Award-winning researcher chosen new AE chair

Don Fernandez
Communications & Marketing

Georgia Tech has named Vigor Yang the chair of the Daniel Guggenheim School of Aerospace Engineering, delivering a seasoned and accomplished researcher to lead the school. Yang will begin Jan. 1, 2009. The school’s current chair, Professor Bob Loewy, will remain through Dec. 31.

Yang’s professional contributions and activities offer the School of Aerospace Engineering a national and international visibility that adds to our reputation,” said College of Engineering Dean Don Giddens. “His passion for research and ambition for the department set us on a course for new successes in academics and discovery.”

Yang received his doctorate in 1984 from the California Institute of Technology, spending a year as a research

Economics, HTS relocate to Old CE building

In 2005, School of Mechanical Engineering Regents’ Professor Emeritus Geoffrey Eichholz established an endowment to reward senior faculty members who are have made a long-term contribution to introductory undergraduate education in teaching freshman and sophomore core courses. Winners receive annual salary supplements as honoraria from the award fund.

Recipients are chosen by the Provost’s office in conjunction with the Center for the Enhancement of Teaching and Learning (CETL). Selections are based on both student ratings of professors and other qualitative criteria.

“...further evidence that we take our core courses very seriously and value our faculty members who work to establish a solid foundation for our students,” said Senior Vice Prospect, Anderson Smith. Collard, who joined the Tech faculty in 1991, earned his bachelor of science degree from the University of East Anglia in Norwich, England, and his doctorate from the University of Massachusetts at Amherst. He carried out his postdoctoral work at the University of Texas in Austin. He is also director of Graduate Studies for the school. For fall semester, he taught Organic Chemistry I, and will teach Organic Chemistry II and an undergraduate research course in the spring, in addition to his master’s and doctoral thesis classes. His research interests include molecular self-assembly in polymers, allowing for new architectural structures. His research group

New faculty pave way for astrophysics center

Robert Nesmith
Communications & Marketing

In assessing its strategic plan, the School of Physics administration determined that either increasing its biophysics or astrophysics presence would assist in raising the school’s profile nationally. With the fall semester addition of four faculty members, the school established a Center for Relativistic Astrophysics.

According to Physics Chair and Professor Mel-Yin Chou, the astrophysics faculty search began two years ago, when a list was compiled of potential candidates. As it turned out, Center Director and Professor Pablo Laguna was on the short list prior to first meeting Chou. “During 2006–2007, I was chair of the program committee for the Division of Computational Physics of the American Physical Society.”

The renovated Old Civil Engineering building on Bobby Dodd Way is now home to the schools of Economics and History, Technology and Society.

The mail code for HTS has changed to 0225. The School of Economics will retain the same mail code (0615). Modern features—skylights, Zen gardens, a 50-station computer lab—have been added. New windows and state-of-the-art systems were designed to meet Leadership in Energy and Environmental Design (LEED) Silver Award standards.

Classes will be held in the new building beginning in January. HTS occupies mainly the ground and first floors, and Economics is on the second and third floors.

Eichholz Award winners named

School of Chemistry and Biochemistry Professor David Collard and School of Mathematics Professor Doron Lubinsky are this year’s recipients of the Institute’s Eichholz Faculty Teaching Award.

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Teaching Bytes

Required course: Speaking with previous Eichholz winners

Whether core courses introduce undergraduate majors to their chosen discipline or serve as a student’s sole connection to a particular field of study, these required components of the curriculum can be challenging to teach. Previous winners of the Eichholz Teaching Award are faculty who know the importance of teaching these core courses well and have earned recognition for their efforts. What do they advise?

Core courses typically are required, and students tend to feel little ownership or connection with the course content. How do you get their attention; to want something from the course?

Jung Choi, Biology: Biology abounds with problems that engage students both intellectually and emotionally, and these problems frequently appear in news headlines. So I show how different aspects of biology relate to the central problem. For instance, I can show a video of how a genetic disease like cystic fibrosis affects the children who suffer from it as well as their parents. I can have students work problems on the genetic inheritance of the disease, discuss how DNA technology leads to genetic testing for it and investigate therapeutic approaches. We can even explore ecological and evolutionary aspects of the disease.

