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Outlook

*Outlook* is a new twice-yearly magazine for all Temple alumni who earned their degrees in the sciences, whether from the College of Arts and Sciences, the College of Liberal Arts, or the current College of Science and Technology.

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**Shaping the Future**
With a new dean and vice dean, as well as a new University president and provost, the College is poised to play a vital role in the future of scientific research and technology.

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**Combating the Science and Technology Education Crisis**
Science and technology education in the United States has been critically faltering in recent years. In this interview, Dr. Dai outlines his plans for revitalizing research and education in these areas, once again bringing our country to the forefront of the technological revolution.

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Dear Alumni and Friends,

Welcome to the Summer 2007 edition of Outlook, the twice-yearly magazine for the College of Science and Technology. Though I have been with the College since January, I would like to take this opportunity to formally introduce myself. I previously spent 22 years at the University of Pennsylvania before joining the new leadership of President Ann Weaver Hart and Provost Lisa Staiano-Coico. It is truly an exciting time to be at Temple.

This issue details plans for Temple’s part in revitalizing science and technology research and education in the United States, an initiative that would not be possible without outstanding faculty members and cutting-edge research. To that end, the College of Science and Technology plans to hire 30 new, research-active professors over the next five years, among other plans for maximizing our impact on the science and technology fields.

I debut this magazine with the hope that its contents will inspire you to get involved with the College of Science and Technology. Over the next year, the College will hold several reunion events that will bring together classmates and colleagues from across the science and technology disciplines. I hope you will take this opportunity to visit Temple and reconnect with your classmates, as well as to take an active role in the future of the College.

This is truly an exciting time in the future of CST, and, with your help, we can elevate the College and the University to become a world-renowned educational institution in the areas of science and technology. If you have any questions or concerns, I encourage you to get in touch with me or any of my staff members.

Sincerely,

Hai-Lung Dai

Dean and Laura H. Carnell Professor
Chemistry’s Davis Earns Scott Award

FRANKLIN A. DAVIS, PROFESSOR in the department of chemistry, received the 2006 John Scott Award. The award is given to “the most deserving” men and women whose inventions have contributed in some outstanding way to the “comfort, welfare and happiness” of mankind. Dr. Davis was recognized for his discoveries of new experimental procedures for the synthesis of important molecular structures, which have been adopted by laboratories worldwide to aid in the synthesis of antitumor and other bioactive drugs.

Nominations of individuals for the John Scott Award are made by a committee of Philadelphians to the Board of Directors of City Trusts of the City of Philadelphia. The donor, John Scott, was an Edinburgh druggist who set up a fund in the early 1800s calling upon the “Corporation of Philadelphia entrusted with the management of Dr. Franklin’s legacy” to bestow upon “ingenious men or women who make useful inventions.”

The first awards were made in 1834 for inventions of the knitting machine and the door lock. Through the years, awards have been made internationally for inventions in industry, agriculture, manufacturing, science, and medicine. Former recipients include Mme. Curie, Thomas Edison, the Wright brothers, Edwin Land, Jonas Salk, Irving Langmuir, Glenn Seaborg, Frederick G. Banting, Guglielmo Marconi, John Bardeen, and Sir Joseph H. Thomson.

According to Dr. Davis, he first became interested in science as a child. “I had chemistry sets, electronic gear, and a lab in my basement. My parents had no background in science, but encouraged me to learn. In high school, chemistry was the easiest course I took, and when you get to college, you major in what you like.”

Dr. Davis characterizes himself as “a modest student” during his undergraduate studies at the University of Wisconsin. “I needed a job, and my professor, Peter Wharton, asked me to work in his lab, which is great preparation for students. In my senior year, he asked me what I wanted to do, and he said ‘these are the grad schools you can get into.’ Syracuse University offered me a fellowship, and from there, things fell into place.”

After studying at Syracuse, Dr. Davis took a postdoctoral fellowship at the University of Texas, where he worked for Michael Dewer, and then began applying for academic positions. He ended up working for Drexel University’s Ph.D. program, where he remained for 27 years before coming to Temple.

According to Dr. Davis, many changes have taken place in the field during his years as a chemist. “Back [when I started], most people did curiosity-driven research. You worked on something because you wanted new info, not necessarily because you had a specific goal, and we discovered a lot of things that were unexpected. Today, there are different pressures. In order to get external funding, you must be very directed — which I think hurts new discoveries.”

Dr. Davis advises students who are interested in chemistry that “no one should go into the sciences without really wanting to do it… however, it’s a great way to earn a living. You can be your own boss, [but] you have to have good ideas.”

Outside of his work, Dr. Davis is an avid hiker and tennis player. His wife, who has an MBA from Drexel, runs her own company as a consultant to the pharmaceutical industry. They have two daughters, one a journalist and the other a lawyer.

Of his award, Dr. Davis said that “I was not expecting it, and was very surprised. There are a lot of very famous people who have received it, and it’s a terrific honor, as well as great recognition for my students and for our chemistry department.”
“... our goal has been to take the fear of physics out of the students. In the end, when you look at the grades, female students do rise to the challenge. I think they look at us and say, ‘if they can do this, why can’t we?’...”

Taking the Fear out of Physics

A. Marjatta Lyrya, professor in the department of physics, has been at Temple for 16 years. Her research focuses on the interaction of coherent light with molecules, and how to use that interaction in real-world applications.

Dr. Lyrya, who is one of two female faculty members in the department, says that “our goal has been to take the fear of physics out of the students. In the end, when you look at the grades, female students do rise to the challenge. I think they look at us and say, ‘if they can do this, why can’t we?’ If all the teachers are men, they may feel like they don’t belong — the faculty should reflect the diversity of the students.”

In addition to her majors in the department, Dr. Lyrya teaches physics courses to undergraduate students at all levels. “I advise them that all sciences are to be taken seriously if they want to succeed. It’s a good foundation. However, hard work is necessary no matter how smart you are.”

