

iit ILLINOIS INSTITUTE OF TECHNOLOGY **magazine**

FALL 2007

recipe for the universe

COVER STORY: IIT physicists join the international race to find the ingredients of our existence

TELL ALL Alumnus Andrew Rubin reveals his psychology behind winning at poker

MANY VOICES, ONE VISION
IIT's new president
John L. Anderson

WHAT DOES IT MEAN TO BE AN OWNER?
Intellectual Property Law program challenges the definition of ownership

LETTER FROM THE

president



Sustainability

I am confident that I will fit in well at IIT: I am getting rid of one of my cars.

For me, this decision answered questions of both need and want—specifically, do I need two cars in the city, and do I really want the hassle of owning two cars while living downtown?

In academe, issues such as sustainability have a tendency to unite the needs and wants, bringing together those who pursue research for the benefit of society and those who explore the same topics for the benefit of science.

Many of our students and faculty are exploring sustainability through their work because they want to improve the environment. They are now joined by millions of people for whom the term “going green” has become a cultural phenomenon. While improving technology may be a positive residual, theirs is a motivation to ignite change in society, and a mountain of statistics supports the need. Through their work, they will educate and persuade others to take part in this movement; the IIT Green Home [page 6] and Cool Globes [page 4] projects are two such examples.

On the other end of the spectrum are those who are responding to a shift in the needs of the market and of science. As consumers increasingly demand eco-friendly products—cars, fuels, building materials, food, and clothing—the science behind and design of these goods in many cases require a shift in technology. Having identified a need, these researchers want to be on the cutting edge of advancements, indeed changes, in this exciting area of research. For someone like alumna Susan Solomon [page 30], research that may yield environmental ramifications is not a matter of politics but of science.

Ultimately the reasons for the pursuit are not as important as the determination to take on the challenges that this pursuit inevitably presents. The challenges are many. Can greener technologies be more cost effective than current technologies? What are the costs versus benefits in the relationships between energy and green technologies? How is the public culture shifted toward greener technologies, for example hybrid-powered vehicles, when the economics are not persuasive in today’s world? How does the United States become a role model for the entire world in sustainability?

At IIT a determination—call it attitude, spirit, or ambition—to explore these questions and others like them is rooted in a strong passion for both learning and seizing challenges. The university is united in its determination to create change, no matter how disparate the reasons for pursuing it may be. IIT’s tenacity is infectious, and certainly played no small part in my decision to go to a one-car household.

On a fundamental level, the want and need to pursue sustainability both lead to the same outcome—to leave the world for our children in the same or better condition than we inherited it. This is an important part of the IIT mission, one that has already affected me and no doubt countless others in both societal and scientific contexts. Thank you for welcoming me into the IIT community and for giving me the opportunity to share this bold mission with you.

Sincerely,

A handwritten signature in black ink that reads "John L. Anderson". The signature is written in a cursive, slightly slanted style.

John L. Anderson

CHIEF COMMUNICATIONS OFFICER

Rose Milkowski

EDITOR

Chelsea Kalberloh Jackson

CONTRIBUTORS

Catherine Bruck
Pat Cronin
Christopher Darnielle
Marcia Faye
Richard Harth
Julie Morley
Evan Venie
David McKay Wilson
Beth Wittbrodt

ART DIRECTOR

Nancy Niequist Schoon

ADDITIONAL DESIGN

Scott Benbrook
Jessica Serafin

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SEND LETTERS TO

IIT Magazine

Office of Communications and Marketing
3300 South Federal Street, Suite 503
Chicago, IL 60616-3793

OR EMAIL iitmagazine@iit.edu

SEND ALUMNI NEWS TO

alumni@iit.edu

Founded in 1890, Illinois Institute of Technology is a private Ph.D.-granting university that awards degrees in engineering, the sciences, mathematics, architecture, law, design, psychology, and business.

IIT MISSION STATEMENT

To advance knowledge through research and scholarship, to cultivate invention improving the human condition, and to educate students from throughout the world for a life of professional achievement, service to society, and individual fulfillment.

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For further information about IIT's resources for students, staff, and faculty with disabilities, contact Center for Disability Resources
Illinois Institute of Technology
3105 South Dearborn Street, LS 252
Chicago, IL 60616
312.567.5744
disabilities@iit.edu

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Technology is challenging the traditional meaning of ownership. As Chicago-Kent's Intellectual Property Law program works to redefine ownership, IIT's entrepreneurship programs are helping faculty keep it.

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SECRET INGREDIENT

IIT physicists are part of the brigade of researchers investigating possible answers to the age-old matter/antimatter mystery.



[Left to right] Donna Robertson, Jeanne Rowe, and John Rowe at the induction ceremony for Robertson as the inaugural John and Jeanne Rowe Endowed Chair

Donna V. Robertson Receives John and Jeanne Rowe Endowed Chair

Donna V. Robertson, dean and professor, is the recipient of the John and Jeanne Rowe Endowed Chair for the IIT College of Architecture. John Rowe, chairman, president, and CEO of Exelon Corporation, and chair of the IIT Board of Trustees, and Lew Collens, past president of IIT, spoke at Robertson's induction ceremony, held in April at The McCormick Tribune Campus Center. Also speaking was Blair Kamin, Pulitzer Prize-winning architecture critic of the *Chicago Tribune*, who presented the lecture "Extreme Architecture: Disaster, Spectacle, and Signs of Hope for the Post 9-11 World."

A forward-thinking attitude combined with her recognition of IIT's Miesian heritage culminated in the selection of Robertson as the inaugural chair. "We are honoring Donna's leadership of the College of Architecture and celebrating her commitment in bridging the gap between IIT's Miesian tradition and contemporary architectural ideas," says Rowe, who, along with his wife, Jeanne, established the chair. With IIT for more than a decade,

Robertson was instrumental in elevating the college to its current status as having the 13th best undergraduate architecture program in the nation and the third best program in the Midwest as determined in a survey by the Design Futures Council. A fellow of the prestigious American Institute of Architects, she was named among the city's 100 most influential women for 2006 by *Crain's Chicago Business*. Besides the chair, another recent honor given to Robertson was the 2007 Education Award from the Chicago ACE Mentor Program.

Recognition of Robertson through the Rowe Endowed Chair is ultimately a gift to all students of the college, who will profit from the research, teaching, and leadership of their dean. In an even broader way, Kamin concurs. "Donna asked what she could give me in exchange for doing this talk," Kamin said at the induction, referring to the payment for his investiture lecture services. "And I said: 'Nothing. You've already given me—and Chicago—a lot.'"

Collens Scholarship Program Provides an IIT Education to CPS Grads

This September, IIT welcomed a group of new students with a particularly distinguished standing: the first freshman Collens Scholarship Program recipients. The scholarship honors President Emeritus Lew Collens, who retired in May after 17 years as president of IIT.

The Collens Scholarship Program provides full-tuition scholarships to Chicago Public School (CPS) graduates who meet the university's rigorous academic standards and whose families earn less than \$40,000 annually. Collens, a lifelong Chicagoan, graduated from Senn High School, a Chicago public school.

In May, a dinner honoring Collens for both the scholarship and as the 2007 Heald Award recipient raised \$2 million to begin the program, which was announced in November 2006.

"The Collens Scholarship is an expression of the IIT mission to transform lives, and a fitting tribute to Lew, who rescued and transformed IIT," John Rowe, chairman, president, and chief executive officer of Exelon Corporation and chair of IIT's Board of Trustees, said at the event. "It

honors the spirit of Philip Armour, when he founded the Armour Institute to serve children of the city's working class in 1890."

Seventy-three percent of Chicago children live in low-income households, where parents have a high school degree but no college education.

"This initiative is designed to address the very real dilemmas experienced by families struggling to balance rising living expenses and the cost of higher education," Collens told the audience of IIT alumni, donors, and friends. "This program can make a lasting impact on the growing national crisis in math and science education."

Rufus Williams, president of the Chicago Board of Education, said local universities



Professor Leon Lederman [left] presents Lew Collens with the 2007 Heald Award.

"see local talent, and they want to be part of developing it to its fullest potential."

Chicago Public Schools is the nation's third-largest school system. It includes more than 600 schools and serves about 415,000 students. Last year, of the 484 freshmen who entered IIT, 46 were from CPS. It is IIT's goal to support 100 CPS graduates during the next four years.

Students donned some of the more than 3,000 T-shirts emblazoned with the new IIT brand identity.

The IIT Brand Promise

We are – an academic experience grounded in engineering, science, and technology

We are – exceptional students with an intense work ethic

We are – innovative and entrepreneurial

We are – Chicago, a total urban experience



In March, during the familiar time of year when the city-wide gray hasn't yet subsided and there's scant evidence of anything green, rows of new banners brought a bit of color to State Street and the IIT corridor. Against a black background,

basic marketing strategy (the ridership on the westbound Burlington commuter train alone provides 1.3 million viewers each month). However, it takes more than market saturation to brand a university.

their outreach to the student body's various clubs and campus organizations.

Over the past few months, that research and testing has inspired an IIT College Dictionary that will include more than 500 words. This IIT-specific glossary will capture the essence of the university, its mission, and the significant contributions of its graduates.

The IIT community is embracing its new identity. New "universiity" coffee mugs are found on desks throughout the campuses, and more than 3,000 T-shirts with words such as "originaliity," "personaliity," "communiity," and "individualiity" were distributed to students, faculty, and staff. The campaign also has taken on a life of its own: Chicago White Sox game announcers refer to the key play of each game as "the IIT moment of intensity," and in July, one of the top NASCAR teams featured the word "velocity" on its racecar.

www.iit.edu/departments/pr/campaign_2007

IIT's New Branding Campaign Asks, "How Do You Spell 'Communiity'?"

large white and red letters displayed a series of four words that defined the very pulse and verve of IIT. Interestingly, each and every word was misspelled. Intentionally.

In a creative strategy that takes a slight poke at the seriousness of academia, while also embedding "iit" into words that capture fundamental qualities of IIT's reputation, the Office of Communications and Marketing (C&M) launched IIT's new branding campaign. As the banners snapped against the late winter wind, students, staff, faculty, administration, area residents, and commuters learned the basics of a whole new vocabulary: Curiosiity, Tenaciity, Ciity Life, and Ingenuiity. After defining the many unique attributes of IIT, C&M developed this new set of words as a way to boast the university's academic reputation throughout the Chicago area.

In addition to the banners on State, 33rd, and 35th streets, the campaign has included bus panels and billboards along major expressways, as well as train stations and platforms. Radio ads created for the campaign can be heard on five different Chicago radio stations. Orchestrating comprehensive placement to gain recognition is

Scott Dunnell, director of marketing, says, "It's not just a matter of external advertising. A branding campaign creates community as much as it does awareness." When a branding campaign is successful, people within the organization feel ownership of it. Which is why more than 250 people participated in the two-month-long research phase of the campaign: current and prospective students, faculty, staff, alumni, and members of the business community. Dunnell learned from an awareness study conducted the year before that, despite the university's rich heritage as a leader in science and technology, IIT did not have a strong presence to prospective students and members of the business community.

For additional input on IIT's image from a student perspective, Dunnell created a student marketing advisory board last fall. More than 20 IIT students were selected, representing a wide range of ages, colleges, and ethnicities. The board participated in research, strategic planning, and marketing efforts connected with the campaign. They also provided an instrumental grassroots element through

Curiosiity
Tenaciity
Ingenuiity
Ciity Life



UTP Watch

University Technology Park At IIT continues to add companies. With the recent addition of Comarch, a Polish software-development firm, more than 15 companies now call UTP home. A rapidly growing company, Comarch has made UTP its North American headquarters, citing the location, availability of high-quality computer science students, and IIT's links to its home base in Krakow, Poland, as reasons for its decision to join UTP.

On the construction front, the beautifully landscaped plaza along Dearborn Parkway is now complete, providing a welcoming entrance to UTP. Construction of the core and shell of the expanded Incubator facility is well underway. When completed next year, the facility will provide spaces for 30 start-up companies in life sciences, engineering, and clean energy.

www.universitytechnologypark.com



College of Architecture faculty member Richard Nelson makes some final adjustments to the IIT Cool Globe onsite at Chicago's lakefront.

Global Change

Architecture faculty members Catherine Wetzel and Richard Nelson designed and produced "Oath of Office," one of 122 five-foot-tall spheres featured in the public art exhibit Cool Globes: Hot Ideas for a Cooler Planet. Organized by the City of Chicago, the Chicago Park District, The Field Museum, and Exelon Corporation, the project's intent is to increase awareness about global climate change. Graduate architecture students John Castro, Katie Hart, Bridget O'Connell, Tyler Waldorf, Andrew Widman, and Camille Yu assisted in the production of the globe, which features an ocean surface with color-changing, temperature-sensitive paint, continents listing the variety of possible "green" professions, and a rewriting of the preamble to the United States Constitution as the Earth's equator. Cool Globes runs through September 30. The globes will be auctioned off October 5 at the Auditorium Theater, with proceeds benefiting environmental education programs.