Evans Harrell, Mathematics: I try to engage the students personally in the material by interspersing lectures with some Socratic dialogue—which is not all that easy in a huge calculus class. And even though there are many different majors in the class, I try to point out how the material has a direct connection to their other interests. I also show the students some of the fun and unexpected parts of math. Every group of students is different, but most of them like it when the lecturing is sprinkled with humor, unusual visuals or surprises.

Michael Loss, Mathematics: I use a few projects in a course like Math 2605 to force the students to make an effort and actually spend time with the material. This leads to a better understanding of some of the concepts. Once students “get it,” their outlook on the whole course is influenced in a positive way.

Gordon Kingsley, Public Policy: I get students involved in two ways. First, with the American Government class, we use the large numbers (170+) to our favor by engaging the students in a large-scale political exercise. Students learn basic principles of political science best when they have the opportunity to experience these principles first hand. Second, we integrate information from the daily news into the content of the course. It is important to make them realize that they are not free then or just need more time with me.

Choi: I use short on-line quizzes based on the assigned reading. These quizzes are due an hour before the lecture starts. This encourages students to read the text before they come to lecture.

Colatrella: Teaching writing has so many obligations that it is a challenge to keep a lot of subject content in the forefront while also encouraging students to become careful, critical readers and accessible, interesting writers. I use as much class time as possible to coach these skills. I also maximize the opportunities for students to express themselves orally and to practice writing and editing skills with their peers.

Loss: Once in a while I compare the students’ knowledge—I remind them what they were able to do a few weeks ago and what they are able to do now. I think that adds to their motivation. It is important to make students aware that they are making progress.

What about your approach to teaching seems to energize students? How do you help students keep their energy up throughout the term?

Choi: I use several clicker questions in each lecture to assess student understanding of key concepts and their ability to apply them. I encourage students to discuss these questions with each other. I provide occasional demonstrations—some with audience participation—to illustrate a concept. Most importantly, I maintain my own energy and excitement level.

Colatrella: I resist lecturing in favor of facilitating many class discussions. And, because analyzing visual communication—I.e. media—is a component of the course, I created a team assignment as the last writing assignment of the course. Students work together to view, discuss, analyze and write a paper about a film related to the course themes. They must explore the film’s plot, character, music and cinematography as the four main areas of their final team-written paper about the representation of those themes. Peers are remarkably influential in making sure that team members show up, contribute equitably and turn in a polished product.

Kingsley: The best way that I know to encourage and energize students is to demonstrate enthusiasm and energy in my own presentation. Enthusiasm is infectious.

Loss: I too think that one has to be enthusiastic about the subject one teaches. As a teacher of mathematics courses, I look for the bits and pieces that might inspire some of the students. I can keep them energized if I get them to understand something non-trivial and make them realize that they have the ability to repeat this experience; this pushes them further toward independent thinking and learning.

What’s one thing you do that encourages students to invest time in learning the key concepts?

Harrell: I tell students I will work with them personally. I make time available outside of office periods if students
**Center for Relativistic Astrophysics**

David Ballantyne—earned his master's in astronomy and physics in 1999 from the University of Toronto and his doctorate in 2002 from Cambridge University in London. His research focuses on high-energy astrophysics, including the evolution of galaxies and their supermassive black holes, astrophysical fluids, and the physics of accretion disks around both black holes and neutron stars.

Pablo Laguna—earned his bachelor of science in physics in 1981 from the Universidad Autónoma Metropolitana-Iztapalapa in Mexico, and his doctorate in 1987 from the University of Texas in Austin.

Deirdre Shoemaker—earned her bachelor of science in astronomy and astrophysics and physics from Penn State in 1994, and her doctorate in 1999 from the University of Texas at Austin. In addition to holding an assistant professor’s position at Tech, she also serves as an adjunct assistant professor in computational science and engineering. Her research focuses on gravitational waves.

Igancio Taboada—earned his bachelor of science in physics in 1994 from the Universidad Simón Bolívar in Caracas, Venezuela, and his doctorate in physics and astronomy in 2002 from the University of Pennsylvania. His research focus is on high-energy cosmic rays.

Wave Observatory. ("Only recently has this) field of gravitational physics become observationally driven." Laguna said. "When I started, I could not have imagined the possibility of observations directly connected to this work," he said. "Observations of the gravitational waves emitted by black hole and neutron star binary systems are just around the corner. These observations will open a new window to the universe and test Einstein’s theory of general relativity in the most extreme situations.

