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The WHISTLE

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New SAC will be among the nation's finest fitness facilities

Dan Treadaway
Institute Communications and Public Affairs

When it's completed in the summer of 2004, the new Student Athletic Complex (SAC II) will be nearly double in size compared to the existing SAC, providing faculty, staff and students with perhaps the most modern, state-of-the-art fitness complex in the country.

Plans for SAC II kicked into high gear earlier this semester when Tech sent out RFPs (requests for proposals) to four pre-qualified design-build firms. According to Vice President for Student Affairs Lee Wilcox, those proposals are due back Nov. 7, and a contractor will be selected for the \$45 million SAC II project in December. The project will be funded through a combination of five components: a \$54 per semester student recreation fee initiated this fall, an \$18 per month faculty/staff SAC access fee initiated this fall, a \$5 million contribution from the Georgia Tech Athletic Association (which will use the facilities for practice and competition), user fees from a new parking deck, and a private fundraising program that seeks to raise \$7 million.

What's included in SAC II?

Construction for SAC II is scheduled to begin next summer and last about three years, Wilcox said. Current plans call for not only enclosing the existing Aquatic Center, but also demolishing the existing SAC facility and replacing it with a new structure that,



along with the Aquatic Center, will form a more unified structure. "This will be a very visually coherent facility," Wilcox said.

In addition to enclosing the existing Aquatic Center, plans for SAC II include:

- A new 64,000-square-foot floor to be built above the Aquatic Center pool that will include six basketball courts as well as courts for badminton and inline skating.

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Regional engineering initiative expands; plans to have permanent home by 2004

Michael Hagearty
Institute Communications and Public Affairs

Citing unexpected growth and limited space, the Board of Regents took action on behalf of the Georgia Tech Regional Engineering Program at their October meeting that will accommodate future expansion and further establish Georgia Tech as a leader in the technological development of south Georgia.

A new rental agreement, approved at that meeting, will temporarily move GTREP from its current home in the Coastal Georgia Center in Savannah to a larger, 6,200-square foot facility in another area office park.

William Chatham, the Board of Regents' vice chancellor for facilities, said "GTREP is a robust program and the planning assumptions behind it have been validated by the success it has experienced. The students are there, the demand is there and the success of the program has outgrown its current home."

Beginning with only 60 students in its inaugural class, the program has seen its ranks swell to 210 in fewer than 14 months. GTREP, facing a growing demand from both students and private enterprise, needed a new home in order to keep up.

"When the program was first started we thought it would be several years before we needed to expand," said GTREP director David Frost. "But it was evident within the first nine months that we were growing rapidly. We expect that by 2019, we will have 2,500 undergraduate students and 300 graduate students in the program."

Continued growth is incorporated into the Regents' long-range plans — a permanent, \$5 million facility in Savannah's new

office complex, known as the Technology Campus at Crossroads, by 2004. Budgeting for the project is under consideration for the state's 2001 supplemental budget, with the Savannah Economic Development Authority already having donated the land and pledged \$2.5 million in infrastructure development.

Said Jean-Lou Chameau, dean of the College of Engineering, "This building and Technology Campus will further support the development and growth of GTREP, which have been spectacular to date."

When completed, GTREP will share the space with the state's Yamacraw initiative as well as Georgia Southern's new School of Information Technology, part of an overall plan by the University System of Georgia to increase the number of high-tech college graduates. GTREP also plans to expand academically — adding master's degree programs in civil engineering and computer engineering to the undergraduate degrees currently being offered.

The Technology Campus will cover 170 acres in the Crossroads Business Center. When completed, it will be a multi-building complex that incorporates the educational facilities with incubator spaces and office space for private sector technology companies. According to the Savannah Economic Development Authority, such a facility is expected to bring 3,000 new high-tech jobs and \$150 million in investments to the area.

Frost sees an inextricable link. "[GTREP] is much more than just an academic initiative ... it is going to be training and providing the intellectual capital that attracts business to the area. I always talk about it as being an economic development and academic initiative. The two go hand-in-hand, down to the physical

GTREP continued, page 2

On-campus disaster exercise to test emerging biohazard technology

Sean Selman
Institute Communications and Public Affairs

An exercise intended to test technologies and procedures that one day might help the U.S. Marine Corps and local emergency response teams work together during a chemical or biological disaster will be held on the Georgia Tech campus Nov. 16.