Dr. Lyrya also supervises the research of both undergraduate and graduate students. Most recently, her group has focused on the experimental determination of absolute molecular transition moments using the technique of Autler-Townes splitting of spectral lines. While theoretical potential energy curves can be tested by accurately determined experimental curves, it is much harder to test theoretical transition dipole moments, because it is extremely difficult to measure their absolute magnitudes. A straightforward and accurate method to experimentally determine absolute transition dipole moments of molecules as a function of internuclear distance simply has not been available until Dr. Lyrya’s group’s recent work. “This method to determine the absolute value of the transition dipole moment is of general importance and is critical for enhancing the accuracy of density measurements, for example.”

Before coming to Temple in 1991, Dr. Lyrya was an assistant research scientist at the Iowa Laser Facility at the University of Iowa, where she completed her postdoctoral work. She is a fellow of the American Physical Society, a member of Temple’s $1 Million Research Club, and serves on Temple’s Graduate Board, Dean’s Advisory Committee for CST, and the Faculty Senate’s Status of Women Committee.

“Temple University has been good to us,” said Dr. Lyrya. “I was hired a year after my husband [Benedict R. Stavis] joined the political science faculty. We were able to have our careers at the same place. Also, [the University] has enlightened leaders who have smoothed the way for me to succeed. I have had lots of support from the administration and from my colleagues.” Dr. Lyrya cites collaborations with faculty members in other departments and universities, such as Professor Frank Spano in chemistry, and Professor Lorenzo Narducci at Drexel University, as key to the success of her research.

Under the leadership of Dr. Dai, Dr. Lyrya is very hopeful about the bright future of the physics department. “With our new leadership, the sciences are really going to get a lot of attention. I expect to see major growth and renewal. I have a lot to be thankful for.”
Students Win Awards at American Chemical Society Annual Meeting

Ali Eftekhar-Bafrooei
Ali, an international student from Iran, came to Temple for the Ph.D. program in 2005. Though Ali was not originally planning to become a chemist, it quickly became his ideal career. “In Iran,” he explained, “every year, two million students apply to University, and only about 100,000 are accepted. You don’t really get to pick your major like you do here, and chemistry was my second choice. But after one semester, I was totally involved.”

Ali excelled as an undergraduate, placing 7th in the nation in Iran’s University Olympiad in Chemistry in August 2002. In addition, his experiences in research in surface chemistry led him to pursue a doctoral degree in the United States. Ali plans to continue on to postdoctoral work, and eventually obtain a faculty position.

Yangjun Xing
Yangjun, originally from China, has been in the Ph.D. program since August of 2004. He started off working with Dr. Borguet at the University of Pittsburgh, and moved with him to Temple. Before coming to the United States with his wife, an electrical engineer, he worked for three years in China’s printed circuit board industry.

After graduating, Yangjun, whose focus is applied chemistry, plans to “work in industry,” and says that there is a “50/50 chance” that he will remain in the United States. In the meantime, he is enjoying his studies at Temple. “The best thing is the people here—all of the professors are very nice people.”

When he’s not working on his research, Yangjun spends most of his time with his family. “I have a small baby girl, 20 months old, so I spend a lot of time with her. Sometimes I play basketball or badminton.”

Allison Pymer
Allison, a junior chemistry major, completed award-winning research on the surface structure of small mineral particles and the ways in which they interact with their environments, with the help of a graduate student and a postdoctoral student.

When she’s not studying, Allison is involved in the Chemistry Undergraduate Society as well as Crosswalk, Temple’s student ministry. “I run when I have the opportunity, and when I’m at home [in King of Prussia, Pa.], I practice my violin.”

This summer, Allison plans to enroll in the National Science Foundation’s Research Experience for Undergraduates program, which offers grants for student research all over the world. “I’m still deciding where I want to go and what I want to do—I enjoy what I’m working on now, but I really want to see what else is out there.”

A number of CST students presented their research in January at the annual meeting of the Philadelphia Section of the American Chemical Society. Section Awards recognizing the quality and importance of their efforts were given to the following students:

Ali Eftekhar-Bafrooei — Graduate student
Poster on “Ultrafast Vibrational Dynamics at Water Interfaces by Sum-Frequency Generation” (co-authors Satoshi Nihonyanagi and Eric Borguet)

Yangjun Xing — Graduate student
Poster on “Two Dimensional Charge Diffusion in a Self-Assembled Monolayer of Redox Active Porphyrins” (co-author Eric Borguet)

Allison Pymer — Undergraduate student
Poster on “Nonlinear Optical Studies of Mesoscopic Colloidal Particle Surface Charge” (co-authors R. Kramer Campen, Satoshi Nihonyanagi, and Eric Borguet)
The College of Science and Technology is pleased to announce that Joseph C. Allegra, M.D., CST ’70, is the recipient of our Certificate of Honor award for 2007. This award honors an alumnus from each of the schools and colleges who is distinguished in his or her field.

Dr. Allegra, who received his undergraduate degree in chemistry from Temple, is a co-founder of the Network for Medical Communication and Research, which develops formats for communications and educational opportunities for the medical and pharmaceutical industries. He is Temple’s regional alumni club leader for his home city of Atlanta, and previously served as chairman of the Department of Medicine at the Louisville School of Medicine. After graduating from the University, Dr. Allegra earned his M.D. from Pennsylvania State University.

Dr. Allegra was honored at a reception hosted by CST’s Dean, Hai-Lung Dai, held Saturday, March 24 at the Marriott Philadelphia Downtown, and at the University’s Founder’s Celebration, which immediately followed at the Pennsylvania Convention Center.

