College of Management receives gifts for creation of trading floor

Dan Treadaway
Institute Communications and Public Affairs

The unique experience of working in a trading floor environment while still in school is a competitive advantage enjoyed mostly by students at Ivy League universities planning careers in investment banking and financial services.

That same competitive advantage will soon be available to Georgia Tech students. The College of Management has announced plans to name its new trading floor facility the Ferris-Goldsmith Trading Floor in recognition of gifts pledged by Joyce Ferris, widow of Dakin B. Ferris Jr., Class of 1950, and Barbara and Jere W. Goldsmith IV, who graduated in 1956 with a degree in industrial management.

The 2,000-square-foot Ferris-Goldsmith Trading Floor, to be located on the fourth floor of the Management Building at Technology Square, will be used to introduce students to a financial trading floor environment and train them in the use of financial analysis and electronic trading tools and methods.

In addition to being an invaluable learning vehicle for students, the Trading Floor will also serve as an important research arena for Management faculty. Adjacent to the Trading Floor space is the Financial Analysis Lab created by Invesco Chair Chuck Nulford, professor of accounting and noted author. This juxtaposition has the potential to attract corporations, alumni, and friends of the College to support activities in both the Trading Floor and the Financial Analysis Lab by participating as mentors and classroom speakers.

“We hope that attracting students who are interested in brokerage and investment banking careers, and engaging our alumni who are already actively working in those fields, will result in graduates who are better prepared for Wall Street-type careers, as well as those related to issues of energy strategy and its financing,” says College of Management Dean Terry Blam. “The Ferris-Goldsmith Trading Floor will go a long way toward truly differentiating our business school from the competition.”

In theory, researchers note a change in the properties of matter

‘Increasing our fundamental understanding of nature’

David Terraso
Institute Communications and Public Affairs

Researchers at Georgia Tech have proposed a fundamental change in the properties of matter. The theoretical finding — that bosons placed in two-dimensional harmonic traps will crystallize when the strength of their repulsive interactions is increased — appears in the December 3 issue of the journal Physical Review Letters.

One of two categories of elementary particles, bosons typically cluster in cloudy aggregates called Bose-Einstein condensates when cooled to temperatures near absolute zero. In the condensate, the particles may be envisioned as sitting on top of one another, occupying the same space.

But that’s only when their interactions are relatively weak, said Uzi Landman, director of the Center for Computational Materials Science, Regents’ professor and Callaway Chair in the School of Physics.

“When the repulsive interaction between the bosons is increased they separate and crystallize, acting more like their counterpart fermions. Experimentally, such behavior was shown this year to happen in one-dimension. Now we predict theoretically that it will happen in two-dimensions. Furthermore, through a straightforward extension of our method, one could easily extend it to three-dimensions,” he said.

In quantum physics, all elementary particles such as quarks, electrons and gluons are classified as either fermions or bosons. Electrons and quarks — two examples of fermions — are the basic building blocks of matter, while bosons govern fundamental forces of nature such as electromagnetism.

In 1960, it was predicted that in one-dimensional space, bosons would act more like fermions if their repulsion became sufficiently strong. It took more than 40 years for experimental physicists to test, but recently two different groups of scientists published articles in Science and Nature verifying the theory, using experiments carried out on “trapped” bosons.

Boson continued, page 2
New online catalog archives film for preservation, cinephiles

Gary Goettling
Research News

When silent-film legend Rudolf Valentino’s 1922 picture “Beyond the Rocks” resurfaced this past spring after nearly 75 years on the missing films list, an important gap in motion picture history was filled. Part of Ed Price’s job is to make sure such classics are not lost again.

As director of the Interactive Media Technology Center at Georgia Tech, Price heads development of an integrated, searchable online catalog of moving images held by libraries, museums, archives, television broadcasters and the motion picture industry.

Conducted under a grant from the National Science Foundation, the Moving Image Collections project includes development of a search engine, dynamic Web portal technology and the user interface.