Photo: Bonnie Robinson



You Can Take It With You

"The hardest part is getting them to let their guards down," explains Alfredo Garcia (EE '08) of the students at John C. Burroughs School, with whom

he has worked for the past two years. Part of the Brighton Park Neighborhood Council's outreach program for elementary school students, young adults from the neighborhood such as Garcia meet regularly with students to provide counseling and friendship. "These kids need help and advice from someone they can relate to—someone who went to the same school as them and had the same experiences—not some authority figure." Every other Friday the group meets at the school to talk about problems at school, at home, and in the neighborhood, and to play basketball. With his outgoing personality and warm smile, Garcia puts others immediately at ease, making it easy to see why troubled kids open up to him.

Most of the people from the neighborhood who are successful move away, Garcia says, "They don't come back to give back to their community. Giving back is important to me." Garcia uses what he has learned at IIT to show the kids the value of education in terms they can relate to. On one occasion he impressed them by showing how he could fix their video game connection problem using cables he built in IIT's electrical and computer engineering (ECE) lab. His interest in electronics and video games brought Garcia to IIT's electrical engineering program, and he feels his experience as a college student can serve as an example. "The best thing for the kids to learn is they don't have to fall prey to gangs, drugs, and crime like so many others from the neighborhood do. They can be whatever they want in life."

Active within the IIT community as well, Garcia participates in the Society of Hispanic Professional Engineers and Latinos Involved in Further Education, of which he was recently elected secretary. For the past three years he has held a work-study position in the ECE department, where he assists a lab engineer and in the department office.

Garcia is also an avid dancer, embracing a variety of Latin-American styles, and his memory for music is impressive, causing his friends to nickname him "the human jukebox." His favorite styles of dance are cumbia, derived from Colombian folk dancing, and bachata, an import from the Dominican Republic.

As he begins his senior year at IIT, Garcia says planning for a career after graduation has him looking for internships at companies locally and outside Chicago. He will have to let down some of his own guards—he wants to stay in the city, where his family and community ties are strong, but is willing to go where he can find a job that's the right fit professionally. Regardless of where new opportunities take him, Garcia says he will remember to take his own good advice and keep his Chicago roots with him.

Photo: Mindy Sherman



On stage at The Bog

"Students Rally for The Bog" Fall 2006

The grand reopening of The Bog was held February 7–9. The beloved student and faculty hangout features a bowling alley, lounge, bar, and stage for live performances. Students continue the effort to raise funds to offset the cost of renovating The Bog, as profiled last fall.

<http://bog.iit.edu>

FollowUp

"Building From the Web Up" Fall 2006

College of Architecture Associate Studio Professor Martin Felsen, whose work using digital technologies for better urban growth was featured last year, was a recipient of the History Channel's City of the Future Competition. The contest challenged architecture teams from across the United States to model their vision of a city in 2106. Felsen and wife, Sarah Dunn, principals of the architecture and urban design firm UrbanLab, won both the Chicago competition and the national online competition, creating a holistic urban center where water is more precious than oil. UrbanLab's winning entry featured "Eco-Boulevards" that would encompass a massive "Living Machine," effectively treating 100 percent of Chicago's waste and storm water. www.chil.us

"Changing the Game" Winter 2007

A team of IIT students placed fifth in the inaugural International Formula Hybrid Competition hosted by Dartmouth College in May. Reaching a maximum speed of 45 miles per hour, the vehicle placed third in the acceleration test. The competition marked the first time an IIT team has competed in an intercollegiate auto-racing event. Students from engineering, computer science, and architecture comprised the team, under the supervision of project advisor, Professor Ali Emadi, who was featured last winter.

<http://formulahybrid.iit.edu>

Updates on the people and places previously covered in IIT Magazine

Major Gift to Benefit Power Engineering Program

In acknowledgment of the crucial place of power in a future increasingly affected by issues of energy and sustainability, The Grainger Foundation of Lake Forest, Ill., has made a \$5 million gift to benefit the Power Engineering Program at IIT. The gift will help recruit highly qualified students and maintain The Grainger Foundation Laboratories, which serve as a focal point of the program.

Headed by President David Grainger, The Grainger Foundation has supported power initiatives in the areas of scholarship funding and facility development at the university for more than two decades. Since the opening of the first Grainger laboratory in 2000, IIT has established the Electric Power and Power Electronics Center in the Department of Electrical and Computer Engineering (ECE), and has added additional Grainger laboratories. The Grainger Foundation Laboratories, which help prepare students for work in power systems, power electronics, electric motor drives, special electric machines, and advanced power engineering, serve as a state-of-the-art showcase of the department's capabilities.

Enrollment figures indicate that ECE students comprise the largest group in Armour College of Engineering, with two-thirds of ECE undergraduates taking at least one power course. While statistics show that enrollment of power students at universities across the United States has dropped since the 1980s, the number of students in the IIT program continues to increase. IIT is the only university in Chicago that offers postgraduate degree programs in electric power engineering.

"The most enduring part of The Grainger Foundation's support is that it is entirely focused on benefiting the students," says Mohammad Shahidepour, Bodine Professor and ECE chair. "By helping to maintain our state-of-the-art power laboratories and fostering excellence in our teaching standards and learning environments, the foundation's gift will directly affect the education of some of the best future engineers in the industry."

The Grainger Foundation was established in 1949 by Mr. and Mrs. William Wallace Grainger, and has provided substantial support over the years to a wide range of organizations, including museums and educational, health care, and human services institutions. William W. Grainger is the founder of W. W. Grainger, Inc., North America's leading distributor of maintenance, repair, and operating supplies and components. www.ece.iit.edu

Building the Greenest House in Chicago

Just south of IIT's Main Campus, at 44th Street and Vincennes Avenue, two model homes are showcasing the latest in green building design and technology. The homes were built on land donated by the City of Chicago and introduced under an ordinance by Mayor Richard M. Daley. According to Daley, "These homes are being built as a way to encourage builders, architects, and homebuyers to consider environmentally responsible home designs."

This "green homes project" was developed and spearheaded in large part by College of Architecture faculty member Eva Kultermann, who, along with Leroy Kennedy, vice president of Community Affairs and Outreach, rallied for the project, winning the support of former

Alderwoman Dorothy Tillman and Department of Housing Commissioner Jack Markowski.

One home was built by nonprofit developer Genesis Housing Development Corporation and designed by Ray Dawson PC Architecture and Design. The second home was designed entirely by IIT architecture students. Unlike the Genesis home, which features the most cutting-edge green technology, the IIT home was designed specifically to incorporate existing green technology at an affordable price. IIT's demonstration project is meant to encourage architects, builders, and developers to build energy-efficient housing that is accessible to the average buyer.

A group of fourth- and fifth-year students designed the project during the 2006 spring semester. However, the anticipated one-year project timetable quickly turned into a three-semester schedule as students acquired first-hand experience in the realities of the project delivery process. "Obtaining a building permit, winning aldermanic approval, conducting environmental studies, and a host of additional documentation took four months longer than anticipated," says Kultermann.

IIT sought support in making up for lost time from Erik Olsen, who assists the city in its Green Permit Program. In exchange for expedited housing permits, the city puts a building through a rigorous review to demonstrate that the project is environmentally sustainable. The IIT project received the highest points ever awarded for a residential project, thus making it the "greenest house in Chicago." Construction was scheduled for completion by the end of this summer.

The home earned its title, not through revolutionary new building designs, but by employing low cost, off-the-shelf technologies. Many of the technologies utilized are so-called passive approaches, such as the heating system, which collects solar energy during the day that is stored underneath the house in a rock bin; the heat then radiates out of the floor during the evening hours. The architects also installed



This summer work on IIT's green home in Bronzeville was near completion. The home will be listed on the market once completed.

a heat recovery ventilator, a product not widely used in the United States but that is effective in maintaining air quality within the home by bringing in outside air while regulating indoor temperature.

Other environmentally sustainable elements include:

- A retractable night insulation curtain, which will close the large window wall at night, preventing heat loss through the large expanses of glazing
- Energy-efficient lighting
- Advanced framing techniques
- Adjustable shading devices
- A rainwater retention system
- High-efficiency appliances
- A rain garden, pervious paving, and a water cistern

The IIT home will be on display this fall, serving as a demonstration project for the Chicago homebuilding market. It will be listed on the market for \$300,000.



[Above left] Eva Kultermann, College of Architecture faculty member, puts some finishing touches on a window inside the green home.

Finding Art Beneath a Tech Surface

To some outside the realm of a university such as IIT, the work of engineers and scientists may be devoid of visual appeal or imagination. But for many of the faculty members and students here, their work verges on the artistic. Think of the perfection expressed in a mathematical equation, or the incredible complexity and beauty of a microscopic chemical compound.

This natural beauty and wonder are the basis for IIT's first permanent art exhibit, aptly named art @ IIT. Since its inception in 2004, art @ IIT has brought together the seemingly disparate fields of art, science, and technology to reveal their synergies. Initiated by alumna Mindy Sherman (TCOM '05, M.S. '06) while an undergraduate, art @ IIT began as an Interprofessional Projects (IPRO) course to develop a business plan for an art gallery on campus. Professor Robert Krawczyk, director of the undergraduate program for the College of Architecture, was selected as its faculty advisor. The business model was so well received that the university leadership endorsed the creation of a gallery and formed the Art Board, with Krawczyk as its director.

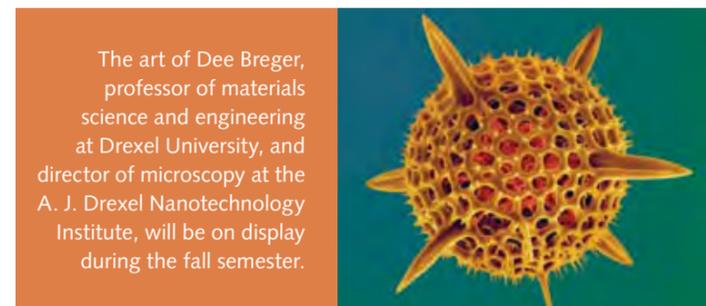
Krawczyk has long been interested in art, describing the natural relationship between art and technology: "A number of scientists and engineers have seen that the results of their investigative processes and procedures, the evidence of their scientific inquiries, produce more than just an explanation or documentation of a phenomenon. A scientific phenomenon often has an artistic aesthetic that transcends its ability to attempt to explain the world around us," he says. "Living cells form patterns of incredible complexity and beauty. The thousands of connectors in transistors in a circuit board form a landscape as beautiful as nature's."

In choosing exhibits, Krawczyk explores everything from technology and imagery to craftsmanship with materials, considering both the content of a work and its execution.

In November 2004, art @ IIT opened in the Kemper Room of Galvin Library. The first exhibit included 24 artists who represented current rapid prototyping methods, 3D printing, and digital sculpture produced in such materials as resin, plastic, starch, plaster, and metal. This group included traditional artists such as Kenneth Snelson, as well as engineers, architects, mathematicians, and computer scientists.

Since then, art @ IIT has hosted and curated three group shows and 10 solo shows, developed six art workshops with the help of the IPRO class, and recently hosted its first architectural exhibit in a second building on campus through the support of the City of Chicago's Sister Cities Program and the Prague Museum. The gallery has garnered numerous local and national reviews, and an "Art Beat" segment on Chicago's WTTW-11.

<http://art.iit.edu>



The art of Dee Breger, professor of materials science and engineering at Drexel University, and director of microscopy at the A. J. Drexel Nanotechnology Institute, will be on display during the fall semester.

Dee Breger, Fossil Antarctic Radiolarian, 1990

A Decade Strong, Architecture Ph.D. Program Contributing to a Better-Built Future

The importance of residential skyscrapers in increasingly space-restricted urban settings is one topic that Mahjoub Elnimeiri is contemplating during this 10th anniversary year of the IIT Doctor of Philosophy in Architecture Program. "Architects are some of those people who are responsible for shaping the environment," says Elnimeiri, who is program director, architecture professor, and a recognized tall buildings expert. According to Elnimeiri, the Ph.D. program was established, in part, out of concern for the environment, which today is facing issues of global warming, resources management, and densely populated cities. "I've always thought—and still think—that architects should work to create a better-built environment for the people."

