the nation's security needs — especially in the fields of biology, chemistry, computing, information technology and logistics.

"We believe Georgia Tech possesses the capabilities to assist with all of these issues," he said. Clough stressed the importance of strengthening ties and communication efforts among local first-response agencies and their state and federal counterparts.

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Impact of soot on global warming assessed in report

The 'low-hanging fruit' in improving climate conditions

John Toon
Research News

A new study on the role that atmospheric soot particles may play in global warming suggests a new near-term control strategy, introduces a new element of uncertainty in climate models and shifts more responsibility for curbing pollution to developing nations such as China and India.

Published in the September 27 issue of the journal Science, the report — by researchers from NASA's Goddard Institute for Space Studies — suggests that by absorbing sunlight and altering weather patterns, light absorbing carbon-based particles could have nearly as much impact on global warming as carbon dioxide, a greenhouse gas that has long been considered the primary culprit in global warming. The soot particles are produced by diesel engines, cooking fires and other sources.

In a perspectives article published with the NASA Goddard paper, atmospheric researchers at Georgia Tech describe some of the policy implications of the new findings. Among them:

- Because black carbon particles have relatively short atmospheric lifetimes, successful control efforts could curb their effects in a matter of months or years.
- Soot emissions come primarily from developing nations such as India and China. If these emissions do play a large role in global warming, it could shift pressure for environmental control to those nations. Industrialized nations in North America and Europe are responsible for the bulk of carbon dioxide emissions.
- Efforts to control soot may also bring immediate improvements in human health.

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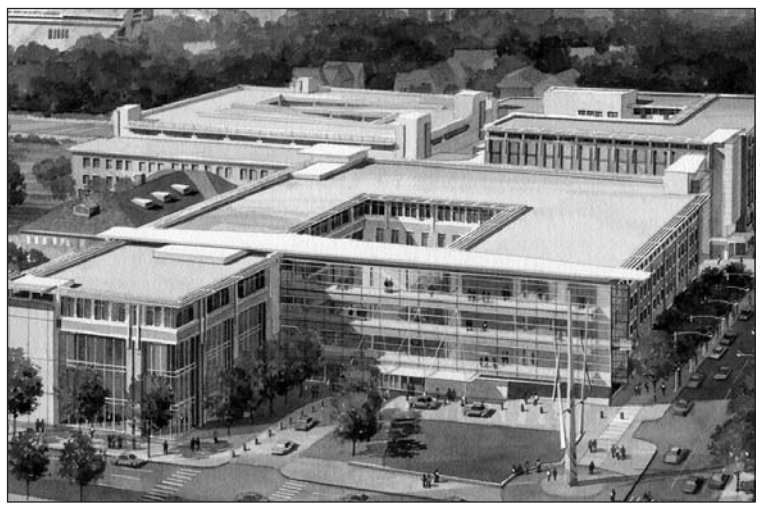
Tech Square takes shape



courtesy Thompson, Ventulett, Stainback & Associates

Just beyond the midway point for construction, the $179 million Technology Square project (above, left) is bearing a greater resemblance to the architect's vision: a mixed use development consisting of 1.1 million square feet of academic, research and commercial space that reconnects Georgia Tech with its Midtown neighbors to the east. According to Bill Miller, the project manager in Facilities, "The construction focus from now until Christmas will be on completing the skin of the buildings and drying in all spaces so that interior finishing can progress during the colder months."

"We are very pleased with the quality of the work and progress of the project thus far," he added, "and are looking forward to full occupancy for the fall semester next year."

"QUOTE— UNQUOTE"

"When I think about Paul now in light of the information I recovered, I always think about two lines from one of his poems. I won't be able to give you the title. But it ends, 'I know the world holds joy and glee, but not for me, 'tis not for me.' He was a very complicated and very troubled young man. But his work still speaks for itself."
—Eleanor Alexander, an assistant professor in the School of History, Technology and Society, on her book "Lyrics of Sunshine and Shadow: The Tragic Courtship and Marriage of Paul Laurence Dunbar and Alice Ruth Moore."
(National Public Radio)

"To win over the idealists, it has to be made clear that Iraq is going to be handled in a way that sets a precedent for all 'evil' leaders on the globe."
—Adrian Taylor, a visiting scholar in the School of International Affairs, on how the United States government must present its case for war to the international community.
(Financial Times of London)