“The Library of Congress is supporting the project, but the final product is meant to search other holdings, too,” Price says. “We’re going to tie many repositories together and make their holdings accessible with a one-stop search engine.”

The search function will work much like Google and other keyword-searchable programs. The difference — and Price’s challenge — is tagging the images with enough information to make searches as thorough and efficient as possible.

“Google is a really great tool, but it usually doesn’t drill down into library catalogs,” Price notes. “We’re building a Google-like tool that searches every archive’s library of video and film.”

Because moving images exist in various formats, searchers will be directed to the Web sites of the institutions holding the material. At those sites, users may view the images as streaming video if they have been digitized, or order copies of material that exists only in analog form.

The project’s rollout is set for this fall with a cataloged database representing 50,000 moving images linked to a dozen organizations’ Web sites, including the Smithsonian, National Geographic and the National Library of Medicine.

One of the many interesting aspects of the project involves working with the Academy of Motion Picture Arts and Sciences to locate lost motion pictures, primarily from the 1920s and ’30s, Price notes.

“Once they know a certain film exists, they want to preserve it,” he explains. “If we can catalog it all now, even if it’s something on film, it might stand a chance of lasting a while. If it’s not cataloged, and nobody knows it’s there, it will just deteriorate and be gone forever.”

The findings
(a) The density of Bose-Einstein condensate in the center of the trap, (b) the density of Bose-Einstein condensate in the center of the trap, (c) the density of Bose-Einstein condensate in the center of the trap, and (d) the density of Bose-Einstein condensate in the center of the trap.

Now Landman, with colleague Constantine Yannouleas and graduate student Igor Romasnovsky, have discovered — through computer-based simulations — that instead of clumping together to form Bose-Einstein condensates, the bosons localize in space, forming polygonal crystals. For example, six bosons crystallize into a pentagon-shaped crystal with one boson in the center.

Landman and Yannouleas do not think that it will take another 40 years for experimental physicists to test the theoretical prediction. “Now that people know how to make Bose-Einstein condensates, use traps, and vary the strength of the interactions, testing could be done faster,” Landman explained.

For potential applications of this research, Landman notes that “the main merit of this research is in increasing our fundamental understanding of nature and of the processes underlying physical behavior under certain extreme conditions.”

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As for potential applications of this research, Landman notes that “the main merit of this research is in increasing our fundamental understanding of nature and of the processes underlying physical behavior under certain extreme conditions.”

“Nevertheless, out of such basic scientific contributions, other things may develop — for example in the area of quantum computing. You just have to wait and see,” Landman explained.

In the 1920s Indian physicist Satyendra Nath Bose and Albert Einstein predicted that atoms cooled to temperatures close to absolute zero would collapse to their lowest quantum state, forming a state of matter that became known as the Bose-Einstein condensate. It wasn’t until 1995 that physicists were successful in creating the condensate. In 2001, Eric Cornell, Wolfgang Ketterle and Carl Wieman were awarded the Nobel Prize in physics for this achievement.
IN BRIEF:

New rankings list Tech among world’s best

Georgia Tech was listed last month by the Times of London as one of the top 200 universities in the world, placing 65th in the World University Rankings. Though college rankings are a popular metric used by many publishers, this is the first year the Times has put together such a list.

Universities in the United States held 62 of the top 200 spots, followed by Britain with 30, Germany with 17 and Australia with 14. Harvard University was the top school on the list, followed by the University of California at Berkeley, the Massachusetts Institute of Technology and the California Institute of Technology.

Georgia Tech was 24th among U.S. universities and 11th among U.S. public institutions. In comparison, Tech ranked 10th among U.S. public universities and 41st amongst all U.S. universities in the well-known U.S. News and World Report rankings released last August.

In commenting on the placement, Sandi Bramblett, director of Institutional Research and Planning, was circumspect. “We want to be cautious with how much weight we give these rankings, because this is the first year they have been published and the methodology isn’t as transparent as we’d like it to be,” she said. “We need to see some trend to be able to put some stock in what this particular ranking is telling us.”