During the reception, Dr. Allegra discussed the importance of Temple University in his life and career. He was encouraged to attend the University by his father because of its diversity, and was mentored during his time here by Guy Allen, who he says “jumpstarted his career.” After graduating, Dr. Allegra joined the National Institutes of Health, where he published 35 manuscripts in four years. “My fondness for the University,” he said, “is great.”

Dr. Allegra was joined at the reception by his wife, Marilyn, a nurse, whom he met at Penn State; his son, Patrick, a Spanish teacher and his wife, Lorrie, who works for the family’s investment firm; son Joey, who traveled to the event from San Francisco; daughter Katie, who is working on her Master’s degree in applied linguistics, and her friend Giuliano; uncles Charlie and Fran, both veterans, and aunt Rose; and brother Carmen, an oncologist.

The College is proud to be able to recognize an alumnus of Dr. Allegra’s outstanding caliber. Please join us in offering him congratulations.
Students Benefit from New Advising Office

The College of Science and Technology’s Office of Student Services moved to a new facility at 1810 Liacouras Walk in April. According to Mia Luehrmann, associate dean, the new space offers more privacy for students as well as opportunity for collaboration with other student support units in the building.

The major improvement for the office is the inclusion of a waiting room, which has four computers with internet access and a flat-screen television. “We want to maximize the use of students’ time,” said Dr. Luehrmann, “and now they are able to check e-mail, register for classes, and really get things accomplished while they are waiting to be seen.”

The flat-screen television features a slideshow of frequently asked questions which guide students through processes such as applying for graduation and withdrawing from courses.

In addition to the waiting room, each student advisor now has an individual office, which, according to Dr. Luehrmann, is “critical. Students need privacy to discuss academic, financial and medical matters with their advisors.” The new space is also bigger, which will allow the office to hire additional staff members.

The office now shares a floor with the Math and Science Resource Center, which makes it easier to refer students who need additional instruction. The building also houses the advising offices for Pre-Health Advising, the College of Liberal Arts, and the Office of University Studies, which will foster more collaboration for students with double majors and those who are non-matriculated. “We will be able to work more closely with our neighbors to serve our students,” said Dr. Luehrmann. “It’s fabulous.”

Borguet to Visit Japan

Eric Borguet, an associate professor in the department of chemistry, was selected as a Visiting Fellow by the Japan Society for the Promotion of Science. This fellowship is designed to allow senior scientists to pursue collaborative research in Japanese universities. Dr. Borguet will be traveling to Japan in June, and will present seminars at several Japanese universities and research institutes. He will also give an invited talk at the International Conference on Electrified Interfaces 2007 in Sahoro, Hokkaido, Japan from June 24 to 29.

Previous Temple recipients of this fellowship include Franklin A. Davis and Scott Sieburth, both professors in the department of chemistry, and Hai-Lung Dai, dean and Laura H. Carnell Professor.

Dr. Borguet’s research focuses on nanotechnology and nanoscale processes at interfaces, nonlinear optics, ultrafast dynamics, environmental chemistry, nanoporous carbonaceous materials, and scanning probe microscopy. He has published dozens of articles since 2000, and members of his research group have won several awards, most recently at the American Chemical Society annual meeting in February 2007.
The College of Science and Technology is fortunate that we are now under the leadership of Hai-Lung Dai, dean and Laura H. Carnell Professor, a world-renowned chemist and one of the preeminent voices in the modern world of science and technology. Dr. Dai is committed to the excellence of not only the College, but of research and education in the field as a whole.

Welcoming a New Leader
Dr. Dai joined us on January 1 from the University of Pennsylvania, where he had been since 1984. He served as their Hirschmann-Makinemi Professor of Chemistry since 2002, and previously served for six years as chairman of their department of chemistry. During his time as chair, the department hired one-fourth of its current faculty, created new degree programs and endowed professorships, constructed and renovated laboratories, and raised millions of dollars from private sources to support faculty development and educational programs. Dr. Dai was also the founding director of the Penn Science Teacher Institute.

In addition to his academic and professional appointments, Dr. Dai has published 150 articles, and edited two books and five journal volumes. He has delivered more than 240 invited lectures and seminars in international and national meetings, research institutions and universities since 1984.

“Professor Dai is an accomplished educator and an award-winning scholar who has received more than $13 million to support his research.”

“Dr. Dai brings to Temple an outstanding record of achievement in the classroom and the laboratory, as well as significant accomplishments in leadership roles.”

— PRESIDENT ANN WEAVER HART
President Ann Weaver Hart said upon his appointment. “He brings to Temple an outstanding record of achievement in the classroom and the laboratory, as well as significant accomplishments in leadership roles at the University of Pennsylvania. I am sure that Temple’s students, faculty and staff will be energized by Dean Dai’s leadership of our College of Science and Technology.”

Dr. Dai has been widely lauded for his research accomplishments. He is a fellow of the American Physical Society and currently chairs its division of chemical physics. His major academic honors include a Guggenheim Fellowship and the Ellis Lippincott Award of the Optical Society of America, which is presented to an individual who has made significant contributions to vibrational spectroscopy as judged by his or her influence on other scientists and quality of innovation.

Dai is a graduate of Taiwan University and holds a Ph.D. from the University of California at Berkeley. He served as a post-doctoral fellow at the Massachusetts Institute of Technology before joining the University of Pennsylvania faculty in 1984.

A native of Taiwan, Dai has served in and advised U.S. governmental agencies as well as professional societies and other universities and research institutions. In Greater Philadelphia, Dai also is known as the conductor of the Chinese Musical Voices Choir. He lives in Wayne, Pa. with his wife, Surrina; the couple has two children.