Participants will use devices such as The RADAR Flashlight and the ChemBio Decision Aid to respond to a fictional chemical release in the Baker Building. The event is part of Project Atlanta, a partnership between the Georgia Tech Research Institute (GTRI) and the U.S. Marine Corps Warfighting Lab based in Quantico, Va., designed to help officials develop command and control procedures that would be in place should there ever be a chemical or biological disaster. About 20 members of the Marine Corps' Chemical-Biological Incident Response Force will participate in the exercise in cooperation with members of the Atlanta Fire Department and the Georgia Mutual Aid Group.

"Our goal is to experiment with technologies that help first responders cope with releases of chemical and biological agents and hazardous industrial chemicals, whether deliberate or accidental," said Dr. Tom Bevan, director of GTRI's Center for Emergency Response Technology, Instruction and Policy.

"The most important thing to note is that there won't be any chemical agents released during this exercise. This will be an advanced technology experiment in which organizers will simulate an accidental spill of a chemical agent. Any emergency response or military personnel you might see on campus Nov. 16 will be participants in a mock exercise."

Tim Jones, public affairs officer for the Marine Corps Warfighting Laboratory, said the actual risk of a chemical or biological event in any particular city is low.

"The potential effect of such an event, however, makes it necessary for federal, state and local governments to prepare for it," he said. "Although Project Atlanta technologies are being developed to deal with chemical-biological incidents, they have civilian applications as well. Two examples are chemical truck accidents and industrial chemical accidents."

Among the technology scheduled for testing during the exercise are:

- The ChemBio Decision Aid, a chemical-biological device similar to an electronic checklist for emergency responders. Emergency personnel might carry the hand-held device onto the scene of a chemical release. A small screen provides a series of questions that help responders identify medical symptoms and appropriate triage.
- The RADAR Flashlight, a device that can detect if people are alive within a room by sensing gross movement, heart rate or respiration through walls, doors or debris. It could be used at an accident site to locate victims inside a building.
- The Medical ReachBack System, a network of portable computers that transmit information to a server at a remote command post. It is used to send data back and forth on a chemical release situation and potential victims. Emergency personnel and command officials might use this system to transmit vital information on chemical agents, plan an emergency response or to retrieve and send medical information to and from remote locations.
- Optoelectronic Chemical/Biological Sensors, technology that can detect and identify chemical and biological agents at the scene of an accident.

These are being developed in the laboratory to provide affordable sensors to first responders.

These devices represent a mixture of new technology and existing systems.

"For example, the ReachBack system is commercial, off-the-shelf technology," Bevan said. "It's a matter of taking things and putting them together to use for a specific task."

Bevan said optoelectronic sensing technology is not as mature as existing ReachBack technology, but it offers the promise of being relatively inexpensive because it uses microelectronic manufacturing techniques.

"Existing equipment used to detect chemical and biological agents is too expensive and unreliable for most emergency response agencies to use," he said.



These procedures are part of the state's emergency preparedness plan.



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Please Give Blood!

Looking to staunch what the American Red Cross has called, "one of the worst blood shortages in recorded history," Georgia Tech's Fall Blood Drive will be held November 7-9 from 10 a.m. - 4 p.m. in the Student Center Ballroom. Please give blood to help your neighbors and to keep Georgia Tech the top donating college in Georgia.

This blood drive is sponsored by the American Red Cross, FIJI, and the Student Center MOVE Office. For more information, please contact move@programs.stucen.gatech.edu or call 894-2002.



GTREP, continued from page 1

facilities on the Technology Campus, where we'll be co-locating with industry."

Initially designed to meet private enterprise's growing need for qualified engineers, GTREP's overarching goal is to expand learning opportunities in engineering throughout the state. Introduced into Savannah and Statesboro last fall, the program, led by Tech, is a cooperative effort, utilizing the educational resources of Armstrong Atlantic State University, Georgia Southern University and Savannah State University.