New end-to-end system for managing chemicals

As part of Georgia Tech’s ongoing efforts to streamline processes and enhance administrative systems, a new, comprehensive chemical management information system will soon be available to the campus. The new system, developed for a university environment, is called CHEMATIX and will enable users to effectively purchase, manage, inventory and dispose of any chemicals used by the Institute.

According to Debbie Wolfe-Lopez, chemical safety coordinator in Facilities’ Environmental Health and Safety division and CHEMATIX project manager, “CHEMATIX is important in that it will help ensure the safety of students, faculty and staff by providing users with easy-to-use, efficient, end-to-end chemical management capabilities, from purchasing to disposal, as well as rapid access to complete safety data. In addition, the system will enable Georgia Tech to meet State and Federal regulations pertaining to chemical management.”

The new system will be deployed early in the spring to a small group of users, with full campus implementation occurring during summer and fall. Additional information is available at www.cmis.gatech.edu.

Food drive

Georgia Tech, through Institute Partnerships, has established a continuing partnership with the English Avenue Community Resource Center, and would like to enhance the relationship by providing food to help local residents. To make this year’s effort a success, organizers hope to collect enough canned goods to feed at least 50 families during the holiday season.

Donations can be made at Institute Partnerships, located in the Wardlaw Center. The food drive will continue through Wednesday, Dec. 15. For more information, call Sonia Croft at 894-5187.
Dec. 18
The Ferst Center welcomes jazz pianist George Winston for an 8 p.m. performance. For tickets, call 894-9600 or visit www.ferstcenter.org.

Jan. 22
The Ferst Center welcomes Grammy-winning jazz saxophonist Gato Barbieri for an 8 p.m. performance. For tickets, call 894-9600 or visit www.ferstcenter.org.

Ongoing
The American Museum of Papermaking hosts its two newest installations — “Lift: Recent Works by Andrew Oak” and “Paper Comes to Georgia” — through February 25. The museum is open Monday-Friday from 9 a.m. - 5 p.m. For further details, visit www.ipst.edu/amp.

Faculty/Staff Development
Jan. 10
The Office of Organizational Development sponsors an 11-week course in “Workplace Spanish Level II.” The class will meet one day a week, from 12:30 - 2:00 p.m. in room 208, Savant Building. To register, visit www.trainsweb.gatech.edu/mastcal.asp.

Jan. 13
The Office of Organizational Development hosts a brown bag seminar on “Introduction to Mindmapping,” from 11:50 a.m. - 1 p.m. in room 308, Savant Building. To register, visit www.trainsweb.gatech.edu/mastcal.asp.

Jan. 14
The Office of Organizational Development sponsors an 11-week course in “Workplace Spanish Level II.” The class will meet one day a week, from 12:30 - 2:00 p.m. in room 208, Savant Building. To register or for more information, visit www.trainsweb.gatech.edu/mastcal.asp.

Jan. 14
The Office of Organizational Development sponsors a half-day seminar in “Listening Skills,” from 8:30 a.m. - 12:30 p.m. in room 308, Savant Building. To register or for more information, visit www.trainsweb.gatech.edu/mastcal.asp.

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Miscellaneous
Dec. 15
The VOICE Initiative invites you to learn more about how you can play a role in ending sexual violence at Georgia Tech. A one-hour orientation will be held at noon. To sign up, e-mail ann.frazier@health.gatech.edu or call 894-9980.

Dec. 27 - Jan. 3
Campus closed for winter break.

Jan. 10
Spring semester begins.

Jan. 17
Campus closed for Martin Luther King Jr. Day.

Jan. 18-20
The MOVE Office and Delta Sigma Chi sponsor the Winter Blood Drive, 11 a.m. - 4 p.m. in the Student Center Ballroom. Walk-ins are welcome, but to schedule a time, donors should visit http://gatech.givesblood.org.

Ongoing
Techmasters — Tech’s chapter of Toastmaster’s International — meets every Thursday at 7:30 p.m. in room 102 of MRC. For more information, visit www.techmasters.gatech.edu.