Creating a better-built environment for the global community is one aim of students in the program, with its roster of candidates from around the world. Twenty-two students have graduated from the program since its inception in April 1997. While a student, Hatice Sözer (Ph.D. ARCH '02) had the opportunity to build integrated photovoltaic systems, and

has returned to her native Turkey to apply the sustainable design principles she learned at IIT. Now an assistant professor at Nigde University, Sözer is helping to form the institution's newly established architecture program as well as finding ways to make the campus a green one.

"I have already made some dramatic changes on the campus plan by taking car roads off-site of campus; greening the inside, mostly by landscaping; and applying photovoltaic street lights," Sözer explains. "When we finish all of our planning, our campus will be the first green campus in Turkey."

The Ph.D. in architecture program is grounded in applications-based research facilitated by the latest technology. In addition to a media center, the program suite features 24 computer stations equipped with software for generative design, engineering analysis, building information modeling, and other digital techniques. Hyeong-Ill Kim (Ph.D. ARCH '04), now an assistant professor in the College of Architecture's Ph.D. program, teaches computer-assisted design classes, among others. He is currently

researching tall building design and working on a research project for the Chicago Center for Green Technology, an organization that helps to bridge the gap between green technology and the consumer.

Even with nine areas of research concentrations to choose from, it is likely that creating a better-built environment to address the energy challenge will be a common focus of students in the architecture Ph.D. program. "The traditional way of thinking is changing. When we started our program, we were emphasizing tall buildings and mega-structures," says Elnimeiri, contemplating the evolution of the program over its first decade.

"But now I would say, without reservation, the concern about the environment is taking over my interest and the interest of many in architecture. That does not mean that we are not looking into tall buildings, form, structure, and materials. On the contrary, we are pushing the envelope in those areas, but we are keeping our focus toward a better and healthier future." www.iit.edu/colleges/arch

Expanding and Assessing the IPRO Program

After more than a decade of innovative learning through the Interprofessional Projects (IPRO) program, faculty and staff are taking IPRO to the next level by working to incorporate elements of a renowned service-learning initiative into the university's signature program.

The Engineering Projects in Community Service, or EPICS, program was founded at Purdue University in 1995. Purdue remains the headquarters, but 30 other schools throughout the country and the world now participate,

and the EPICS program allows for its expansion and formalization as well as relationships with other universities dedicated to similar service-learning models. EPICS service-learning initiatives assist nonprofit community organizations with specific problems they are facing and cover four broad areas of service learning: human services, access and abilities, education and outreach, and the environment.

IIT is more than just another participant. Last year, IIT was awarded a National Science

Foundation grant to review best practices of the program while moving to incorporate it into IPRO. There are three distinct goals for the NSF grant. The first initiative, headed by Director of Interprofessional Studies Tom Jacobius, the project's principal investigator, is a concerted effort to establish relationships with community partners. While IPRO has successfully engaged community partners in the past (including organizations such as the Holocaust Museum and Engineers Without Borders), Jacobius is working to move from project efforts to lasting relationships. He has already

solidified partnerships with Access Health Network, Chicago Public Schools, and the Museum of Science and Industry. These organizations will then benefit from one or

more IPRO projects every semester. Additional partnership talks are underway with a number of organizations.

Institute of Psychology Professor Margaret Huyck, a co-PI on the project, is spearheading an effort to incorporate reflective thinking principals into the EPICS program. This assessment system is intended as a tool for monitoring and managing the projects, student teams, and faculty of the IPRO program through the collection of systematic data with measures that have evidence of reliability and validity, and by providing the data for reports that assess the system performance. There are 12 IPROs already participating in the endeavor this year.

Dan Ferguson, senior lecturer at Stuart School of Business, is heading the third effort of the NSF project—to develop a team-leader training program and to identify IPRO Fellows. Ferguson has sought out students who have the ability to develop leadership and project management skills within the context of the IPRO program. This section of the grant is in its first year, and three IPRO Fellows have been chosen; Ferguson is aiming to appoint 10 more next fall.

The program already has 10 service learning-oriented projects this semester, and team members have presented their findings at annual EPICS meetings, as well as continuously shared their research with the national EPICS group.

<http://ipro.iit.edu>



The Interprofessional Projects (IPRO) program brings together students from different disciplines to solve real-world challenges. [Above] An IPRO team tests a prototype of a Vertical Take-off and Landing aircraft.

including Princeton, Notre Dame, Penn State, Dartmouth, Georgia Institute of Technology, and University of Auckland, New Zealand. IPRO has a long history of service learning projects,

Investing in Investing

Stuart School of Business has long espoused real-world learning. Now Stuart is making a smart investment in the abilities of its own students by giving members of the Stuart Investment (SI) Club the ultimate real-world experience—allocating \$250,000 of the university's endowment for them to manage.

The group began as a student-run club in January 2005 with the goal of funding scholarships and other endeavors. The original fund, which was established as a charity independent of the university, was financed through donations from students and faculty. It ran for more than a year and earned approximately \$6,000 in profits.

Trustee and Center of Financial Markets founder Jack Wing was impressed by the group and was a proponent of the SI proposal to invest a portion of the university's endowment. Stuart's Finance and Financial Markets master's programs have long ranked among the best worldwide, and other top-tier finance programs have similar student groups in place. Stuart faculty member Russell Wojcik now oversees the group of students and imposes a structure and guidelines but gives students latitude within this framework.

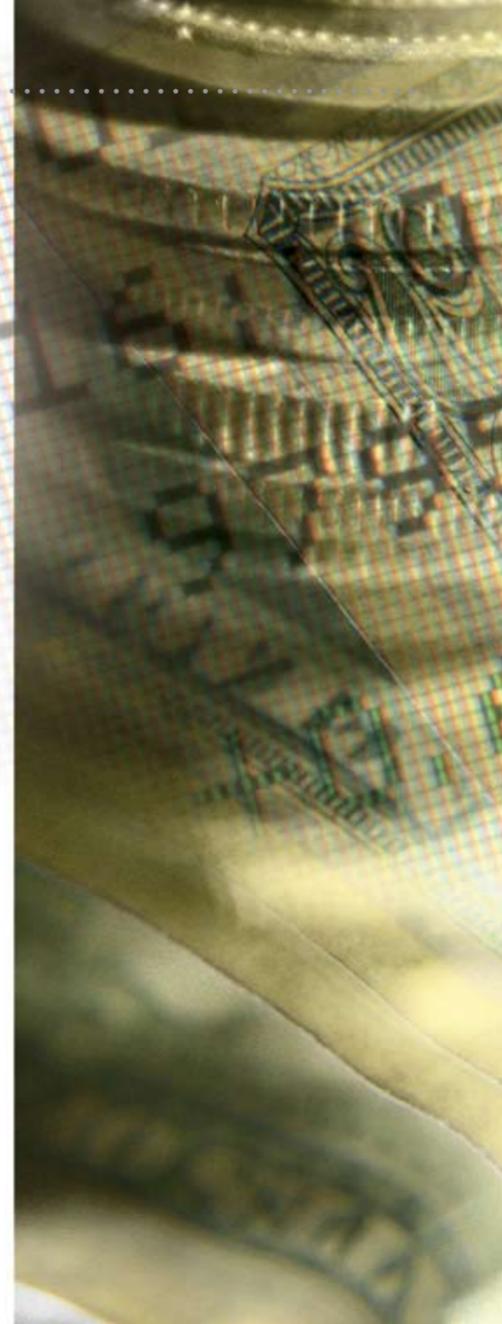
The SI investment policy reflects this thinking, following a growth at a reasonable price philosophy when selecting equity investments that combine both value and growth investing. The idea is to find healthy but undervalued stocks with a growth rate that exceeds most value stocks. In order for a stock to be

selected for consideration, it has to have positive earnings and its PE multiple cannot be twice that of the market.

The money is allocated evenly in five sections: consumer, finance, health care, technology, and machines and materials. Students are divided into five teams that reflect these areas, each with a sector leader and analysts. A fund manager and executive director sit above the five sector leaders and oversee the group. The team members must conduct thorough research on the stocks being considered for their portfolio and make a formal presentation to the group. SI presents about six to eight new stocks per quarter. SI is still extracurricular but draws approximately 20 students each quarter. Students start out on the analyst level and can move up to be sector leaders after proving themselves to the group. This dynamic promotes teamwork, stock analysis, and verbal and written presentation skills.

Solomon Shields, the current fund manager and financial markets major, believes that SI is beneficial to students on three levels: "The club's endowment supports scholarships for graduate business students, and the fund affords students the opportunity to put their financial education into practice. SI also provides an assessment of students' knowledge and the performance of the graduate business program. I participate in SI because I want to support my institution, test my abilities, and take part in the success of my program."

www.stuart.iit.edu/si/events.htm



faculty honors & awards

Elie Geisler

Stuart School of Business Professor Elie Geisler was named a distinguished professor of IIT. Geisler's work includes the areas of metrics and the management of science, technology innovation and engineering, knowledge management, and the management of medical technology.

Joseph Orgel

Assistant Professor of Biology Joseph Orgel was a recipient of a 2007 National Science Foundation CAREER Award. The award is considered one of the top honors given to junior faculty in the United States and is intended to recognize future leaders in his or her field. Orgel uses X-ray diffraction to determine the molecular structure of collagen, providing a three-dimensional picture of how it builds tissues and interacts with cells. This research is

expected to help scientists understand how the body is built from the molecular level up, and consequently help understand how cancer and heart disease develop.

Ronald Staudt

The Legal Services Corporation (LSC) honored Chicago-Kent College of Law Professor and Associate Vice President Ronald Staudt as a recipient of its first technology award for outstanding contributions to the LSC's

Technology Initiative Grants program. Staudt is director of Chicago-Kent's Center for Access to Justice, which uses the Internet and Web to provide assistance to legal service advocates and pro bono volunteers and litigants.

Fred Hickernell

Applied Mathematics Professor and Chair Fred Hickernell was named a fellow of the Institute of Mathematical Statistics "for innovations in the construction and analysis of quasi-Monte Carlo methods and their applications to experimental design." Fellows are recognized for demonstrated distinction in research in statistics or probability.

2007 Sigma Xi Awards

Recipients of the IIT Sigma Xi Awards, which recognize faculty and graduate students for their research, teaching, and creative endeavors, include the following:

Senior faculty division: Thomas Irving, professor of biology, director of the Center for Synchrotron Radiation Research and Instrumentation, and director of the Biophysics Collaborative Access Team at Argonne National Laboratory

Junior faculty division: Konstantinos Arfanakis, professor of biomedical engineering



Nick Menhart

On the Right Track: Dystrophin Research

In the nursery, an infant's eyes trace the circuit of a moth.

Already the child's hands are grasping at things, and he has begun incessantly rehearsing the sounds that will eventually blossom into language. The youngster's progress appears on schedule. A chromosomal glitch, however, will soon make itself evident.

This boy was born with a disease known as Duchenne Muscular Dystrophy (DMD). The root of this ailment is a defect in a complex human gene known as dystrophin, and is a focus of research for IIT's Nick Menhart.

The challenges of studying dystrophin, the largest human gene, are formidable. "This gene by itself is .1 percent of the total genetic material," Menhart explains. "So it's 300 times larger than your average gene." In healthy individuals, the dystrophin gene codes for a protein of the same name, one vitally important to muscle cells.

"Most cells just sit there," Menhart says. "They don't change shape." Muscle cells are different. "If you think of a piece of sheet metal bent back and forth, eventually it will break due to metal fatigue. This is what happens to muscle cells when they lack [the protein] dystrophin," Menhart adds.

Duchenne's is one of many so-called X-linked recessive gene diseases. Should a child inherit a defective X chromosome from his mother—one in which the dystrophin gene is damaged—his body will fail to produce the dystrophin protein, and the result is DMD.

But DMD is a peculiar genetic disease in that about 50 percent of cases are not inherited. Rather, they are the result of new mutations specific to the individual. Because the gene is so large, thousands of underlying defects are possible, making genetic treatment especially vexing.

Duchenne is the most common form of muscular dystrophy, striking 1 in 3,500 boys. It is also one of the most pitiless. The first signs occur between two and six years of age. The calves of the child's legs may appear oddly muscular and enlarged. Soon, the boy is walking with a peculiar,

waddling gait. By the time he is in his teens, the child's confinement to a wheelchair will be permanent. Most stricken with DMD die by their mid-20s. Few survive past age 30.

At the microscopic level, the trouble begins when the language needed to make the muscle protein is mistranslated from the dystrophin gene. Nucleotides—which act like lettered beads on a charm bracelet—combine to form three letter sequences, known as codons. With Duchenne, such nucleotides may be spuriously added or deleted, corrupting the codon 'words' and making them illegible. The result of these genetic misspellings is known as a frameshift mutation.