Contraception, reproduction and a little white bombshell

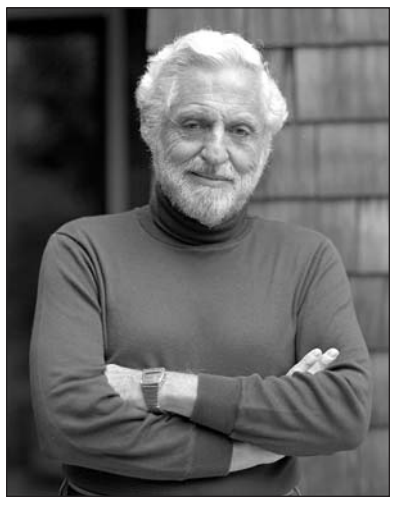
At 50, 'the pill' is still fertile ground for debate

Sean Selman
Institute Communications and Public Affairs

On Wednesday, Oct. 30, Carl Djerassi, often dubbed the father of "the pill," will present the 2002 Karlovitz Lecture at 3 p.m. in the Student Center Ballroom. Admission is free and the event is open to the public.

Djerassi, who led the team of research chemists that first synthesized a steroid oral contraceptive in October 1951, will discuss "Sex in the Age of Mechanical Reproduction." Copies of several books written by Djerassi will be available to Tech students, and he will autograph books before and after his lecture.

Today Djerassi is a professor emeritus of chemistry at Stanford University. He is one of the few American scientists to have been awarded both the National Medal of Science — for the first synthesis of a steroid oral contraceptive — and the National Medal of Technology, for promoting new approaches to insect control. Djerassi also was named by Time Magazine as one of the 30 most eminent people of the millennium.



This past year Djerassi released a new book, "This Man's Pill." In it, he weaves a narrative that illuminates the impact his invention has had on the world at large — and on him as well. The book presents a forcefully revisionist account of the early history of the pill, debunking many of the journalistic and romantic accounts of its scientific origin.

Djerassi does not shrink from exploring why we have no pill for men or why Japan only approved it in 1999. Emphasizing that development of the pill occurred during the post-World War II period of technological euphoria, he believes that its creation could not be repeated in today's cultural climate.

A member of the National Academy of Sciences (NAS) and the American Academy of Arts and Sciences, Djerassi has received 19 honorary doctorates and many other honors, such as the first Wolf Prize in Chemistry, the first Award for the Industrial Application of Science from the NAS, and the American Chemical Society's highest award — the Priestley Medal.

For the past decade, Djerassi has turned to fiction writing, mostly in the genre of "science-in-fiction," whereby he illustrates, in the guise of realistic fiction, the human side of scientists and the personal conflicts faced by scientists in their quest for scientific knowledge, personal recognition and financial reward.

In addition to his five novels, he has written several short stories, an autobiography and a memoir. He also has recently embarked on a trilogy of "science-in-theater" plays.

The 2002 Karlovitz Lecture is part of the Karlovitz Science Seminars, sponsored by the College of Sciences. It is named in honor of Les Karlovitz, the former director of the School of Mathematics who was dean of the College of Science and Liberal Studies beginning in 1983. Karlovitz left Georgia Tech in 1989 and died in 1990. His widow, Julie Karlovitz, established the seminars in his memory.

Security, cont'd from page 1

"The way we obtain and use information is key to maintaining a secure society," he said, "and our nation's homeland security really depends on hometown security."

Steve Cooper, special assistant to President George W. Bush and senior director for information integration at the White House, discussed challenges faced by the Office of Homeland Security. He said information sharing would be a cornerstone of the proposed Department of Homeland Security.

"I have learned that there are folks that are doing absolutely fantastic stuff within their communities of practice," Cooper said. "The rub is that (their work) is not connected to anything else."

In order to make homeland security work, officials must make connections among various communities and spread the word on best practices, he said. This includes ways in which first responders might communicate during a crisis, for example, or new ways law enforcement officials might share information from national "watch lists" to apprehend wanted individuals.

"I would argue that we have the talent to address and detect terrorism. We just have to hook ourselves together," Cooper said. One way to do this, he said, might be to create or organize a central clearinghouse of information that could act like a central brain or nervous system, allowing the nation to respond to threats.

"It (would not be) meant to be a controlling brain. Everything does not need to be directed by the federal government," Cooper said. "What we do need to have is a brain that understands everything that is going on so that we have the ability to connect and be aware of what's going on around us."