**CST Fast Facts**

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**Fall 2007 enrollment**

| (22% of university enrollment) | 1,100 |

**Average SAT Score**

| 1140 |

**Faculty**

| 179 |
| (105 with tenure) |

**Tuition**

| In-state | $10,180 |
| Out-of-state | $18,224 |

**Total Temple Enrollment**

| 34,000 |
Vice Dean George Palladino

Dr. George Palladino joined CST as vice dean in October 2006. He was previously executive director of the department of chemistry at the University of Pennsylvania. Dr. Palladino also served 27 years in the U.S. Army, rising to the rank of colonel, and was a professor of chemistry at the United States Military Academy. In addition to his work in the chemistry department, Dr. Palladino was a member of several university-wide committees, including serving three years as chairman of the University of Pennsylvania’s Safety and Security Committee. He is the author of more than a dozen scholarly publications and has served in many leadership positions within the American Chemical Society. Dr. Palladino holds master’s and doctorate degrees in chemistry from the University of Massachusetts at Amherst and a bachelor’s degree from Siena College. Upon his appointment, Dr. Palladino said, “I am looking forward to working with Dean Dai, President Hart and the faculty in the College of Science and Technology to strengthen Temple’s teaching and research efforts.”

“With new leadership at all levels — president, provost and dean — I am extremely optimistic about the future of the College of Science and Technology.”

— VICE DEAN GEORGE PALLADINO

New Provost
Lisa Staiano-Coico

Lisa Staiano-Coico became Temple University’s provost, the chief academic officer, on July 1. This is the first time that a Philadelphia university has women simultaneously in the positions of both president and provost. Staiano-Coico was previously dean of the College of Human Ecology at Cornell University.

According to President Ann Weaver Hart, “Lisa Staiano-Coico brings a rare mix of talents to Temple. She has decades of experience as an administrator, researcher and teacher, and she shares our total commitment to the power and reach of urban universities. Yet what has impressed us most — and what makes her a perfect match for Temple — is her energy. She is a dynamo.”

As dean of Human Ecology (one of four Cornell colleges receiving funds from New York State) from 2004 to 2007, Staiano-Coico led a college with a $70 million budget, more than 1,400 students, and a research program of annually $23 million in design and environmental analysis, human development, nutritional sciences, policy analysis and management, and fiber science and apparel design. Under the leadership of “Dean Lisa,” as she is known by Cornell’s students, faculty and staff, the college expanded its academic offerings; created a pilot research award program to stimulate interdisciplinary, collaborative research; and piloted a student-mentor program that paired students with alumni professionals.
Temple’s Ninth President Solidifies University’s Mission

“Our core value is to provide access to an intellectual and creative space where academically talented, highly motivated and prepared students can achieve excellence, regardless of their status or station in life.”

—President Ann Weaver Hart

Ann Weaver Hart was formally installed as the ninth president of Temple University during a two-day inauguration, titled “Conversation and Celebration,” on March 22 and 23.

“This inauguration marks more than the beginning of a new presidency,” said Board of Trustees Chairman Daniel H. Polett. “We are celebrating Temple’s long-standing leadership among higher education institutions, and we are exploring how Temple’s research, teaching and service address urban challenges and strengthen the quality of life in Greater Philadelphia and beyond.”

“It is a tribute to Temple and to President Hart’s leadership that this inauguration will celebrate our accomplishments and feature conversations and challenges about what we can become,” added Polett, who led the 17-member search committee that unanimously recommended Hart as Temple’s next president. Hart was elected president by the trustees on May 4, 2006, and assumed the presidency July 1. At that time, Polett described her as “an experienced educator and visionary leader who will continue to advance Temple’s standing in higher education nationally and around the world.”

In her inaugural address, Hart called on Temple to continue providing access to high-quality education, bolster its strong presence in North Philadelphia and around the world, and enhance its efforts in entrepreneurship and environmentally sustainable campus development. Since assuming Temple’s presidency, Hart has emphasized the importance of Temple’s providing access to excellence, playing a leadership role in international education, and enhancing its strong relationships with the city and region, among other efforts.

“My life was transformed by having access to a first-rate education at a great urban public university,” Hart has said. “Temple has that very same transformative power, and I embrace it. Temple is an institution of profound accomplishment, relevance and promise, epitomizing what it means to be an urban public research university: creating knowledge, improving lives and serving the community.”

For full coverage of Hart’s inauguration, please visit www.temple.edu/inauguration.
From the light bulb and the telegraph to the automobile and the computer, the United States has historically been at the forefront of global scientific and technological advancement. American scientists have been responsible for harnessing electricity, for fostering industrialization, and for establishing modern medical practices. Scientific research and education has played a critical role in the history and economic development of the United States, and is the future of our global economy.
Unfortunately, new innovation in these areas has been faltering in the United States in recent years. The country is currently in the midst of a science and technology education crisis, due to a lack of qualified science teachers and a shortage of students who pursue careers in the science and technology fields.

Under the new leadership of Dean Hai-Lung Dai, the College of Science and Technology, as part of a world-class urban university, is uniquely situated to help reverse this crisis.

Q: What is the science and technology education crisis in the United States?

DAI: The United States is quickly falling behind the world’s leading countries in technological and scientific research and education. Though these areas have historically been crucial to the nation’s development, they are currently in need of vast improvement if the U.S. is to continue to thrive, both technologically and economically.


According to the report, only 15 percent of U.S. graduates receive their degrees in natural science or engineering, compared to 38 percent in South Korea, 47 percent in France, 50 percent in China, and 67 percent in Singapore. In 2003, the Organization for Economic Co-operation and Development’s Programme for International Student Assessment measured the performance of 15-year olds in 49 industrialized countries. U.S. students placed 19th in science literacy and 24th in mathematics.

Q: What effects will this crisis have on American society?

DAI: This deficiency in science and technology education has dire consequences for the United States economy. In the report, Intel spokesman Howard High stated that “We go where the smart people are. Now our business operations are two-thirds in the U.S. and one-third overseas. But that ratio will flip over the next ten years.”

Q: How will the College of Science and Technology contribute to the reversal of these disturbing trends?