Tech faculty residing in Southeast Georgia teach junior- and senior-level courses, and are supplemented by Tech faculty in Atlanta through distance learning. Thus, graduates of the program are eligible to receive a Georgia Tech undergraduate degree in either computer engineering or civil engineering while matriculating in southeast Georgia for the duration of their degree program.

"At a time when our technological society demands more and more talented engineers," Chameau added, "GTREP and its partner institutions enable Georgia Tech to provide more opportunities for young people to study engineering."

Nanoscale research: redefining 'small'

New center and conference promote collaboration and regional leadership

Richard Hermes
Institute Communications and Public Affairs

Notions of nanotechnology — including ultra-tiny machines that would float through the bloodstream and cure disease, or self-replicating structures that could clean a polluted lake molecule by molecule — have long remained in the realm of fiction. Now, however, countries all around the world are ramping up their investment in research on the nanometer-length scale. A nanometer is one billionth of a meter, or one hundred-thousandth the width of a human hair.

For many years, numerous Georgia Tech researchers have conducted their own nanoscience and nanotechnology work in a wide range of disciplines, including the physical sciences, computing and more than a half-dozen areas of engineering. In September, a new Center for Nanoscience and Nanotechnology was formed to pull this multidisciplinary research and its 50 faculty members together.

The premise of nanoscale science and technology is simple: If we can learn how to control matter on the nanoscale, at the level of atoms and molecules, then we can create new materials, devices and systems that could have a profound impact on almost every aspect of our lives. For instance, it has been demonstrated that carbon nanotubes are ten times stronger than steel and one-sixth of the weight, and that nanoparticles can target and kill cancer cells. Nanoscale systems have the potential to make supersonic transport cost-effective and to increase computer efficiency exponentially. In 1998, Dr. Neal Lane, advisor to the President for Science and Technology and former National Science

Foundation (NSF) director, said, "If I were asked for an area of science and engineering that will most likely produce the breakthroughs of tomorrow, I would point to nanoscale science and engineering."

Recognizing this potential, the federal government's National Nanotechnology Initiative — Leading to a New Industrial Revolution, increases the federal government's annual investment in nanoscience, engineering and technology research and development from approximately \$255 million in fiscal year 1999 to \$457 million in year 2001.

The new center will bring coherence to Georgia Tech's existing nanoresearch activities, and help the Institute leverage its expertise to secure more of that available funding. Over the past three fiscal years, support for Georgia Tech faculty involved in nanoscience and nanotechnology research amounted to just over \$13 million, \$4.8 million of which came from the Board of Regents and the state

legislature. During that same period of time, the faculty brought in over \$36 million in research grant money, representing a ratio of return on Tech's investment of almost 3-1.

"Even at these early stages, that's a real success story," says Charles Liotta, vice provost for research and dean of graduate studies. Currently, a proposal to the NSF from a group comprised mostly of Tech researchers, in partnership with other universities, government and private industry, requests approximately \$17 million in funding to establish an NSF Center for Excellence on campus. If awarded, the Institute would match that grant with \$6 million. In addition, proposals from four smaller groups and four individuals have been submitted, bringing the total number of NSF nanoscale research proposals to nine.

Perhaps more importantly, the new center will facilitate more collaboration, both internally at Tech and also externally, with other universities, corporations, and government institutions.

"By its nature, nanoscale science and technology requires a multidisciplinary approach," Liotta says. Z.L. Wang, professor of materials science and engineering and director of the new center, points out that Tech is in a unique position to capitalize on its strengths in this kind of environment.

Wang says that the Center will distinguish itself by focusing not only on scientific breakthroughs, but the ways in which those breakthroughs can be applied outside the lab. Tech has a history of interdisciplinary collaboration, he says, and a long-standing engineering ethos that values the practical application of knowledge. In this way, the new center positions Georgia Tech as the Southeastern leader in the field. As a core university associated with the management of science and technology at the Oak Ridge Laboratory, Tech is already providing leadership in the areas of materials and nanoscience and nanotechnology.

To further establish the university's role as a regional leader, the First Georgia Tech Conference on Nanoscience and Nanotechnology was held on campus Oct. 16-18. More than 200 researchers from across the country attended to exchange information and explore the opportunities for collaboration. The keynote speaker at the evening banquet, Mihail C. Roco, senior advisor for nanotechnology at the NSF, spoke on "The National Nanotechnology Initiative: Its Vision and Implications."