Cooper said federal officials realize that many needs and questions remain to be addressed in the creation of a Department of Homeland Security. Among them is striking the appropriate balance between privacy and security for citizens; aligning policies and laws with desired security outcomes; identifying and consolidating redundant and duplicative efforts at the federal level; and the introduction of new technology that will enhance information sharing.

During the two-day forum in Atlanta, organizers held panel discussions featuring members of the region's first-response community. They sought to identify what's needed and what's available to first responders in the way of information technology networks that might help prevent future terrorist attacks or minimize loss of life and property in the event of an attack or other disaster.

Forum participants examined lessons learned and best practices developed during previous emergency response situations and reviewed a plan for creating prototype emergency-response systems on a regional basis.

"Panel moderators facilitated discussions among all participants to the end of identifying reusable initiatives and solutions that can be incorporated into a regional emergency-response model," CERTIP Director Tom Bevan said. "In addition to the panel presentations, representatives from the Dallas Emergency Response Network described their network's operation for possible application to a Georgia regional pilot project."

Attendees of the forum primarily were officials from CERTIP's partners in the Southeast who specialize in information technology issues. These specialists represent agencies such as the Federal Bureau of Investigation, the U.S. Marine Corps Systems Command, the U.S. Centers for Disease Control and Prevention and Hartsfield Atlanta International Airport.

CERTIP was founded in 1999 to examine and apply emerging technologies that might counter the threat of chemical and biological warfare agents and aid the nation's first-response community in its efforts to protect lives and property. The Center's partners include more than 35 regional and national government and private organizations.

For more information...

Center for Emergency Response Technology, Instruction and Policy
www.certip.org

U.S. Department of Homeland Security proposal
www.whitehouse.gov/deptofhomeland

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Carl Verber, pioneer of optics and photonics, dies at 67

Jackie Nemeth
Electrical and Computer Engineering

Throughout his career, Carl M. Verber, professor emeritus in the School of Electrical and Computer Engineering (ECE), served as one of the giants in the field of optics and photonics. Earlier this month, this field lost one of its great minds, when Verber died of heart failure at the age of 67.

Before coming to Tech, Verber was a physicist at Battelle Columbus Laboratory in Columbus, Ohio, from 1961-72 and was then named a senior research leader for the organization. According to his longtime colleague, ECE Professor Emeritus Richard Kenan, Verber was the first person to achieve the rank of senior research leader, the highest research position attainable at Battelle.

"Carl was an exceptionally generous, patient and considerate colleague, and his mind was finely attuned to what was important and was doable," Kenan said. "He would often come into my office with a problem that he thought we could solve and begin to discuss possibilities. Eventually, he would solve the problem, and we would have a new idea or device for which he always shared credit."

In 1986, Verber joined ECE, and a year later was named the Byers Eminent Scholar Professor, a title he held until his retirement in 2000. During his tenure, Verber led the development of the Ultrafast Optical Communications Laboratory, an idea that began as a sketch on a napkin during lunch, said John Buck, an associate professor in ECE's optics and photonics area. "This lab started with a simple idea," Buck said. "He made this idea the focus of a project that involved a consortium of companies, many graduate students and which progressed successfully for many years."

In collaboration with John Uyemura, professor in ECE, Verber developed the Fiber Optics Instructional Laboratory from scratch. "Carl was very dedicated to getting state-of-the-art equipment for the students to use in the laboratory," Uyemura said. "The lab is still evolving, but the instructors continue to incorporate his notes."

Verber is survived by his wife, Nancy, of Atlanta; his daughter, Marilyn, of Columbus, Ohio; his son, Mark, of Mountain View, Calif.; his sister, Carolyn Falk, of Morristown, N.J.; and three grandchildren.

Soot, cont'd from page 1

• Significant new research will be needed before the role of black carbon emissions can be reliably assessed.

"The study reported this week in Science really raises some important policy issues regarding soot," said Michael Bergin, an assistant professor in the School of Earth and Atmospheric Sciences and co-author of the perspectives article. "It appears now that soot could have important climactic effects, and that these effects may be almost as much as those of carbon dioxide."

In their perspectives article, Bergin and Professor William Chameides, also in the School of Earth and Atmospheric Sciences, point out the differences between black carbon soot and greenhouse gases such as carbon dioxide and methane. For instance, soot particles are removed from the atmosphere on time scales of weeks to months, while carbon dioxide lingers for hundreds of years. That could point toward a better near-term control strategy.