DAI: Our plan for revitalization of the College hinges on increasing the educational opportunities for CST students, as well as fostering important and influential research. In addition to improving education and research within the college, we will implement community service initiatives to strengthen science and technology education in middle and high schools. These plans will play a vital role in reversing the deterioration of these areas in the United States.

Q: Does CST have the necessary faculty to implement these plans?

DAI: I am very proud of our current faculty members, many of whom are world-renowned in their fields. Franklin A. Davis, professor in the department of chemistry, received a 2006 Arthur C. Cope Scholar Award from the American Chemical Society for excellence in organic chemistry, one of the most prestigious awards in the field, and the 2006 John
C. Scott Award. Laura Toran, associate professor and the Weeks Chair in Environmental Geology, was named a fellow of the Geological Society of America. Antonio Giordano, founder and president of the Sbarro Health Research Organization and director of the Sbarro Institute for Cancer Research and Molecular Medicine at Temple University, received the 2007 Saint Valentine Prize, which honors humanitarian contributions in everything from medicine to peace in the Middle East. Past winners have included Mikhail Gorbachev, Mother Teresa, and Yitzhak Rabin.

In order to improve research productivity and increase research funding, we will hire 30 new research-active faculty members over the next five years, which will increase our research funding by 60 percent.

Q. How do you plan to support these new faculty members?

Plans have been made to dramatically improve CST’s facilities and laboratory space in order to support these new faculty members and their research projects, including the current renovation of Beury Hall and the Bio-Life building.

Q. Can you expound on how you will be expanding the educational offerings for CST students?

DAI: In the future, we are planning to offer three new joint degree programs. The first, a Ph.D.-MBA, offered in conjunction with the Fox School of Business and Management, will prepare future scientists with an invaluable combination of skills: the ability to lead scientific inquiry at the highest level and to understand the business imperatives that shape corporate R&D initiatives.

The second joint degree, a Ph.D.-M.I.T., will combine a Ph.D. in a science discipline with a master’s in Information Technology, both earned within CST. The resulting skill set will be highly applicable in contemporary research environments, where the management of massive volumes of data is becoming a critical priority.

The third proposed program is an international dual B.S.– M.S. Students will study for three years at a university in their home country, and then matriculate into Temple and complete their master’s degrees in two additional years. This program offers an outstanding opportunity to bring some of the best and brightest individuals from science programs around the world to the University.

According to the report, only 15 percent of U.S. graduates receive their degrees in natural science or engineering, compared to 38 percent in South Korea, 47 percent in France, 50 percent in China, and 67 percent in Singapore.
Plans are also in place to reward excellence in teaching, to expand the CST honors program, and to increase the academic support we provide to students who have great ability and promise, but who have been inadequately prepared for college-level science instruction.

Q: Can you further describe the community service initiatives that you mentioned?

DAI: The key to improving science and technology education and research is to actively engage students’ interest in the sciences, as well as increasing the number of science teachers who have substantial academic backgrounds in science fields. CST is working toward the first of these goals through offering the Molecular Life Sciences program for high school students, and we will develop new courses in environmental science and computer science for these students over the next two years.

To advance the second goal — stronger preparation for science teachers — we will be offering a new content-intensive master’s program designed specifically for middle school science teachers in conjunction with Temple’s College of Education. Whereas a typical program leading to certification for middle school science teaching might include 80 percent of credits in education and 20 percent in the sciences, our new MISE (Master’s in Intermediate Science Education) would reverse that balance, providing a far stronger content foundation.

Q: What will be the effects of these new initiatives?

DAI: Our plans are in accord with the recommendations of the Academies’ to help stem this crisis: to vastly improve K through 12 mathematics education, to sustain and strengthen the nation’s commitment to long-term and basic research, and to make the United States the most attractive setting to study and perform research.

With the help of our world-renowned faculty, the community, and our alumni and friends, the College is prepared to vastly improve the state of science and technology education and research in the United States. In addition, I have a wonderful collaborator in George Palladino, CST’s vice dean, who has been invaluable in the process of planning for the College’s bright future.

Q: What made you decide to come to Temple?

DAI: Quite simply, I wanted to be at the place where I could make the biggest impact to the science and technology fields. Temple has three times the number of students that Penn does, but only a fraction of the faculty. We are graduating so many scientists that there is an expansive opportunity to make a difference for these students and for the future of science and technology in the United States.

I am excited to be joining Temple University at such an important time in its history. As Temple recruits hundreds of new faculty and reinvigorates its research enterprise, we must play a central role in creating one of the nation’s best educational experiences at an urban research university.
A small molecule derived from the spacer domain of the tumor-suppressor gene Rb2/p130 has demonstrated the ability to inhibit tumor growth in vivo and could be developed into an anti-cancer therapeutic, according to researchers at CST’s Sbarro Institute for Cancer Research and Molecular Medicine.

The researchers reported their findings in the March 22 issue of the journal *Oncogene* (www.nature.com/onc), “A small molecule based on the pRb2/p130 spacer domain leads to inhibition of cdk2 activity, cell cycle arrest and tumor growth reduction in vivo.”

Rb2/p130 was discovered in the early 1990s by Antonio Giordano, director of the Sbarro Institute (www.shro.org) and the Center for Biotechnology in Temple’s College of Science and Technology, who headed the study.

The researchers discovered that within Rb2/p130’s spacer domain—a sequence of 212 amino acids located in the pocket or middle section of the gene—was a small portion that resembled an amino-acidic sequence contained in the protein p21, which acts as a cdk (cyclin dependent kinase) inhibitor. Cdk5s play a critical role in cell cycle regulation.

“What we tested was the ability of the Rb2/p130 spacer region to inhibit the kinase activity of cdk2, which is the same kinase p21 inhibits,” said Giordano, one of the study’s lead authors. “And to our surprise, it happened.”