As a graduate student, Laguna was more interested in mathematical relativity and quantum gravity. Then he discovered that his real passion was in numerical relativity, using the power of supercomputers to explore black holes, gravitational waves and neutron stars, all studied through equations governed by Einstein’s Theory of General Relativity. As a postdoctoral fellow at Los Alamos National Lab and later as a faculty member at Penn State, Laguna moved his research into the interface of gravitational physics and astronomy. At Penn State, he served as associate director for the Center for Gravitational Wave Physics.

Chou says that if the recent burst of cuts had come a year earlier, the school may not have been able to accomplish the center’s genesis. And while budget constraints made our plans a little slower, he says, the institute must continue to pursue top-notch science programs as part of its plan to become a premier technological university.

"Physics strives for a profound understanding of nature and paves the way for fundamental discovery to engineering applications," she said. "By pursuing the most promising areas in each discipline and exposing our students to the latest advances, Georgia Tech will move toward the next level of excellence as a whole."

Aside from settling in, Laguna and his team have been recruiting and receiving postdoctoral applications for about a month and a half. And while he agrees the current economic situation is a challenge, the center’s team isn’t daunted in submitting new proposals to funding agencies for research dollars. "If you propose good science, and if the funding agencies also recognize it, they will support it," Laguna said. "In the next four or five years, we want to solidify these efforts. We need to recruit high-quality graduate students and postdocs and attract research visitors to the center that help us showcase the center."

The center also has begun a semi-annual series that includes webcasting, with nine lectures already scheduled for 2009. The Center is also fully committed to Instilling in Georgia Tech’s student population, alumni and the general public the interest for astrophysics. Oxford University Professor Sir Roger Penrose will give the center’s first distinguished lecture on March 24, 2009. In May, the center will hold its inaugural conference.

For more information...

**Center for Relativistic Astrophysics**

www.cra.gatech.edu

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**Yang, cont’d from page 1**

fellow in the Jet Propulsion Lab at Caltech before joining the faculty at Penn State University. He is currently the John L. and Genevieve H. McCain Chair of Engineering at Penn State, teaching classes on thermodynamics, fluid mechanics, heat transfer, propulsion, combustion and mathematics.

"It is with a deep sense of humility and honor that I accept the responsiblity of chair for the School of Aerospace Engineering," Yang said. "My top priority is to continue to create the traditions of excellence at the school in both teaching and research, as well as in service. They foster our Engineering and Premier Research Awards and several publication and technical awards from the American Institute of Aeronautics and Astronautics (AIAA), including the Air-Breathing Propulsion and Pendray Aerospace Literature Awards.

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**Vigor Yang**

**Genevieve H. McCain**

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**Lubinsky, cont’d from page 1**

Currently, eight graduate students are working under Yang’s direction at Penn State. He has previously supervised 35 doctoral and 15 master’s theses.

Yang’s research interests include combusting instabilities in propulsion systems, chemically reacting flows in rocket engines and high-pressure thermodynamics and transport. His accolades include the Penn State Engineering Society Outstanding Teaching and Premier Research Awards and several publication and technical awards from the American Institute of Aeronautics and Astronautics (AIAA), including the Air-Breathing Propulsion and Pendray Aerospace Literature Awards.

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**For more information...**

**Guggenheim School of Aerospace Engineering**

www.ae.gatech.edu

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**Eichholz, cont’d from page 1**

is currently investigating self-assembling and self-organizing polymers.

Collard is a recipient of the Camille and Henry Dreyfus Foundation New Faculty Award and the National Science Foundation CAREER Award. A professor who primarily teaches Calculus II in addition to Linear Algebra and Analysis I and II, Lubinsky says that in calculus lay the groundwork for more advanced math: "Topics like linear algebra form the basis of so many things: operations research, signal processing and higher mathematics. So, it’s important that they’re taught well in Calc II," Lubinsky was a postdoctoral fellow in the Israel Institute of Technology in Haifa, Israel, and professor of computational science and engineering at the University of Witwatersrand in Johannesburg, South Africa. Lubinsky joined Tech as a professor in mathematics in 2001.

"Students at Tech are very appreciative, which is a wonderful thing," Lubinsky said. "Receiving this award makes me aware that I really ought to try and prepare lectures and courses properly, and live up to receiving such an honor."

A fellow of the Royal Society of South Africa, Lubinsky is a recipient of the Women in Science and Engineering Faculty Teaching Award and was named Freshman Council Burdick’s Professor of the Year.