"It's like a train derailment," Menhart explains. The "tracks" in question are segments of DNA on the gene known as exons. These critical pieces combine to form the proper recipe for the dystrophin protein. If the body misreads the code, synthesis of the protein cannot proceed properly. As Menhart points out, "It doesn't really matter where the train tracks are broken. If I don't get all the way to the end, I don't get the protein."

And what if there were a way to skip over a defective segment of track and continue the journey, producing a slightly altered or abbreviated, but nevertheless functional dystrophin protein? Such technology is now being attempted in human trials. It is considered among the most promising approaches to the treatment of Duchenne's.

As Menhart explains, "If they can skip some of these defective exons, that person would be cured and start making his own dystrophin again, minus the little defective piece. We can get to the end of the track, and we're fine."

If the theory sounds straightforward, the practice of treating Duchenne by exon skipping is frustratingly complex. Many intricacies of the gene and the affected exons have not been satisfactorily studied. Menhart insists that current attempts to re-engage the train without a more thorough understanding of the segments of track is a strategy largely relying on luck. "Here's the problem: nobody knows what the effects are of putting this thing back together," he says.

Hence, efforts to compensate for the track derailment—to ferry passengers by bus around the accident site, as it were—are usually unsuccessful. The bus driver has no idea where to drop off the passengers. As Menhart puts it, "Sometimes they can see the station and walk to it, sometimes they are way off and they just wander around in a bad part of town until they are mugged."

So Menhart and IIT students are trying to fill in this deficit by researching the detailed structure of the dystrophin gene. "What we're doing is studying all the little pieces, to see which ones go together and how they can work if you remove them. Nobody knows which exons to skip—how to get the train back on track. That's what we're doing."

Those with Duchenne have considerable cause for hope, according to Menhart: "If we can learn more about the structural consequences of exon skipping, I would be hopeful for a treatment within a decade, maybe sooner."

—Richard Harth



many voices, **one vision**

IIT President John L. Anderson

The conference room

in IIT's Downtown Campus could swallow an elephant—or in this case a massive, 30-person table, meticulously polished, sparkling, and free of fingerprints. John L. Anderson walks directly to a seat at the head of the table, nearest to a window overlooking the city. It's an appropriately big window—the kind that's made for looking out, thinking, and collecting thoughts.

It is three weeks before Anderson officially takes office as the eighth president of IIT. Anyone would expect a new university president to be doing a lot of forecasting at this time—and he is—though the unusual early-morning quiet of a city on the verge of a downpour offers him a welcome silence for reflection.

many voices, one vision

"I did not think I would do this," he says without hesitation. "It's a good lesson in keeping your options open. You never know what's going to happen."

Rewind to 1969. The unforeseeable "this"—a career in higher education—arrived at a crossroads in Anderson's life. Like many master's degree candidates, he found himself choosing between entering the workforce and pursuing his doctorate. On top of this, he was about to spend six weeks at ROTC summer camp in Kansas, a necessity brought on by the Vietnam War. He had not anticipated a tough decision, because there had been only one option. "I never thought about an academic position. Almost all my relatives worked at DuPont, and I envisioned a career in industry," he says.

His thesis advisor, the most influential figure in his life outside of his family, made the case for academe, citing Anderson's potential as a researcher.

"He told me I could do it," says Anderson, whose towering stature belies his soft-spoken demeanor. "I began to find success in higher education, and I really enjoyed working with students.

"It was a good decision. I have never looked back."

• • •

Anderson grew up in Wilmington, Del. His parents were the children of Swedish and German immigrants who first settled in Cleveland, Ohio, after moving to the United States.

"Neither of my parents went to school past the eighth grade, so they were very proud that my sister and I both went to college," he says.

He received his bachelor's degree in chemical engineering from the University of Delaware. It was there that he met his wife, Pat, a fellow student in math and physics classes. "In those days it was rare for a woman to be in those classes. She was smart—Phi Beta Kappa—and better at math than I was, and I thought I was pretty good," he says, smiling proudly. "I really fell for her and worked hard to get that first date." Pat worked in computing for DuPont and several universities in the days when knowledge of 'assembler language' was critical. They married in 1968, and have one son and one daughter, both in their 30s, and two grandchildren.

Anderson earned his master's and Ph.D. degrees in chemical engineering from the University of Illinois at Urbana-Champaign, where he pioneered the development and use of micro-porous membranes to study biological transport phenomena. He began his academic career as an assistant professor of chemical engineering and of applied mathematics at Cornell University.

He has experienced higher education from nearly every vantage point—student, assistant professor, associate professor, professor, center director, department chair, dean (the latter four at Carnegie Mellon University), and provost (at Case Western Reserve). Anderson has held visiting professorships at Massachusetts Institute of Technology, the University of Melbourne (Australia), and the Landbouwniversiteit Wageningen (The Netherlands), and guest lectureships throughout the country. He is the author of more than 100 journal articles and book chapters.



The Inauguration of President John L. Anderson

IIT alumni, faculty, staff, students, and friends are invited to the inauguration of John L. Anderson as eighth president of the university. The ceremony will celebrate the theme "Many Voices, One Vision" and take place on Tuesday, October 30, 2007.

Location: Hermann Hall Auditorium, 3241 S. Federal Street
Inauguration: 10:30 a.m.–noon
Lunch: noon–1:30 p.m.
Guest speaker:
Jared L. Cohon, president of Carnegie Mellon University

To RSVP, phone 312.567.5064 or email rsvpevents@iit.edu.

John Quinn, Anderson's thesis advisor at the University of Illinois and now professor emeritus at the University of Pennsylvania, praises Anderson for holding top administrative positions at Carnegie Mellon "while maintaining a prominent research program as well as building an outstanding faculty," he says. "He is a natural leader, and he has always had the respect of his colleagues because of his impeccable academic credentials—a quality not always found in academic administrators. John is always up to the challenge, and he is ambitious in the best sense of the word."

"At Case Western Reserve and Carnegie Mellon, John earned his reputation as a leader with sharp ideas and an unflinching commitment to education," says IIT Board of Trustees Chair John Rowe, who headed the Presidential Search Committee. "His intelligence, academic credentials, and vision resonated with the search committee, and are the ideal qualities that IIT needs in a new president."

"I believe I have an opportunity to make a real impact at IIT," says Anderson, a self-described "glass-half-full" type of person. "The university is on a very positive slope both in terms of its resources as well as its attitude—positive attitude is the most significant. It's important as an incoming president to be at a university that is strong but that also has a lot of growth potential."

While he is pragmatic about the process of unleashing this potential, he is precise and thorough in articulating the four key areas of greatest opportunity at IIT.

"Engineering and the sciences are important. There is tremendous competition with other universities, so our investment has to be made in certain areas where IIT has or could have a comparative advantage," he says. "At the same time, we have to advance other disciplines. We will do this by increasing the size of the pie, not by slicing it into smaller pieces."

Increasing the undergraduate student body is also a priority. At Case Western Reserve, undergraduate enrollment soared by 25 percent during his tenure, while the quality of admitted students remained high.

"With John, it's a complete investment in the students," says Paul McKenzie, vice president and general manager of biologics manufacturing at Bristol-Myers Squibb and a former Ph.D. student of Anderson at Carnegie Mellon. "He was invested in more than our lab and class work. He cared about us personally. John wanted us to be successful wherever we went with our careers."

"It's the students who have kept me working at universities," he says, noting his mentorship of Ph.D. and master's students as his biggest professional achievements outside of his research and election to the National Academy of Engineering and American Academy of Arts and Sciences. "I met with about 15 students right after I accepted the presidency, and they were fantastic. There is a lot we can do to improve student life, the programs we offer students, class size, facilities, and athletics."

Although he says increasing IIT's national visibility is a decade-long undertaking, it is an opportunity with implications for the entire IIT community. "This is something I will work both personally and with faculty to improve," he says. Anderson believes IIT has the potential to experience a successful growth pattern as did both Carnegie Mellon and Washington University—two

universities that, once similar to IIT, have grown in the past 25 years from being largely local to internationally known entities.

"Students have told me national visibility is one of the most important things for them. We have many faculty members with national visibility. We want all people associated with IIT—faculty, staff, students, and alumni—to go out and say, 'I'm from IIT,' and for others around the country to know our name."

In his efforts to garner national recognition for IIT, Anderson says it will be equally important for the

"The university is on a very positive slope both in terms of its resources as well as its attitude—positive attitude is the most significant. It's important as an incoming president to be at a university that is strong but that also has a lot of growth potential."

—John L. Anderson

university to further its relationship with the Chicago community. An increased diversity of the student body, including more local students, offers growth potential stemming from these ties. "IIT has this on its radar screen. It's important that we attract talented students who may be disadvantaged financially or otherwise."

It is an issue that is close to Anderson. He is credited with improving diversity of both women and minorities at Carnegie Mellon's College of Engineering, while also sustaining the college's ranking among the Top 10 engineering schools in the country.

"I have seen my wife maneuver in a male-dominated field, and my parents were always very inclusive in terms of race and ethnic background. Everyone was a friend to them," he says. "They shaped my very strong, positive views about inclusiveness and diversity."

"John is the ultimate networker," says McKenzie. "He constantly surrounds himself with a variety of people of all nationalities and genders. It's what makes him tick, and he likes learning new things from other people."

In seeking new accomplishments for IIT, Anderson plans to spend his first four months in office preparing for the long term while working to maintain IIT's momentum—learning about the unique culture of IIT, becoming acquainted with the Chicago community and leaders, visiting every building and campus, assessing the quality of existing academic programs, and fundraising.

"I'm a people-oriented person," he says. "I like to meet alumni and donors." While at Carnegie Mellon, Anderson increased the number of endowed chairs in engineering from five to 29.

Of course, settling into a new city also tops his agenda. "Pat and I both come from humble backgrounds, so everything we do is a bit of a surprise for us," he says. "Chicago is a vibrant city. We are walkers, so walking will be a great way for us to explore the city. We also plan to go from two cars to one and to make great use of public transportation."

He has also just learned that his daughter and son-in-law are transferring to Chicago from Pittsburgh, which has him beaming.

"You could call it an alignment of many good things," he says. ■

by Christopher Darnielle

Redefining Ownership: Intellectual Property Law at IIT

While the term “artificial intelligence” (AI) may conjure up visions of campy ‘50s science fiction movies or epic man-versus-machine chess duels, for Chicago-Kent College of Law Professor Mickie Piatt, it has a much more practical application: as an anecdotal case study for the intellectual property (IP) law classes she teaches.

The case study centers on a piece of real-world software, an automated book-authoring program that can be customized to mimic the writing styles of various famous authors via an artificial intelligence engine. The twist? She analyzes the implications of this software, and the mimicked writing it produces, from the perspective of an IP lawyer.

“One of the interesting questions is, who owns the copyright?” asks Piatt, also the executive director of Chicago-Kent’s IP law program. “Is it the computer? Is it the person who programmed the AI? Is it the people whose heads were mined to create the knowledge base? Or is it [the author] whose style they’re stealing? Those are just the obvious questions, but there are a lot more you could explore.” Piatt’s case study is a perfect illustration of the often confusing and contradictory applications of IP law.

In part, these are the kinds of issues that IP law is intended to define—ownership rights inherent in (or exclusive to) creative and innovative works. Broadly defined as copyrights (artistic material and multimedia), trademarks (brand identities), industrial designs (styles of industrial objects), patents (inventions), and trade secrets (proprietary information of a business or process), IP is exactly what the term implies—property. As with any other asset, it can be bought, sold, transferred, and licensed; often it is an extremely lucrative asset for a corporation.

Piatt goes on to explain how her department has restructured the entire IP law curriculum in recent years so it will better represent what students will experience as actual practitioners: “What we’re doing is trying to encourage students to take classes that are not perceived as IP classes, but [those] that we think will make them better practitioners if they can apply what they know in a broader context.”

The formula she outlines is unique: adding courses to the core curriculum that are not typically considered IP-related (Evidence, Administrative Law, Remedies, and Anti-Trust), and creating the “capstone experience”—a requirement of all third-year certificate students—designed to make students think more broadly about IP issues.

In Chicago-Kent’s capstone experience, students must participate in one of three programs: a paid externship with a qualified law firm or corporation; a clinical experience known as the IP Law Clinic, in which students work with corporate or faculty entrepreneurs to resolve patent issues related to their inventions; or the Strategies in Intellectual Property course, in which students act as practicing attorneys, tackling issues that integrate the various branches of IP law. “It’s not all just pure litigation,” according to Chicago-Kent’s IP law program Associate Director Tim Holbrook, “it can also have licensing and negotiation aspects to it.”