The researchers then set about trying to reduce the spacer domain’s 212 amino acids down to the smallest sequence that would still produce the same functionality as p21, explained Giordano.
RESEARCH

Researchers with CST’s Sbarro Institute are currently in, or have collaborated on, cancer studies with scientists and doctors from universities and hospitals throughout Italy and Europe, including France, Germany and the Netherlands.

“We thought we could narrow down the spacer region that contains the protein-like motif to a small portion that could be delivered as a small molecule or peptide,” Giordano said.

They discovered a 39 amino-acid-long sequence, which they named Spa310. The molecule that was synthetically produced in the laboratory was introduced into mice that had been injected with tumor cells.

Giordano said because of the intrinsic nature of the compound, it can be easily reproduced as a biological drug in large quantities and does not require potentially dangerous means of delivery like viruses, as do most gene therapies; therefore, Spa310 has a good chance to succeed as an anti-cancer therapy. For these reasons, he believes it may be easier to get approval for clinical trials.

“Fifteen years after discovering Rb2/p130, our research and hard work has led us to the discovery of this small molecule, which is a step forward in cancer research and a big step toward a cancer treatment,” he said.

The study was carried out by Temple’s Sbarro Institute in collaboration with Italy’s University of Sassari, University of Siena, Regina Elena Cancer Institute and the Second University of Naples. It was funded by grants from the Sbarro Health Research Organization and the National Institutes of Health.

Dr. Giordano received the 2007 Saint Valentine Prize in Terni, Italy on February 14, 2007. The prize honors humanitarian contributions in everything from medicine to peace in the Middle East. Past winners have included Mikhail Gorbachev, Mother Teresa, and Yitzhak Rabin.

Subcellular localization of Spacer and Spa310 molecules by immunofluorescent staining. NIH/3T3 cells were seeded on Nalge Nunc chamber slides and transfected the next day with pEF6/V5 vector, pEF6/V5Spa310 or pEF6/V5-spacer. Immunofluorescence analysis of transfected cells with anti-V5 antibody revealed a localization of the tagged Spacer and Spa310 proteins in the cytoplasm and in the nucleus (red spots). Cells were counterstained with DAPI to visualize the nuclei (blue). The data shown are representative of three independent experiments.
Dear Alumni and Friends,

It is a great pleasure to introduce myself to you as the new director of development and alumni affairs for the College of Science and Technology. I am also delighted to share with you that the development team has recently grown to include three outstanding professionals to help serve our College. My new colleagues are Andrea Hallowell, assistant director for communications; Robin Neal, administrative specialist; and Mike Usino, assistant director of development and alumni affairs. Together, we are committed to bringing you news about our College, faculty and students, getting you connected and reconnected with your College and classmates, and giving you opportunities to give back to the place which, I hope, gave you more than just a degree.

While new to the College, I am not new to Temple. I have been affiliated with Temple since 1992 in a variety of capacities, including graduate student, alumna, instructor, and administrator. I always enjoy the wonderful stories our alumni share with me about their experiences as students and the impact our faculty had on their lives. Many would not have had the opportunity to earn a college degree if it weren’t for Temple, and, for many, Temple was the opportunity of a lifetime because they were the first in their families to attend college. Their stories are similar, yet each is special in its own way, and I have the great fortune of being entrusted with them.

Today, under the new leadership of President Ann Weaver Hart, Provost Lisa Staiano-Coico, and Dean Hai-Lung Dai, the College of Science and Technology is committed to making our alumni proud. The College strives for excellence because we want to maintain fidelity with Temple’s historical mission of providing high quality yet affordable education to capable students. We also want to ensure the value of your degree. I encourage you to get in touch with me, either by mail or e-mail, to share stories of your favorite faculty or Temple mentors, other Temple experiences, or personal achievements. I also hope that you will choose to help the College fulfill its educational mission by lending your financial support with your personal best gift.

Thank you!

Brooke H. Walker
Director of Development and Alumni Affairs

Honor Roll of Donors

The College of Science and Technology would like to extend our deep appreciation and gratitude to all of the alumni, friends, parents, corporations, and foundations who made a generous donation of $100 or more between January 1, 2006 and March 15, 2007. We are pleased to present the following list, alphabetically within gift level, of the remarkable individuals and organizations who share our vision of excellence and opportunity in science and technology education and research. For the full list of gifts, please visit our giving page at www.temple.edu/cst/alumni/.

TRUSTEES CIRCLE — gifts of $100,000 or more
- Sbarro Health Research Organization
- The W.W. Smith Charitable Trust

FOUNDER’S CLUB — gifts of $50,000 – 99,999
- American Heart Association National Center
- GlaxoSmithKline
- President’s Club — gifts of $25,000 – 49,999
- American Chemical Society
- Boehringer Ingelheim Pharmaceuticals, Inc.

FELLOWS — gifts of $10,000 – 24,999
- Abraham Clearfield, Ph.D., CST ’48, and Ruth Clearfield
- Lorraine Heller Kligman, Ph.D., CST ’66

BENEFACTORS— gifts of $5,000 – 9,999
- Aetna, Inc.
- Joseph C. Allegra, M.D., CST ’70
- Barry Charles Arkles, Ph.D., CST ’70
- William E. S. Browning
- Der-Min Fan, CST ’76
- Helen C. Sholomskas
- John R. Williams, Ph.D., and Janice Elaine Williams, Esq.