Past Eichholz Award winners include School of Public Policy Professor Gordon Ningsley and School of Mathematics Professor Michael Loss (2005); School of Mathematics Professor and Society Professor and Chair Ronald Bayer and School of Mathematics Associate Dean and Professor Evans Harrell (2006); School of Biology Associate Professor Jung Choi and School of Literature, Communication and Culture Professor Carola Collette (2007).
Tech student named Mitchell Scholar

Sarang Shah has been named one of 12 recipients of the George J. Mitchell Scholarship, the second consecutive year a Tech student has been selected to receive this honor. The Mitchell Scholarships are awarded annually to 2 American citizens under the age of 30 to pursue a year of postgraduate study at any university in Ireland. Finalists for the award were interviewed the weekend of Nov 22 in Washington, D.C. Shah was chosen from a pool of 300 candidates and is among the 10th anniversary class of Mitchell Scholars.

“Having the opportunity to study and research theoretical mathematical physics at the Dublin Institute for Advanced Studies and University College Dublin will allow me to further pursue the fundamental questions underlying how the universe works,” said Shah. “I intend to not only research theoretical physics academically, but also to learn how to educate the general public and policymakers about modern ideas and research in theoretical physics.

“The Mitchell Scholarship is also known for fostering a close-knit community of scholars from a variety of fields of study,” Shah said. “Being a member of such a community is a unique opportunity that will allow me to make the personal connections in Ireland and beyond to achieve my goals.

A native of Acworth, Shah is a physics and public policy major. Shah says these two fields fit together well for him. “I have always been interested in understanding how the universe works, but at the same time I have been deeply concerned with the way society functions,” he said.

### In Brief:

**Payroll new year deadlines**

The offices of Human Resources and Payroll are reminding the Tech community of the 2009 deadlines for W2/1042S, W5 Earned Income Tax Credit and W4/G4 forms. For more information and specific deadlines, visit www.ohr.gatech.edu.

**Georgia Tech hosting NIH seminar**

Tech and Georgia State University are hosting the April 2009 Regional Seminar on Program Funding and Grants Administration, on behalf of the National Institutes of Health Office of Extramural Research. The seminar will be held April 16-17 in the Hyatt Regency in Atlanta. For more information, visit www.osp.gatech.edu.

### C A M P U S  E V E N T S

#### Arts & Culture

**Through February 13**

The Robert W. Williams Paper Museum displays the works of a renowned paper engineer and book artist with “The Paper Engineer: The Art of Carol Barton.” Museum hours are 9 a.m. to 5 p.m. weekdays. For more information, visit www.ipst.gatech.edu.

#### Faculty/Staff Development

**Ongoing**

Georgia Tech Training Services offers a Web-based tutorial on using a state purchasing card. For more information, visit www.training.gatech.edu.

Georgia Tech Training Services offers the Emergency Preparedness Certificate, which consists of several smaller courses, including “Fire Safety,” “Facilities Hazard Training” and “Basic First Aid/Adult CPR/AED.” For more information, visit www.training.gatech.edu.

The “Defining Customer Service” certificate program covers campus and employees with the foundation for offering exemplary service to those both on and off the campus. Four required courses and two electives are offered. For more information on the 2009 training schedule, visit www.training.gatech.edu.

### C L A S S I F I E D S

#### Autos/Motorcycles

2001 Toyota Camry, 114,000 miles, good cond. $4,500. Call 770-493-4027 or e-mail sa8@mail.gatech.edu.

### Miscellaneous

**January 8**

The Georgia Tech Observatories holds its Public Night, from 7 to 10 p.m., in the observatory atop the Howey Physics Building. Public Night is contingent on weather. For more information, visit www.astronomy.gatech.edu.

**Ongoing**

Techmasters, Georgia Tech’s division of Technomasters, meets each Thursday from 7:30 to 9 a.m. in room 102 of the Petit Microelectronics Research Center. For more information, visit www.techmasters.gatech.edu.

Four tickets needed for the Georgia Tech/Duke basketball game on Jan. 14. E-mail albertsheffer@earthlink.net.

Metrocitain bar tool seven-piece set, never used, 18/10 stainless. A Crate & Barrel exclusive. Set includes bar knife, strainer, double jigger, corkscrew, ice tongs, bottle/can opener, and mixing spoon. Originally $50, will sell for $22. Email Troy trmaye@coa.gatech.edu for more info.