The approach seems to be working. Although Chicago-Kent’s IP law program has been around for two full decades (an eternity in the IP field) and was one of the first of its kind in the country, it recently received one of its biggest honors to date: *U.S. News and World Report* tabbed it as one of the Top 10 programs of its kind in the country. Holbrook shrugs off the honor. “It’s one of those things we don’t want to put too much weight into, because we’re always afraid of overemphasizing the rankings.”

Harold Krent, dean of Chicago-Kent, singles out another unique focus of the school’s curriculum: International IP Law, the first master’s program of its kind in the country. “Global concerns are more and more predominating, so you need to think not just of United States patent law, but also that of Japan and England. We try to introduce more international considerations than other schools throughout our curriculum.”

Academia is taking notice of this worldly approach. “In the last 15 years, the internationalization of Chicago-Kent’s curriculum has proceeded at a breathtaking pace,” says Brian Havel, director of DePaul’s International and Comparative Law Program. “IP, in particular, has become an internationally oriented subject thanks to the globalization of commerce and technology. The Chicago-Kent IP program has adapted itself very well, in both its curriculum and its scholarly publications, to the implications of globalization.”



Photos: Bonnie Robinson

Professor Mickie Piatt says Chicago-Kent College of Law has restructured its nationally ranked Intellectual Property Law program to better teach the practical application of IP law.

It’s important to note that the globalization of IP is more than just a problem for academics to grapple with; it has also created a new set of obstacles for domestic corporations of all shapes and sizes. For instance, the decision of whether to file for patents in foreign countries has become absolutely critical to the healthy development of many businesses.

“Global concerns are more and more predominating, so you need to think not just of United States patent law, but also that of Japan and England.”

Harold Krent, dean, Chicago-Kent College of Law

IP attorney and alumna Adrienne Naumann (LAW ’84) explains that filing patent applications in multiple countries can be financially prohibitive, even for large corporations. Additionally, “If you file a patent in this country, it can still be kept confidential if you forfeit your rights to file overseas,” she says—but this confidentially goes out the window once you file outside of the United States. “Then the client has to make a decision whether they want to invest in filing overseas and having their confidential information published, whether or not they ultimately obtain the patent, or whether they just

want to restrict their territory to the United States and have it remain confidential.” In other words a mistake or oversight in the patent application process has the potential not only to shut the doors on foreign markets, but also to expose the vitals of your patents to competitors all over the world.

Of course, globalization isn't the only force driving the explosive growth of intellectual property in today's marketplace. Innovation and advances in technology often dictate how intellectual property is defined—and redefined. “The pace of technological change has increased so much, one needs to continually refresh one's assumptions about how copyright or patents should work,” Krent explains. “There was no real way to anticipate the pressures on the copyright system with the advent of file sharing on the Internet.”

While peer-to-peer file sharing may be the most visible IP issue these days, it is by no means the most controversial; many issues integral to the pharmaceutical and biotechnology industries are bitterly divided. Perhaps no topic better illustrates the complexities

To date the Supreme Court has skirted the subject, but according to Holbrook, “there is hope—and obviously I'm revealing my normative bias here—that the court will address this type of issue.” However the current shape of the marketplace may prevent any such litigation from ever reaching the higher courts. Essentially if a small—and likely risk-averse—company is researching a disease that it discovers involves a patented gene sequence, it will likely elect to stop research rather than face costly infringement litigation. Conversely, a large, deep-pocketed corporation may refuse to challenge another company's gene patent in the courts, on the premise that any ruling reversing the overall legality of gene patentability would render its own patents worthless.

The bottom line is that as long as companies refuse to litigate over the validity of gene patenting, it will remain legal—which according to Holbrook, is the unequivocal position of the United States Patent Office.

In response to controversial issues such as gene patenting, among others, IIT formed two organizations—the Institute for Science, Law, and Technology and the Institute on Biotechnology and the Human Future—to promote discussion and disseminate knowledge on these topics. Both organizations recruit leading scientists, philosophers, and scholars across a broad range of disciplines to analyze the legal and ethical ramifications of the rapidly changing landscape of science and technology.

Gene patenting is just one example of intellectual property's central role in the development of new technologies. IP also plays a crucial role in entrepreneurship, which is a cornerstone of IIT's educational philosophy. Much of IIT's curriculum—engineering, life sciences, business, and law—has been integrated under this multidisciplinary umbrella.

Nowhere is this lesson more evident than with IIT's ongoing University Technology Park At IIT (UTP)—a project designed to bridge the gap between inventors and entrepreneurs (both private and academic) and the resources needed to turn their inventions into self-sufficient businesses.

UTP's most basic function is to provide customized real estate for researchers and start-up companies, particularly those in the technology and life science industries. But Daniel Marselle, associate director of Technology/Business Services, stresses that the park's purpose is far broader than just “a real estate play.” “We're trying to build a real environment, an ‘ecosystem’ here,” he says, “for hi-tech companies, wherever they are in their life cycle.”

The Jules F. Knapp Entrepreneurship Center, although further upstream in the business cycle, works hand-in-hand with UTP. The Knapp Center was established in a community service vein to help connect budding entrepreneurs (both on- and off-campus) with essential services to get their businesses off the ground. “Our job is not to run a business for an entrepreneur,” says Jacob Elster, Knapp's director of programs and services, “but to provide entrepreneurs with information they need to make informed choices about how to run their businesses.” These services include research, legal advice, business plan guidance, strategy and development, and financial modeling and projections, among others.

“The half-life of technology in electronics is about a year. So by the time a patent issues, there would have been six cycles that have basically doubled the capability of electronics. It's pretty crazy.”

Office of Technology Transfer and Intellectual Property Director Robert Anderson

The Office of Technology Transfer and Intellectual Property (TT/IP) also plays a crucial role in IIT's ever-expanding entrepreneurial efforts. TT/IP was developed with a much more narrow focus in mind: to license and commercialize the inventions and processes of IIT faculty inventors, or “technology commercialization.” “We want to be known as an entrepreneurial campus, that some of our faculty are entrepreneurs, that we are friendly to entrepreneurs,” says Director Robert Anderson. “I represent the university in making technology available to outside entrepreneurs, or licensing it back to the professor himself.”

Anderson cites a \$500,000 royalty payment last year as the biggest his office has ever garnered; but that sum, and the term “technology commercialization,” can be misleading—this is a program developed to foster synergy between academic research and entrepreneurship, not a profit center.

Anderson says that his office, on average, applies for “about a dozen” patents per year, and expects “more than half” to issue. On its surface that may not sound like a lot, but when you consider the glacial pace of the patent application process, that's actually quite remarkable. “It can take five or more years for a patent to issue,” he says.

“Think about it. The half-life of technology in electronics is about a year. So by the time a patent issues, there would have been six cycles that have basically doubled the capability of electronics. It's pretty crazy.”

Although that serves in part as a cautionary tale about the lumbering cogs of government—and highlights the contrast in efficiency between the public and private sectors—it's also a stark reminder of the breakneck pace at which science and technology are still evolving, and the importance of IP law in managing this evolution. Clearly, IIT's multi-disciplinary, hands-on approach to teaching IP law and fostering entrepreneurship ensures the university will play an important role in shaping this evolution in the years to come. ■

www.kentlaw.edu/depts/ipp

Christopher Darnielle is a digital layout artist and freelance writer who lives in Chicago.

“Patenting an isolated gene allows you to control anyone who wants to do research on that gene...That is an act of infringement.”

Tim Holbrook, Associate Director, Chicago-Kent IP Law Program

and ethical ambiguities of these issues than those surrounding the patentability of human genes.

“Many recent articles have been highly critical of gene patents,” says Chicago-Kent alumnus Mike Harlin (J.D. '96), a practicing IP lawyer for McAndrews, Held, and Malloy, “saying they were holding back diagnoses and cures for disease. Others believe that granting patents on isolated genes stimulates investment in research on those genes and in drugs to treat genetic disorders.”

Holbrook explains the legal restrictions behind the controversy: “Generally speaking you can't get a patent on something that already exists—if it's already a product of nature, there's no patent eligibility.” Although highly controversial, he says that the key to the legal patentability of the human gene “is that you can get a patent on something that has been purified and isolated, even if it exists in nature.

“What they're doing is patenting the sequence of the good DNA, the functional aspect of the gene. So they isolate that genetic sequence, and the idea is that what you're claiming is a very complex chemical compound.”

Patenting an isolated gene isn't necessarily profitable—not in itself, anyway. However, “what it allows you to do is to control anyone who wants to do research on that gene, because in the process, you will almost necessarily have to isolate it at some point,” Holbrook says. “That is an act of infringement.”

The implications of infringement are widespread, particularly in areas crucial to medical research. “This is the controversial aspect of it,” he says. “Many think that patenting genes is too far upstream, that you're blocking the potential for people to do real discoveries on the things that count.”

“Patent Pending”

Patent Delays at the USPTO

One of the most formidable obstacles confronting entrepreneurs is obtaining a patent for their inventions. As TT/IP Director Robert Anderson notes, the process is arduous: “Current delays can take more than five years in some technology areas.”

The Patent Office's problems are by no means a new phenomenon. Take this excerpt from the November, 1884 issue of *Scientific American*: “We are in receipt of complaints from inventors and manufacturers of machinery because of the delay to which they are subjected in obtaining patent papers from the Patent Office... The number of such articles [of temporary utility] for which patents are desired is by no means small, and the failure of the Government to grant patents promptly simply has the effect to rob the inventions of the whole of their value.”

At least partially, the United States Patent and Trademark Office's (USPTO) troubles can be attributed to a rise in the number of patent applications filed. According to USPTO figures, applications jumped 8.3 percent in 2006.

To address this increase, the office hired 1,218 additional patent examiners in 2006, and plans to add another 1,200 this fiscal year. In the USPTO's official 2006 year-end report, Director Jon Dudas outlines the steps his department has taken to help train—and retain—this huge influx of new employees: new, university-style training for inspectors (previously this had been done on a one-on-one basis); the addition of recruitment bonuses to help lure top-notch scientists and engineers; and the implementation of a “hoteling” program, whereby inspectors are provided equipment and Internet access, and allowed to work remotely.

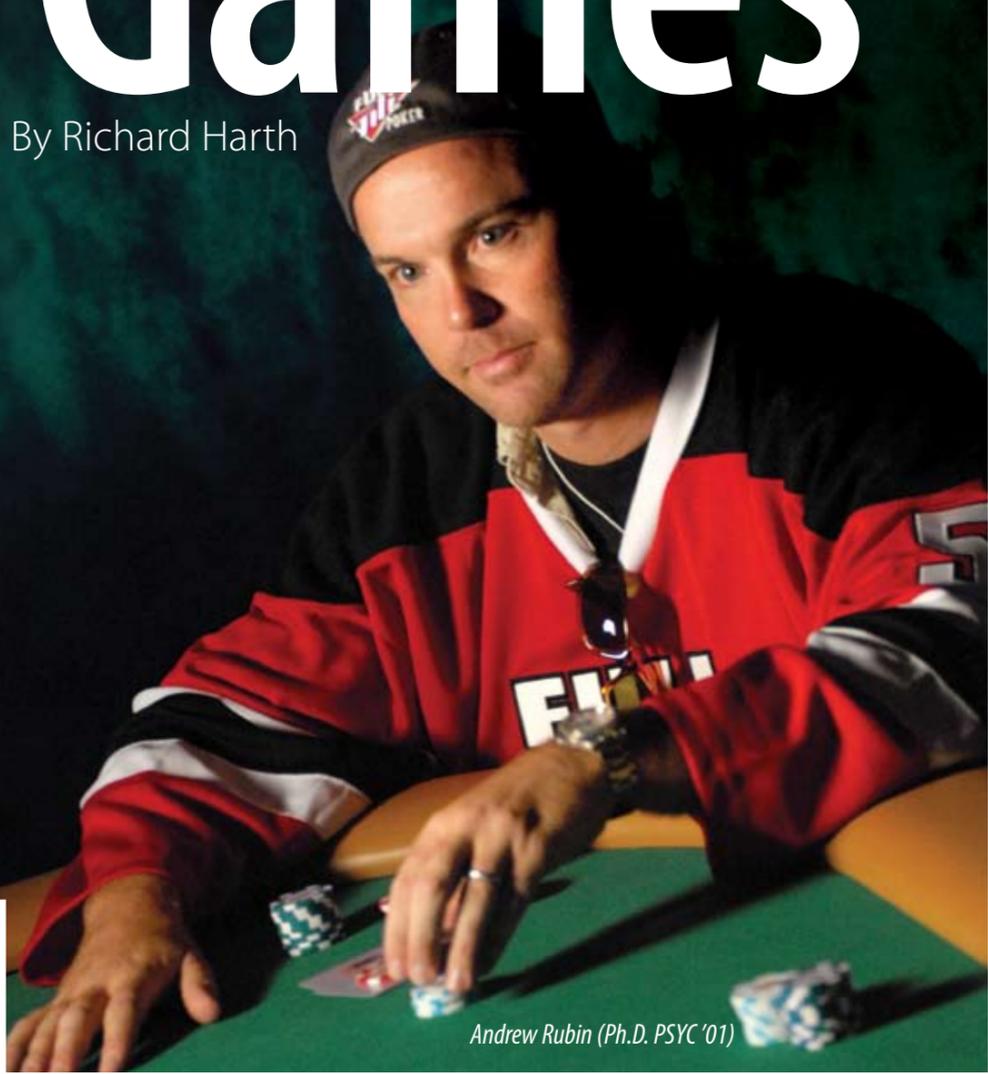
Additionally, the USPTO has implemented the Electronic Filing System-Web, an online patent application process that Dudas says has “dramatically increased the electronic filing of patent applications from 1.5 percent per month to 33 percent per month.” (Christopher Darnielle)

HEAD

Reading Minds at Work and Play

Games

By Richard Harth



Andrew Rubin (Ph.D. PSYC '01)

Humans have a startling ability to extract meaning from words. For most, a facility with written and spoken language is second nature by adolescence. Reading *people* on the other hand—deciphering the non-verbal, often unconscious signals they send out—is a highly specialized talent, one that Andrew Rubin (Ph.D. PSYC '01) has honed to an uncanny degree.