FRIENDS— gifts of $2,500 – 4,999
- Philip Bagley
- Merck and Company, Inc.
- Steven B. Petchon, CST ’80
- Society for Information Management, Philadelphia Chapter

MEMBERS — gifts of $1,000 – 2,499
- Accenture Foundation, Inc.
- Angelo Armento, Jr., Ph.D., CST ’65
- Michael R. Berman, M.D., CST ’66
- Cynthia Marie Caliberto, Ph.D., CST ’91
- Hai-Lung Dai, Ph.D.
- Franklin A. Davis, Ph.D.
- Terrance P. Dougherty, CST ’74
- Lydia Guzdyk Dougherty, CST ’74
- ExxonMobil Foundation
- Edward J. Howard, Jr., CST ’43
- Edward J. Howard, Jr. Trust
- Robert Michael Fineman, M.D., Ph.D., CST ’66
- Harvey Kushner, Ph.D., CST ’72
- James E. McDonough, Ph.D.
- CST ’82
- Mylan Pharmaceuticals, Inc.
- Lillian Niu and Man-Chiang Niu, Ph.D.
- Rosemary A. Poole
- Mr. and Mrs. Robert M. Sacco, CST ’67
- Specialty Tower Lighting, LTD
- Frank Tait
- Wendy Urban, CST ’82
- Susan Jansen Varnum, Ph.D.
Former Student Honors Dr. Havas’ Memory

This March, the Peter Havas Scholarship Fund for Outstanding Physics Graduate Students was awarded for the first time. Sonja Ingram, a student in the doctoral track, was chosen by faculty for her outstanding academic achievement. The fund was established in 2005 by former student Angelo Armenti, and supported by family and former students of longtime Temple physics professor Peter Havas.

Dr. Armenti was Dr. Havas’s first graduate student at Temple University in 1965. “He was a wonderful mentor and role model, the hardest working person I’ve ever met. During the five years I spent with him, I got to know him quite well and learned to appreciate his wisdom. When I learned that he passed away, I was in a position to do something to honor his legacy. I have many fond memories, and I am very grateful to Temple for the wonderful career that my education enabled me to have.”

According to Eva Havas, “Our family is extremely grateful that Dr. Armenti [now president of California University of Pennsylvania] chose to honor my father in this way. He was extremely committed to education and very involved with his doctoral students. He always tried to help them understand science in the context of the larger picture, and we hope this scholarship supports students who are dedicated to the field of physics and want to use their talents in a positive manner.”

Dr. Havas was very committed to peace and social justice. He and his wife came to the United States in 1941, after being forced to leave Austria in 1938 because they were politically opposed to Hitler. After coming to America, Dr. Havas earned his doctorate in physics from Columbia University. He turned down an offer to work on the atomic bomb, and instead chose to teach. He researched extensively for the National Science Foundation, and taught for 35 years, 16 at Temple.

Sonja Ingram, who is in her second year of graduate school, will officially become a Ph.D. candidate after passing the qualifying exams in August. After graduating, hopefully in 2010, Sonja plans to become a professor so that she “may be able to impact students and give them a true appreciation of the sciences.” She said, “I am honored that I was chosen to receive this scholarship, and am thankful for the help it will be in my future studies.”

If you wish to contribute to the Peter Havas Scholarship Fund for Outstanding Graduate Physics Students, please visit our giving page at www.temple.edu/cst/alumni/.

This photo of Dr. Havas was provided by his granddaughter, Laurel.
In the past half-century, few people had a greater impact in inorganic chemistry than F. Albert Cotton. Al, as he was known to friends, was a prolific and superb writer who inspired many minds as he guided 118 students to their doctoral degrees and enjoyed the fun and challenges of working with over 150 postdoctoral associates and scientists.

As a child, Dr. Cotton was delighted with the cultural advantages of the city of Philadelphia. He was an avid visitor to the classical record collection of the Philadelphia Free Library, the Franklin Institute and the Academy of Natural Sciences, where he found a particularly favorite place, “a small room where the fluorescent minerals were displayed, first in ordinary light and then under ultraviolet irradiation.” The “beauty of this had a role in my eventually becoming an inorganic chemist,” he wrote. While still in Philadelphia, where he lived until 1951, he also developed his life-long passion for literature, debate, opera and theater.

Dr. Cotton first studied chemical engineering at Drexel Institute, and switched to Temple University when he found, after taking a course on bridge building, that it was chemistry that he was truly interested in. After he graduated from college, he left Philadelphia.

He enrolled at Harvard for his doctoral studies, where he worked with Geoffrey Wilkinson on a project on ferrocene and other metalloenes that eventually led to Wilkinson’s Nobel Prize.

After finishing his doctoral studies at Harvard, he crossed the street in September of 1955 to take a position as an instructor in chemistry at the Massachusetts Institute of Technology where his starting salary “was a princely $3,600 per annum.” This is where Al worked on the first edition of Advanced Inorganic Chemistry, which was coauthored with G. Wilkinson. This became a masterpiece in the field. After six editions, it has sold well over half a million copies and has been translated into at least fifteen foreign languages.

While at MIT enjoying his success in chemistry, he began to date Dee, whom he later married. He moved to Texas A&M University in 1972. According to Carlos A. Murillo, who worked with him as a graduate student, “He was not only a great scientist, but also a great human being who cared for his extended family, not only in their happy moments but also when in distress or sick.”

Dr. Cotton published more than 1,600 scholarly papers and received 29 honorary doctorates; he was the recipient of many awards, including the National Medal for Science, the Paracelsus Medal, the Priestley Medal and the Wolf Prize for Chemistry. Prizes were also named in his honor. He was an honorary or foreign member of several national academies, including the Royal Society. He supervised more than 100 doctoral theses and numbered 40 professors among his former students, served on many boards for academic journals and held several honorary and visiting professorships.
1960s

Martin Grabois, B.A. CST ’62, M.D. ’66, professor and chairman of the Department of Physical Medicine and Rehabilitation at Baylor College of Medicine, was awarded the 2006 Coulter Lectureship by the American Congress of Rehabilitation Medicine. He also received the Distinguished Clinician Award on behalf of the American Academy of Physical Medicine and Rehabilitation, and the National Council on Disability Leadership Award.

Richard W. Hogg, B.A. CST ’63, is director of the Evan Thomas Institute, a private school in Wyndmoor, Pa. He is a certified secondary mathematics and science tutor and is active in his local Lions Club. He enjoys figure skating and playing the piano.