"This could be 'low-hanging fruit' in trying to deal with the (human-caused) effects on the climate," Bergin noted. "From a policy standpoint, the payoff for controlling soot could be on the scale of years rather than centuries."

Formed by the incomplete combustion from diesel engines, cooking fires and coal burning, black carbon can take different forms, and creates its warming effect through an entirely different mechanism than greenhouse gases, which act as an insulating blanket to keep heat within the earth's atmosphere. Black carbon absorbs light from the sun, converting that to heat. The effect varies, depending upon what is beneath the carbon particles.

A typical hazy day near Lin An, China. Black carbon emanates from a small brick factory.

"There are a lot of possible atmospheric effects from soot," Bergin said. "We really don't yet understand all the feedback cycles involved."

A key uncertainty is the amount of soot going into the atmosphere. Localized studies in China and India, where crop wastes are burned for heating and cooking, show very high levels. In developed nations, elevated soot levels are found in urban areas — which have often been excluded from climate studies to avoid confusing global climate change with the local "urban heat island" effect.

Controlling soot emissions would include developing more efficient combustion techniques, both for biomass burning and diesel engines, Bergin added.

The Science report calls into question the accuracy of global climate change models, which have not considered the effects of black carbon.

Controlling soot could have an impact broader than global climate change. The tiny particles that appear to be most active in absorbing radiation are of the size implicated in causing human health effects because they can lodge deeply in the lungs.

"These health impacts could make it politically much easier for policy makers to enact the kinds of controls needed," said Bergin. "The control strategy could provide a double whammy by increasing the health of both human beings and the environment."

IN BRIEF:

New grant to focus on sexual assault

Tech is stepping up its violence prevention program thanks to a new $200,000 grant from the U.S. Department of Justice's Violence Against Women office. The two-year grant, awarded to Student Health Services (SHS), aims to reduce violent crime affecting Georgia Tech students by establishing a range of violence prevention and education programs. Heather Surrency, the project's director, said, "This grant will give Georgia Tech the resources we need to continue our proactive approach in helping students who have become victims of violent crime and preventing these acts before they occur."

The grant will fund two new staff positions, a program coordinator and a victim advocate, to be hired this fall. Surrency said the Women's Resource Center (WRC), the Department of Housing, the Police Department, Student Affairs and the Athletic Association helped SHS secure the grant. Tech students, faculty and staff can participate in the new program by contacting Surrency at SHS or Yvette Upton at the WRC.

Open call for faculty honor awards

The Faculty Honors Committee is asking for nominations of faculty members as candidates for recognition in six categories: Class of 1934 Distinguished Professor Award; Class of 1940 W. Roane Beard Outstanding Teacher Award and Class of 1940 W. Howard Ector Outstanding Teacher Award; Outstanding Service Award; Outstanding Continuing Education Award; Class of 1934 Outstanding Interdisciplinary Activities Award; and Class of 1934 Outstanding Innovative Use of Education Technology.

Members of the 2002-2003 Faculty Honors Committee are Literature, Communication and Culture Associate Professor Carol Colatrella, DuPree College of Management Associate Professors Kirsten Ely and Narayanan Jayaraman, College of Architecture Assistant Professor Linda Thomas-Mobley and a student representative. Committee Chair and ECE Professor Paul Steffes has further indicated that re-nominations will be accepted, with the submission of previously submitted and updated materials. Full details of the awards and their requirements are available at www.faculty-honors.gatech.edu. Nominations should be sent to Steffes by Jan. 31, 2003.

Two professors elected to European Academy of Sciences

Two Georgia Tech engineers have been elected as members to the European Academy of Sciences, an honor considered by many to be among the highest accorded to a scientist or engineer.

Elected were Zhong Lin Wang, director of the Center for Nanoscience and Nanotechnology and professor in the School of Materials Science and Engineering (MSE); and Joe K. Cochran, Hood professor and associate chair of MSE.

Both were selected for outstanding and lasting contributions to materials science — specifically Wang's developments in the field of nanocomposite technologies and Cochran's work in the field of ceramic processing.

The European Academy of Sciences promotes science and technology on the European and international level, facilitating international scientific cooperation. An independent organization, the Academy has 520 members elected in recognition of their distinction as scientists. New members are elected annually.