In the course of his career in clinical psychology, Rubin has become keenly attuned to facial and bodily intimations in his patients, drawing on a silent storehouse of emotional data to help children and adults. Today, his thriving Florida practice assists those with infant and childhood development issues, couples facing relational problems, and those grappling with depression.

But don't expect much empathy should you encounter Rubin across a poker table. There, his people-reading prowess is likely to be used against you. Indeed, Dr. Drew, "The Poker Ph.D." (as ESPN announcers dubbed him), has a deadly knack for reading tells—subtle clues players give regarding the cards they hold. This ability has earned Rubin "casino cred" from seasoned pros, not to mention more than a quarter-million dollars in prize winnings.

Schools of Thought

Rubin's fascination with psychology lured him to IIT, where he earned his doctorate in clinical psychology. It was an experience Rubin recalls with deep fondness: "IIT was a wonderful learning environment, and Robert Schleser was one of the greatest mentors a person could ever have," he says, referring to his advisor at the Institute of Psychology.

An obsession with poker, however, didn't blossom until his post-grad days. Rubin found himself at Tulane University, where an old IIT buddy, Lorenzo Azzi (Ph.D. PSYC '01), was interning. Amid their academic studies, the two psychologist friends took up poker—first casually, soon with ferocious determination. "Drew and I are very

competitive," Azzi says, adding that both also were strong athletes. "As we got older, our bodies didn't allow us to compete at our previous levels. So we gravitated toward another area where we felt we had an edge on our opponents," he adds with a laugh.

Periodic Tables

New Orleans' thriving assortment of gambling dens and riverboat casinos provided an ideal second campus for the pair. After making the evening rounds, the

two would often stay up for hours playing one-on-one poker and honing their skills.

Rubin also was digesting poker books with a near-insatiable appetite, though he found the art and science of reading tells inadequately explored. This was particularly true with respect to his game of choice—Texas Hold 'Em, a lively poker variant that has recently become a national sensation. "If you look at all the successful players who make it to the final tables over and over again," Rubin insists, "their ability to read

other players is a significant factor." Having mastered all fundamentals of the game, he undertook a comprehensive study of poker's often-elusive psychological aspects, in particular, the decryption of tells.

Learning to Read

The traditional poker face—a blank slate leached of emotional affect—is for poker zealots like Rubin a treasure trove of information. As he explains, two broad species of tells exist: those the player emits subconsciously and those used deliberately to mislead the opponent, what in common parlance are known as bluffs. "What I study are the autonomic responses when people pick up a hand," Rubin says. Such signals include dilation of the pupils, increased breathing, perspiration, and other manifestations of anxiety.

The technique has correlates in other fields, notably law enforcement, where

his near-clairvoyant ability to read tells eased him into the winner's circle.

"I actually recognized Jennifer's tell from watching her on television," he says. Her tell revealed that Harman also had a very strong hand (ace, king, it turned out) and might be enticed to go all in, that is, to bet all of her chips. Having read Harman's unconscious tell, Rubin responded with a purposeful tell designed to imply that he was tentative about his next move.

The tactic worked. Confident of her superior strength, Harman pushed all her chips to the center of the table, only to see Dr. Drew uncover pocket aces, the strongest hand in poker. Having relieved Harman of all of her cash in one stunning hand, Rubin went on to the final table and a \$264,000 win.

Ron Rubens, poker shark and co-founder of World Poker Tour Boot Camp, a training ground for aspiring champs, remembers

"If you look at all the successful players who make it to the final tables over and over again," Rubin insists, "their ability to read other players is a significant factor."

autonomic clues suggestive of deception are used in criminal interviews. In psychology, such non-verbal behavioral cues also may prove critical, as Rubin elaborates: "I use it every day in my clinical practice. You can tell if patients are distressed, if they're being disingenuous, if they're nervous," he says.

At the highest levels of play, relentless intelligence gathering is the order of the day. "Every single round I want to pick up something on the players," Rubin maintains. "The way they bet their chips, how they look at their cards—you never know when you're going to detect something that's going to come in handy."

Rubin's supreme attentiveness paid off in spades (or rather, in aces) at the 2006 World Series of Poker. "It was my very first World Series event. I was a little stressed going in there," he remembers. In one of the late rounds, with tension mounting, Rubin found himself seated at a table with Jennifer Harman, one of the world's top players.

Psychological Warfare

Rubin is animated in recounting the magical moment that turned the tables for him during that game: "I had one hand against Jennifer, with three tables left. It was a huge hand," he remembers. It was at this moment

Rubin's hand well. "Because he was able to pick up the tell, he was able to securely set a trap. One read like that in a tournament can make the difference between going home with nothing and going home with several hundred thousand dollars," he says. "In Drew's particular case, that's exactly what happened."

Not surprisingly, Rubens decided to tap Dr. Drew's powers of perception, inviting him to play and teach his skills during the championship round of the Spring World Poker Tour in Reno. For three days, The Poker Ph.D. acted as the Boot Camp's tell-reading guru-in-residence, wrapping up the exciting event with a third place finish in the WPT Championship.

Happily preoccupied with his clinical practice and busy family life these days, Rubin has no plans to hit the road hustling poker full-time, though his enthrallment with the game is undiminished: "I really like the intellectual challenges of poker. It's understanding the statistics of the hands that you play, understanding position, being able to read other players—everything in combination makes it fascinating for me." ■

Richard Harth is a writer based in New Orleans.

Game Faces

The autonomic nervous system has evolved to protect humans in hostile settings. As Andrew Rubin notes, "In a stressful or dangerous situation your blood pressure increases. Your heart rate increases. You get a burst of energy, and your eyes dilate to make you more aware of your environment. Without this delicate system," he observes, "humans might have failed to survive as a species."

For those properly attuned, such telltale signs of anxiety or stress may be used to an advantage, particularly in the game of poker.

Four poker tells

- **Trembling hands.** "It's very difficult to cover up when you hit a big hand," notes Rubin. "Your blood pressure goes up and the first thing that happens as you try to manipulate the chips is your hand starts trembling." He instructs novice poker players: "always watch people's hands!"
- **Betting pattern.** "Where your opponent places his chips can make a big difference. People do a lot of unconscious things," Rubin adds. "For instance, he may push those chips far away from him and put them in the middle of the table if he feels they may not be coming back. If he thinks he has a big hand he may not place them as far away."
- **Player glances at chips.** When a player casts a glance at his or her chips after looking at their hand, this is usually an inadvertent sign their hand is strong. "Even before I look at my cards, I'm watching everyone else look at their chips," Rubin says.
- **False tells.** The most general rule of thumb in reading tells deliberately designed to mislead is that players attempt to look strong when they are weak and weak when they hold a strong hand. These conscious gestures, which poker players refer to as acting, tend to be splashier and less subtle than tells emitted unconsciously. A player who sighs at his cards or speaks with exaggerated hesitancy or a tenor of resignation is often concealing a big hand.

(Richard Harth)

RECIPE FOR THE

Story: Richard Harth

UNIVERSE

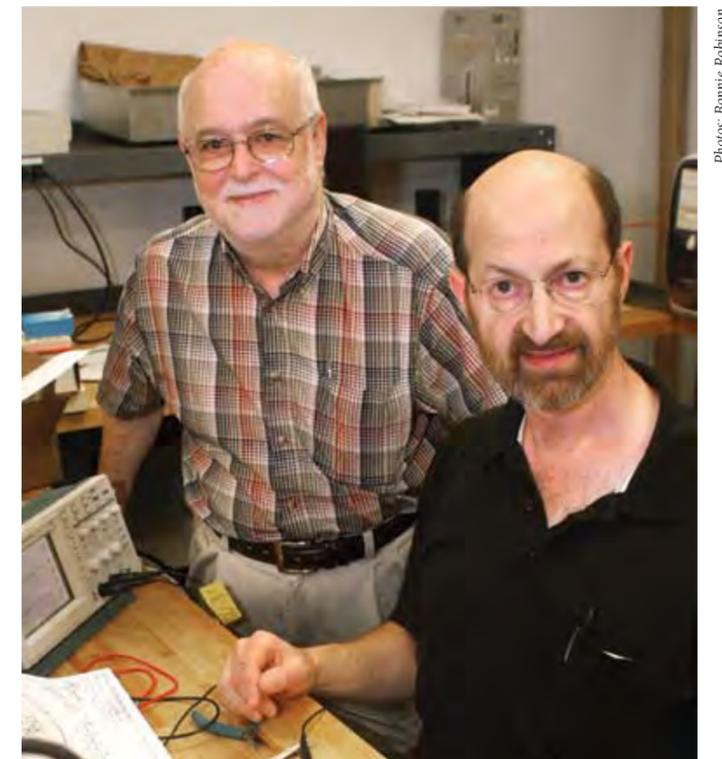
How did matter survive the winner-take-all confrontation with antimatter? Physicists at IIT are exploring this question, and the results may open a new chapter in physics.

By now, the notion of antimatter has become so popularly enshrined, it could as easily show up in a children's game as in a physics lecture. "I'm matter, you're antimatter," one playmate might declare, and we all know the catastrophic results should the pair tempt fate and touch each other.

Theory suggests that nature produced exactly equal amounts of matter and antimatter in the first turbulent microseconds of creation. Following the inevitable annihilations just after the Big Bang, there should have been nothing left—no matter, no antimatter.

But here we are.

The quest for a solution to the puzzle has lured IIT high energy physicists to study a perplexing yet foundational issue known as CP violation. In addition to refining our knowledge of particle behavior, such research may help to explain nature's preference for matter—a subtle favoritism essential for the universe we inhabit.



[Left to right] Professors Howard Rubin and Daniel Kaplan probe a light flasher circuit for testing and calibrating the photomultiplier tubes in Double Chooz.



[Left to right] Fermilab facility, Leon Lederman, Chris White, Ray Burnstein

The IIT Department of Physics benefits not only from an outstanding faculty, but from the school's proximity to Fermilab's Tevatron Collider, one of the most powerful instruments for investigating nature on the tiniest scale, located in Batavia, Ill.

In 1975, Daniel Kaplan, then an eager graduate student, joined the team of Leon Lederman, who directed Fermilab's momentous investigations leading to the discovery of the bottom quark. (In 1988, Lederman won the Nobel prize for earlier work on neutrinos.) More recently, Kaplan and Lederman teamed up with Ray Burnstein and Howard Rubin—all now at IIT—forming a strong quartet to collaborate on other experiments, several bearing critically on the behavior of antimatter.

Cosmic Origins

Like many scientific curiosities—black holes, relativity, or the existence of genes—antimatter was hypothesized before it was actually observed. In 1928, the physicist Paul Dirac attempted to reconcile two cornerstones of twentieth century physics: special relativity and

The most exciting consequence of CP violation is that it offers the first solid clue to the puzzling dominance of matter in the cosmos. This tantalizing possibility accounts for the tremendous interest CP asymmetry has generated among scientists working at opposite extremes in terms of scale.

quantum theory. His mathematical result implied the existence of an elusive mirror-reality, where weird companions to the familiar particles of matter could be found. These antiparticles were believed to have similar properties (like mass and spin) to their matter mates, but would carry opposite charges and other characteristics.