Arthur Rosenthal, B.A. CST ’64, M.D. is a clinical professor of surgery at the University of Texas, San Antonio. He has been in the practice of general surgery in San Antonio since leaving the U.S. Army in 1976, and is a member of the Texas Surgical Society. He has been married to his wife Bari for 39 years, and has three children and four grandchildren.

Dr. Edward G. Bernstine, B.A. CST ’66, has joined Bay Path College as a professor of biology. As a full-time faculty member, he will teach in the forensic science, biology, and biotechnology programs. Previously he was acting laboratory supervisor and assistant technical manager for forensic biology for the Massachusetts State Police Crime Laboratory in Sudbury. The author of numerous scientific publications and abstracts, he also taught in the master of science in forensic sciences program at the University of New Haven.

Charles B. Nissman, B.A. CST ’66, DDS ’70, has been practicing oral and maxillofacial surgery in Feasterville, Bucks County, Pa., since 1977. He was recently elected president of the Delaware Valley Society of Oral and Maxillofacial Surgeons and named to the executive board of the Pennsylvania Society of Oral and Maxillofacial Surgeons.

Thomas Foglia, Ph.D., CST ’68, has been named “Distinguished Senior Research Scientist of 2006” by the Agricultural Research Service (ARS), the chief scientific research agency of the U.S. Department of Agriculture. Dr. Foglia has worked for the ARS for 38 years, and works in the Fats, Oils and Animal Coproducts Research United of the agency’s Eastern Regional Research Center in Wyndmoor, Pa.

1970s

David K. Brookreson, B.A. CST ’70, senior vice president of Wachovia Securities in Doylestown, Pa., won his first Golf Association of Philadelphia (GAP) Senior Amateur Championship and the association’s Senior Silver Cross for the second consecutive year. He is GAP’s reigning Senior Player of the Year.

Sandra C. Cottrell, B.A. CST ’72, M.A. ’75, Ph.D. Ph ‘92, is VP and partner of B&H Consulting Services, Inc., a pharmaceutical consulting firm. She is also an adjunct professor with Temple University’s School of Pharmacy, QARA Program. Cottrell lives in Doylestown, Pa.

Charles H. Fitzpatrick, B.A. CST ’77, an optometrist and partner at Eyexam Associates Pa., in Cherry Hill, N.J., was awarded the Optometrist of the Year Award from The New Jersey Society of Optometric Physicians (NJ SOP) during the
Society’s recent awards luncheon for outstanding service as a practitioner and significant contributions to the community. He has been a member of the NJSOP for 22 years.

1980s
Ahmed Abdel-Magid, Ph.D., CST ’81, a senior research fellow at Johnson & Johnson PRD, was chosen to present the Philadelphia Organic Chemists Club Industrial Award Lecture on April 19, 2007. Dr. Abdel-Magid received his B.S. and M. S. degrees from Cairo University, Egypt and his Ph.D. in chemistry from Temple, working with Professor John Williams.

Dr. Kere Frey, B.A., D.O., CST ’85, has rejoined Loyola University Health System as an associate professor in the department of anesthesiology at Loyola University Chicago Stritch School of Medicine in Maywood, Ill. Frey, who previously served as an assistant professor and instructor at the university, specializes in cardiothoracic anesthesia, trans-esophageal echocardiography, and regional anesthesia.

2000s
Seth Herzon, B.S. CST ’02, received his Ph.D. in organic chemistry from Harvard, and began his post-doctoral studies at the University of Illinois. During his studies, he received a National Science Foundation fellowship and the CUE Teaching Award from the Derek Bok Center for Teaching and Learning at Harvard.

David M. Tener, Esq., M.A. CST ’89, a partner in the Philadelphia law firm of Caesar, Rivise, Bernstein, Cohen & Pokotilow, was named a Pennsylvania Super Lawyer for 2006 by Law and Politics. He focuses his practice on all aspects of intellectual property law.

Stay Connected.

CST has recently launched its own alumni and friends Web site! Check it out at www.temple.edu/cst/alumni!

– News and events
– Online edition of this newsletter
– Class notes, including online submission form
– Donor honor roll
– Update your information
– Information about giving to Temple University
– Access to the online alumni community
PLEASE JOIN US IN OFFERING CONGRATULATIONS TO THE CLASS OF 2007. This year, approximately 400 students received their degrees from the College of Science and Technology, including the 196 undergraduate and 35 graduate students who graduated on May 17th. CST graduates will make valuable contributions to their fields and to society as a whole, whether entering industry, teaching, or continuing their education and performing research. Many of this year’s graduates have secured employment in industry; others are pursuing graduate or professional degrees in areas as diverse as pharmacy, medicine, technology and law.

In his welcome address, Dean Hai-Lung Dai urged the graduating class to set their goals high and meet the challenges of creating new technological advancements in the United States. Guest speaker P. Roy Vagelos, M.D., chairman of Regeneron and former CEO of Merck and Company, Inc, discussed the importance of science and technology within the global economy. He illustrated this point by describing a vaccine that Merck developed in the 1980s that saved millions of Africans from blindness (known as “river blindness”) caused by a prevalent parasite. In addition to creating the vaccine, the company distributed it for free to the affected countries when neither the U.S. nor the African government agreed to purchase it. “I did not know that this was where my career would take me. I wanted to have fun and do something interesting and important,” Vagelos said. “Each of you is in a similar position to make a difference.”
Save the date

Reunion 2007 - 2008

Classes of 1945-1949
October 4-5, 2007

March 29-30, 2008

Information to follow.
Contact: Brooke H. Walker
215-204-4776
brooke.walker@temple.edu

College of Science and Technology
TEMPLE UNIVERSITY
Shohreh Amini, chair and professor in the department of biology confers with student.