One of the conference attendees was Lee L. Riedinger, deputy director for Science and Technology at Oak Ridge National Laboratory. "The conference not only presented a lot of exciting new science, but provided a good meeting ground for different institutions," he said. Riedinger pointed out that, in general, universities like Georgia Tech have the "best minds" in the form of faculty and graduate students, and national laboratories often have specialized tools. "If you can bring those two together, you can make progress much faster," he said. "The conference got people together, and that's the important thing."

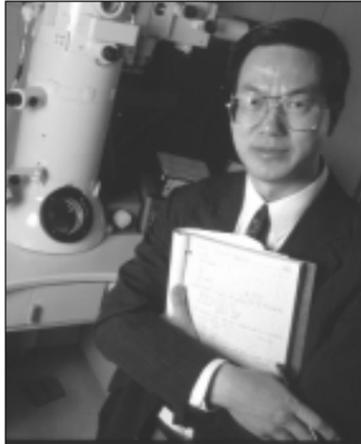


Photo by Gary Meek

Z.L. Wang has been named director of the Institute's new Center for Nanoscience and Nanotechnology

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- An elevated jogging track above the courts with an impressive view of the downtown skyline.
- A new 14,000-square-foot Fitness Center (more than doubling the size of the current facility) with five racquetball courts, one squash court, and new locker rooms.
- A "free zone" at the SAC II entrance that will include offices, classrooms, meeting rooms, and a café, all accessible without a SAC membership.
- A new Leisure/Lap Pool (to replace the existing Bubble Pool) that will feature water slides, a zero-depth entrance and other amenities.
- A climbing wall.
- A new home for ORGT (Outdoor Recreation Georgia Tech), currently located in the O'Keefe Building.
- A new 550-space parking deck adjacent to the Aquatic Center.

Despite the magnitude of the SAC II project, Wilcox assures the Tech community that basic recreational services and facilities will always be available. "The construction will be done in two phases," he said. "We won't close everything all at once. We will always have swimming facilities and courts available to the campus."

During the first phase of construction, the Aquatic Center will be enclosed and the new floor will be added. The existing SAC and Bubble Pool will be available during this period. In the second phase, the courts will move from the existing SAC to the Aquatic Center, the existing SAC and Bubble Pool will be demolished, and the new Fitness Center and Leisure Pool will be constructed. The existing gravel parking lot next to SAC will be closed during all construction.

Wilcox said that SAC II is urgently needed to replace the existing SAC, built in 1977, because student use of the facility has grown so dramatically since new residence halls built for the 1996 Olympics have allowed much larger numbers of students to live on campus. "Students are choosing a college not just on academic

reputation, but on the total package," Wilcox said. "SAC II will be an important part of that package."

Butch Stanphill, campus recreation director since 1982, agrees. "I believe SAC II will play an important role in student recruitment," he said. "Many high school students are already members of a health club, and they are looking for this kind of facility in the college they choose. Also, I see a trend at Georgia Tech of increasing participation in intramural events. And there is a real craze right now in individual fitness. SAC II will provide a great opportunity to pursue those activities."

Intercollegiate competition

Students interested in competitive swimming and diving will benefit tremendously from SAC II. Because the Aquatic Center will be enclosed, the swimming and diving team — which will add women to its ranks beginning next fall — will be able to compete at home year round. Currently, the team has only a couple of home meets at the beginning of the season in October, then spends the rest of the season on the road, according to Head Coach Seth Baron.

"We now have to shut the pool down around mid-November to mid-March," Baron said. "When SAC II is completed, we will be able to use the pool year round, which will enable us to host collegiate dual meets, collegiate invitational meets, ACC championships, and perhaps even NCAA championships." Hosting such contests, Baron said, will go a long way toward raising the visibility and stature of Tech's swimming and diving program as well as recruiting the nation's best young swimmers to Georgia Tech.

In addition to serving the needs of student athletes, Wilcox believes SAC II will also attract larger numbers of faculty and staff users. "We expect faculty and staff use to double from the current number of 300 when it opens," Wilcox said. "SAC II will not only have better capacity and more facilities, but also will be a great way to build a stronger campus community."