At the time of Dirac's insight, no one had yet seen an antiparticle, but all that changed in 1932. Although accelerators had yet to be invented, physicists were able to study cosmic rays—high-energy particles streaming toward earth from space. These observations led C. D. Anderson to discover the electron's antiparticle (now known as the positron). Other antiparticles also began to emerge. Antimatter—no longer restricted to the realm of theory—became a fact of life.

Today, most antimatter is confined to the pages of sci-fi novels or the tunnels of powerful accelerators. To all appearance, our universe seems to have been emptied of the stuff. But it wasn't always so. Antimatter enjoyed a brief, violent reign at the very beginning of time. The civil war of particles and antiparticles liberated in the Big Bang should have left a condition almost unworthy of the term universe—a structureless (and surely, lifeless) ocean of radiation, with everything else falling victim to mutual annihilation.

Instead, it seems, something very different took place. For every billion antiparticles, a billion and one particles of matter were produced during the period of so-called baryogenesis. The trifling excess of matter paved the way for a cosmos hospitable to both stars and starfish.

Nature's curious irregularity, however, was deeply unsettling to physicists, long convinced that antimatter behavior was indistinguishable from the behavior of normal matter and that nature on the tiniest levels operated in a strictly even-handed manner.

What's the Matter with Antimatter?

Physicists speak of three fundamental symmetries in the particle world. These are known as Charge (C), Parity (P), and Time (T). Charge symmetry implies that if a particle is changed into its antiparticle (a proton into an antiproton, let's say) its behavior should be identical. P, or parity symmetry, assumes that left and right could be interchanged—the world reflected in a mirror will be indistinguishable from ours. Time symmetry (T) demands that the direction of time be reversible.

So C, P, and T, these fundamental aspects of matter, ought to retain their pleasing symmetry. Kaplan asks, "If you happened to live in an antiworld, how would you know?" The answer is, you wouldn't. At least, this was the long-cherished assumption.

But is the world/anti-world symmetry truly perfect to the last detail? Nature, it turns out, has a mischievous side.

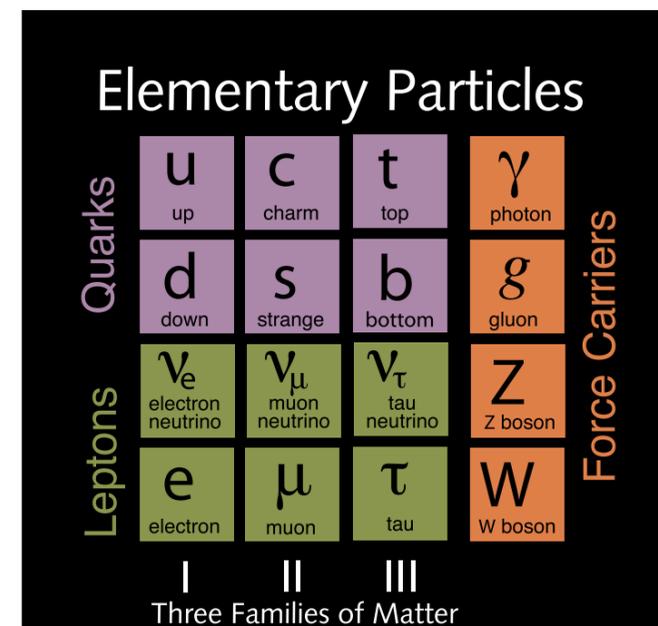
Parity symmetry was the first sacred cow to be slain, when in 1956–57 C. N. Yang and T. D. Lee proposed (and Chien-Shiung Wu experimentally proved) it was occasionally violated. The combination of Charge and Parity (or CP), however, was still assumed to be a fundamental, inviolable symmetry in nature.

The Mirror Shatters

Today, we know CP symmetry is also sometimes broken. The news came in 1964, with the experiments of James Cronin and Val Fitch, who were able to demonstrate slight CP asymmetry in a particular class of particles known as kaons. The verdict caused both consternation and intrigue in the physics world, but the broad implication was clear: the worlds of matter and antimatter are *not* symmetric.

The most exciting consequence of CP violation is that it offers the first solid clue to the puzzling dominance of matter in the cosmos. This tantalizing possibility accounts for the tremendous interest CP asymmetry has generated among scientists working at opposite extremes in terms of scale.

In one domain, particle physicists investigate the most minute constituents of matter over infinitesimally short time frames. In another domain, cosmologists preoccupied with the origins of the universe explore the consequences of CP violation, pondering immense expanses of time and space.



A New Standard?

IIT physicists have undertaken several grand projects, hoping to shed new light on the mysteries of CP asymmetry in the subatomic realm. At Fermilab, the HyperCP experiment brought the IIT physics team together with scientists from nine other institutions. Their study involves hyperons, short-lived particles built out of three subunits known as quarks.

"Today, we know that everything is made of quarks and leptons," Kaplan explains. "And there isn't just one kind of lepton, we've discovered six kinds of leptons and six kinds of quarks." These 12 tiny pieces and the four forces of nature that act on them are a blueprint for designing reality.

Elegant in its simplicity, the Standard Model has been a triumph for science, consistent with every observation ever made regarding subatomic particles. For all this, however, the Standard Model cannot be a complete description.

One of the key shortcomings of the model is that it fails to explain how all the little building blocks—the quarks and leptons—acquire their mass. An elusive particle known as the Higgs Boson (sometimes dubbed "The God Particle") is believed to fill this gap.

The trouble is, the Higgs is so elusive that no one has seen one yet. It is now one of the most coveted prizes in any area of physics, and new experiments at both CERN's LHC and Fermilab's Tevatron Collider appear within striking distance of the momentous discovery. If the Higgs is there, we should know fairly soon. The discovery could provide the final jewel in the crown of the Standard Model, helping to answer many particle/antiparticle quandaries, including the mysteries of CP violation.

In Fermilab's HyperCP experiment, the IIT team helped design and build one of the highest-rate spectrometers in the world, capable of detecting 100,000 particle events per second. The device allowed for the collection of a staggering amount of data—120 terabytes worth (or roughly 25 times the information on all the websites on the entire Internet).

One intriguing though yet-mysterious result of HyperCP involved a rare decay sequence of the so-called Sigma-plus (Σ⁺) hyperon. An intermediary particle may have been involved in this peculiar occurrence, which was observed on just three fleeting occasions. If the sequence was more than a statistical fluke, there is a chance the HyperCP group picked up the scent of the reclusive Higgs. Unfortunately, false sightings abound in this tricky arena. Physicists contend it's just too soon to know.

Leptomania

And so the search for the origins of matter domination continue. While substantial matter/antimatter asymmetry so far remains absent in the quark sector, perhaps it will appear among lighter particles—the leptons, specifically, in the enigmatic interactions of neutrinos.

One of the most intriguing topics in high-energy physics these days, neutrinos were once thought to be lackluster particles of zero mass. They didn't seem to do a whole lot or to interact much with their lively particle neighbors. But recent insights have dragged this tiny entity into the limelight.

The sun produces neutrinos in fantastic abundance—some 100 billion or so pass effortlessly through your hand each second as you read this magazine. We now know there are actually three types, or flavors, of neutrino: the electron neutrino, tau neutrino, and muon neutrino. Further, these flavors have an odd tendency to change form—one into the other—in a process dubbed oscillation.

Today, two ambitious neutrino projects are luring IIT physicists to Europe and Asia. Kaplan and Rubin are collaborating on a project in eastern France known as Double Chooz, while Chris White—an IIT neutrino authority and veteran of the HyperCP team—is investigating neutrinos at a Chinese facility known as Daya Bay. Rather than using

accelerators to generate the particles to be studied, both Double Chooz and Daya Bay will examine oscillation properties among antineutrinos streaming from the cores of nuclear reactors.

The three neutrino flavors exist together, in a mixture of states, as White explains: "One would imagine that if you have an electron-type

IIT researchers are assisting in the planning stages of the 35 kilometer International Linear Collider, as new research inches ever closer to a final account of the matter/antimatter enigma.

neutrino that it would have a well-defined mass. It turns out that's not the case. Instead of this subatomic particle being one thing, it's really three things at the same time. It's just one of those wonderfully funny properties of quantum mechanics that allows this to actually be true."

Both Double Chooz and Daya Bay hope to measure the degree of neutrino oscillation between the electron- and tau-type neutrinos with high precision—a first step before evaluations of CP asymmetry can be carried out.

Prospects of fresh insight into the neutrino's peculiar properties as well as early intimations of physics beyond the Standard Model have energized the physics community. IIT scientists are on the leading edge of this research, and the race is now on between Double Chooz's rapid start-up capability and economic efficiency, and Daya Bay's superior thermal output (which produces more neutrinos to study).

Rubin speaks enthusiastically of the French project, pointing out that Double Chooz expects to provide a first measurement by 2009. Daya Bay promises to nail down the value with still greater precision, hopefully close enough to determine if a CP violating component can exist.

Daya Bay also will be something of a political milestone—the largest basic science collaboration between the United States and China in history. The project's principal U.S. investigator, Kam-Biu Luk, savors Daya Bay's potential: "This is very exciting and important, and I would love to be part of the team that finds out why we are here," he recently told *Symmetry Magazine*. Concerning the elusive riddle of antimatter's disappearing act, Luk declares, "It's a good thing, because I don't have to worry about shaking hands with a friend and being annihilated," adding, "It's the reason that everyone and everything exists."

Back to the Future

Studies of CP violation continue to occupy inquisitive minds and powerful machines. Soon, the Large Hadron Collider comes online, and further down the road a still more awesome device, the International Linear Collider. IIT researchers are already assisting in the planning stages of this 35 kilometer goliath, as new research inches ever closer to a final account of the matter/antimatter enigma.

The coming decade in physics is shaping up to be one of tremendous achievement. A few of the field's most intricate puzzle pieces may soon be moved into place. With an eye toward the future of experimentation, Kaplan considers the road ahead: "Opinions and hunches are fine, but experiments are the only way to be sure. Nature may have new surprises in store." ■

www.iit.edu/~bcps www.capp.iit.edu

Richard Harth is a writer based in New Orleans.

IIT Alumni and Friends Walk for Life

Latinos Involved in Further Education and the Office of Multicultural Student Services sponsored the annual Chapa scholarship and 10-k walk-a-thon this April. The Chapa Scholarship Fund is named for Fernando Chapa (EE '88, M.S. CS '91), an IIT alumnus who was killed by a drunk driver in 1992. To honor his memory, a group of IIT alumni and colleagues from Lucent Technologies (AT&T Bell Labs) created the Chapa Scholarship Fund to benefit Latino students at IIT.



Mark Your Calendars: Alumni Events Near You

Winter 2008 Events Florida Chapter

- **February 19, 2008**
IIT Florida Chapter Gathering, Orlando
- **February 21, 2008**
IIT Florida Chapter Gathering, Tampa
- **February 23, 2008**
IIT Florida Chapter Gathering, Ft. Lauderdale/Miami

To sign up for an event or for more information about Alumni Association events, visit www.iit.edu/alumni or contact Marian Quirk, associate director of alumni relations, at quirk@iit.edu or 1.800.IIT.ALUM (448.2586).

ALUMNI: Be a Part of the Next Generation of IIT

The new IIT Admissions Alumni Program seeks alumni to assist the Office of Admission in recruiting tomorrow's IIT students. Alumni participation includes:

- Serving as a contact for recruited students
- Sending letters and emails to recruited students
- Speaking or greeting at recruitment programs
- Assisting with college fairs
- Hosting events in your home state (if outside Illinois or the United States)

Let your experience as a member of the IIT alumni community benefit tomorrow's leaders. To join the program or to learn more, contact Al Nunez, associate director of undergraduate admission, at nunez@iit.edu.