Pearl 7-piece drum set for sale. Best offer ($500 min). Call Desal at 404-351-7882 or 678-962-9236 or e-mail vhabdesal@hotmail.com.


Photo/”Memory quilts for sale. This is a 60” x 60” hand quilted throw with 9 photo blocks. Sell for $125. E-mail Melissa at Emily_first@alum.gatech.edu.

More ads are available at www.whistle.gatech.edu. Ads appear and run for three weeks in the order in which they are received. E-mail submissions to editor@comm.gatech.edu.

### C L A S S I F I E D S

#### Autos/Motorcycles

2001 Toyota Camry, 114,000 miles, good cond. $4,500. Call 770-493-4027 or e-mail sa8@mail.gatech.edu.

#### Real Estate/Roommates

**For rent:** 1BR/1BA, 945 sq. ft. on Peachtree St. at 6th St. Renovated in 2002, walk to Tech, Public MARTA, Tech Square. 4th floor, HW floors, tile kitchen & bath, gah and fireplaces, gated & covered parking. $555 application fee, 1 mo. security deposit. Call 404-335-5988 or e-mail Rafaj at rafij498@gmail.com. Visit www. condo.com/PropertyDetails. aspx?id=508759.

**For Lease:** Ideal for visiting professor or grad student. On bus route to Tech, charming, fully furnished house for short-term lease (6-12 months) starting Jan. 2009. 2BR/2BA, 2 dens, living room, dining room, kitchen, fenced back yard. Please call 404-292-4990.

2BR/2BA in Mayfair Tower, steps away from Piedmont Park. Completely renovated SE corner unit, spacious 700 square foot floor plan, hardwoods throughout, Eat-in kitchen, laundry room, custom built-in closets, crown moldings, custom high-end drapery and faux paint, renovated bathrooms; 2 parking spaces. $1,505 a month. Call 404-513-1668.


1BR/1BA furnished, loft condo, across from restaurants and shops. Ready for move-in. $177,382. Call 678-544-6716 or e-mail donnada@ibb.gatech.edu.

Tech professor taking a semester break in Decatur, GA. Small, fully furnished studio, across from MARTA Midtown Station, Piedmont Park, restaurants and shopping. $1,000/mo, available for move-in. $177,382. Call 678-544-6716 or e-mail donnada@ibb.gatech.edu.

#### Furniture

Cherry wood dinette set. Table and 4 chairs. Chairs have beige padded bottoms covered in vinyl. Great condition. Paid $275, selling for $195. Also: 15-speed black Huffy bike, good cond. $50. 3 piece Lifetime texture coffee table end table bottoms: need 2 glass top replacements. $125. 2 gold lamps/shades: $40. Black bar stool: $15. E-mail dellimo4u@hotmail.com.

GE refrigerator 33” wide, 68” high, 32” deep, 21.7 cubic feet. Fridge on top, freezer on bottom. Purchased new in 2000, very clean. $200, you haul (Emory area). E-mail ggmindem@comcast.net.

Two solid pine end tables, great cond. $100 for pair. ALSO, oak end table, great cond. $45. Loveseat, great cond. $75. Pics avail. at forsale.bellsfords.com. Call 678-226-2625 or e-mail jennifer@turner.com.

Complete living room set. Tan microfiber sofa/love seat/mahogany end tables; coffee table w/tan ottomans; brown/tan recliner; brown/tan recliner; $2,000. Pics available. E-mail ggimme@comcast.net.

#### Miscellaneous

Four tickets needed for the Georgia Tech/Duke basketball game on Jan. 14. E-mail albertsheffer@earthlink.net. $150 OBO. For pick-up only (Emory area). E-mail bme.gatech.edu.

GE Profiles gas dryer with touch panel. Bought 2 years ago, used for a year. Has 8–foot, light oak Brunswick pool table with protective covers, racks, cues and balls. The table is in perfect condition. The buyer is responsible for moving/disassembling the table. $1,100 cash only. E-mail Tanah at tanahb@gatech.edu.

Wooden inlaid table top. 64” x 40”.售 price $75. Pics avail. at www. whistle.gatech.edu.

SARANAS SHAH

Sarang Shah, a senior in physics and a George J. Mitchell Scholarship recipient, discusses his experiences as a Mitchell Scholar. Shah will attend the Dublin Institute for Advanced Studies and University College Dublin this fall. (Jennie King/Staff Photography)