IIT Career Fair

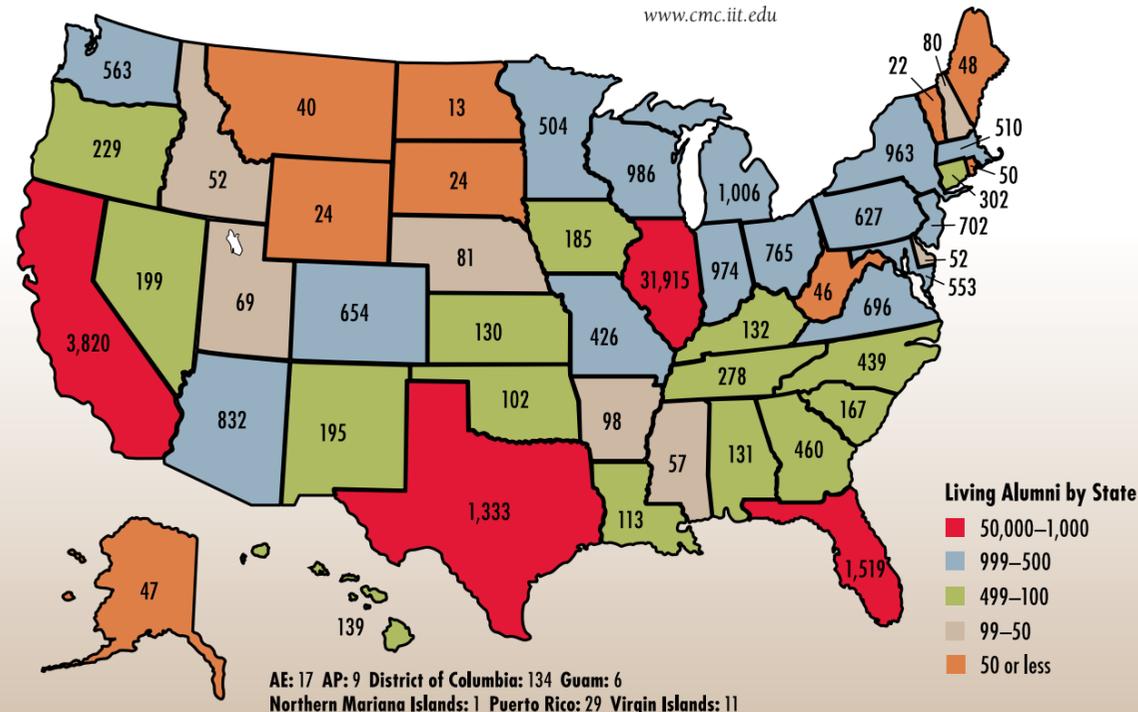
Thursday, September 27, 2007
noon–5 p.m.
Hermann Hall (HUB), 3241 South Federal Street
Alumni Welcome!

The IIT Career Fair is open to alumni as well as current students. With nearly 120 companies in attendance, including Exelon, Grainger, Bloomberg, and more, the Career Fair connects IIT students and alumni with employers in a variety of fields. Alumni are encouraged to bring copies of their resumes for distribution.

While on campus, alumni can visit the Career Management Center (CMC) to receive assistance with their resumes. The CMC is located in the Paul V. Galvin Library, 35 West 33rd Street, phone 312.567.6800.

Parking for the IIT Career Fair is adjacent to Hermann Hall and U.S. Cellular Field (shuttle available).

Reservations are not required.
www.cmc.iit.edu



Mapping IIT Alumni Across the Country

IIT alumni represent all corners of the United States and everywhere in between. Here are how the numbers stack up.

You're never too young to start a lasting legacy.



Gunsaulus Society member Susan Moy (M.B.A. '92) with IIT student Puifai Santiskultarm

Whether you're already enjoying retirement or just beginning your career, you can have a lasting impact at IIT through a charitable gift annuity. Regardless of age, you can create a plan for donating portions of your estate to the people and programs that matter most to you.

A charitable gift annuity can allow you to:

- receive fixed payments for the rest of your life
- provide life income to a loved one
- gain immediate tax advantages
- enrich IIT for generations to come

Learn more about planned giving at the IIT Legacy Giving Website: www.iit.edu/~develop/legacy

To talk with a planned giving representative at IIT, contact Elaine Clay at clay@iit.edu or 312.567.5028.

Gunsaulus Society

The estate giving society of Illinois Institute of Technology



Karl Menger Lecture and Awards

More than 100 alumni, faculty, and friends attended the inaugural Karl Menger Lecture and Awards, an event that paid tribute to the former IIT faculty member and renowned mathematician. Karl Sigmund, professor at the University of Vienna, presented the lecture "Menger, Games and Morals," and a scholarship excellence award was presented to IIT student Mike McCourt (MATH '07). Information about the 2008 Menger Lecture will be available in September at www.math.iit.edu.

[Above] During the lecture festivities, guests convened in an E1 classroom for an update on the Department of Applied Mathematics.
[Foreground, left] Barbara Heller, IIT research associate professor (retired)
[Middle row, left to right] Sud Nair, professor of mechanical, materials, and aerospace engineering; George Byrne, IIT professor emeritus and former applied mathematics chair; Abe Sklar, IIT professor emeritus; Martin Buntinas (MATH M.S. '67, Ph.D. '70); Roger Nelsen, Lewis and Clark College professor of mathematics; retired IIT Professor and Chair of Applied Mathematics Jerry Frank (MATH M.S. '69, Ph.D. '72)
[Far right] Mary Schoenheider (MST '70)



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classnotes

1940s

William W. Parks
CE '44, Glenview, Ill., an IIT Life Trustee, married Joan Simpson in January 2004.

William J. Larson
ME '48, Batavia, Ill., has been honored by the American Society of Safety Engineers for 60 years of continued commitment to the society and to the safety profession.

Haywood L. Stewart
DSGN '48, Wheat Ridge, Colo., was entered into the 2004 *Guinness Book of World Records* as the world's oldest lifeguard. He has appeared in several publications, including the Wheat Ridge newspaper, *The Rocky Mountain News*, *Colorado City and Mountain Views* magazine, and the *Life* magazine insert in major publications. Beginning his water safety career at the Chicago Boys Club in 1938, he continued until April 2006. Haywood is now retired and lives in Wheat Ridge with his daughter, Donna.

Seymour H. Patinkin
CHEM '49, Ph.D. '54, Skokie, Ill., received the 2006 Henry Hill Award from the American Chemical Society's Division of Professional Relations. Patinkin was named professor emeritus of chemistry at Roosevelt University in 1996.

1950s

James D. Josephs
CE '50, Port Charlotte, Fla., continues active consulting for AL Engineering, specializing in aluminum structures.



Ted A. Erikson
CHE '52, Chicago, competed as a swimmer in the 2007

Summer National Senior Games, held in Louisville, Ky., from June 22–July 7. Erikson

and his friend Adele Kiel, who also qualified for the games, have written a story together about how their swimming relationship turned into a love relationship, which will be published by the National Senior Games Association.

Roy G. Gignac
EE '52, Danville, Va., is the retired founder of Engineering Design and Sales, Inc. The business has been in operation since July 1976, and manufactures power supplies and battery chargers for medical, industrial, laboratory, and other highly technical applications.

Richard A. Beatty
MET '54, Lombard, Ill., is the website administrator for the Center for Reactor Information, an independent, non-profit, international group of nuclear research and development scientists and engineers, mostly retired from Argonne National Laboratory.

1960s

James R. DeStefano
ARCH '61, Chicago, an architect and chief executive of DeStefano + Partners, is designing the master blueprint for Technopolis Complex in Pyongtaek, Korea. The complex, which will consist of an industrial area, parks, sports facilities, houses, and welfare and recreation centers, is expected to be completed by 2012. DeStefano + Partners is also working on the Shanghai Expo 2010 project.

Jong Soung Kim
ARCH '61, M.S. '64, New

Thomas H. Ishimoto
EE '75, Simi Valley, Calif., started his own Yahoo group to bring together former IIT classmates who lived on third floor East. The group was known as the Therd Herd, and the alumni currently live throughout the world, from China to the United States. Last October, the group organized a reunion on IIT's campus. "We had one of the best times of our lives, right back on IIT's campus," says Ishimoto. "Even though we have all gone our separate ways, it was truly remarkable that we were able to connect with each other and all of us were in sync with each other." The Therd Herd reunited last year. *Pictured on the steps of Main Building are members [first row] Marshall Ship, Tom Ishimoto, Lesia Demet, Bryce Wilson; [second row] Ron Roadman, Rich Bubula, Ed Demet, Bob Bambic, Dave Schmidt; [third row] Ron Davis, Rich Wlezien.*



MAJOR KEY

For a complete list of abbreviations for IIT's academic majors, visit www.iit.edu/magazine.

York, has won the grand prize in the 2006 architecture awards of Korea.

Roy G. Leventhal
EE '62, M.S. '67, Arlington Heights, Ill., recently co-authored, with Lynne Green, the book *Semiconductor Modeling: For Simulating Signal, Power, and Electromagnetic Integrity*.

Thomas F. Mach
CHE '63, M.B.A. '67, Lawrence, Kan., received the 2003 J. Donald Coffin Memorial Book Award for his first novel, *Sissy!* His second novel, *All Parts Together*, earned an honorable mention at the 2006 Hollywood Book Festival.

Ramesh H. Abichandani
M.S. IE '65, Stuart, Fla., recently retired as the president of Unitech International Corporation after working in the information field for more than 40 years. Abichandani is working on his fifth book, to be published in 2008.

Frederic W. Widlak
PSYC '66, Nowy Sacz, Poland, is director of National-Louis University programs in Poland.

Edward L. Erickson
MATH '68, M.S. '70, Pipersville, Pa., was named to the board of directors of Immunotope, Inc., a biotechnology company developing innovative therapeutic products for cancer and chronic viral infections, in March 2007. Erickson also was appointed to serve as interim CEO to lead the company forward

and to secure venture capital financing.

Milton A. Gordon
Ph.D. MATH '68, Fullerton, Calif., president of California State University–Fullerton, has received the 2007 President's Award from the National Association of Student Personnel Administrators.

Dennis W. Hetzner
MET '69, M.S. '75, Canton, Ohio, a senior materials specialist for the Timken Co., has been honored with a 2006 ASTM International Award of Merit. Hetzner was recognized for his efforts in advancing the standardization of quantitative materials characterization and for his leadership.

1970s

Robert S. Borowski
CHEM '70, Arlington, Va., is a retired United States Army lieutenant colonel.

Nicholas D. Kokonis
Ph.D. PSYC '71, Deerfield, Ill., is the author of the award-winning novel *Arcadia, My Arcadia*. The novel won a First Homer Award and a gold medal from the International Society of Greek Authors at the Cultural Center of Athens.



Donald R. Fryer
FPSE '72, North Augusta, S.C., has retired after a

34-year career in corporate insurance and risk management, the last 10 years as branch manager of Factory Mutual Insurance Company in Detroit.

Darryll N. Schiff
DSGN '72, Chicago, alongside former Institute of Design students who were part of the 1971 Student Independent Portfolio, displayed his work as part of the exhibit *The Collectible Moment: Photography in the Norton Simon Museum*, which was held October 2006–February 2007 at the museum, located in Pasadena, Calif. Schiff's work is also at the Art Institute of Chicago, MoMA, and the George Eastman House.

Michael J. Belcher
Ph.D. PSYC '73, Marion, Ohio, retired from private practice after more than 31 years. Belcher continues to operate four residential facilities for the mentally ill, and owns and operates 10 websites, the most popular being HarpDepot.com.

Steven J. Litt
EE '73, Longwood, Fla., owns the online bookstore Troubleshooters.com and recently published two E-books, *Twenty-Eight Tales of Troubleshooting* and *Troubleshooting: Just the Facts*.

Jack E. Schmitt
CE '73, M.S. MGT '82, Carol Stream, Ill., has published *Plans, Special Provisions and Contract Plan Reviews*, which details more than three decades of infrastructure plan

preparation and review, and a children's book, *Toby and the Princess*.

Stephen O'Malley
ARCH '75, Wilmette, Ill., is editor and publisher of Baluster Books, Inc. Formerly, O'Malley was principal at the Chicago Regional Office of Gage-Babcock and Associates, Inc., and the regional director of TVA Fire Protection and Life Safety, Inc.

Federico Vidargas
ARCH '76, Evanston, Ill., has been appointed director of planning and design for the international division of General Growth Properties.

Russell J. Sinkler
M.P.A. '77, Rosemount, Minn., has accepted a position as senior client business executive with Ingenix, a UnitedHealth Group Company. Sinkler also serves as an adjunct faculty member in the M.B.A. program of the College of Adult and Professional Studies at Bethel University.

John M. Chancey
LAW '78, Vandalia, Ill., has left his position as Lake County prosecutor for the role of assistant state attorney for Fayette County. Chancey served as prosecutor for more than 20 years.

Deborah C. Korell
MGT '78, Bloomingdale, Ill., has accepted a new employment opportunity as office manager at Tri-County Claims Service, an independent insurance adjuster.

William H. Altergott
MET '79, M.S. '82, Uxbridge, Mass., has been named executive vice president to oversee the newly restructured United States government business sector of Triton Systems, Inc., a leader in advanced

materials solutions for the United States military and Homeland Security. Altergott was previously in charge of Triton's Military Logistics and Structural Materials Divisions.

David A. Feingold
M.S. '79, Highland Park, Ill., is a graduate student at National-Louis University working toward a doctorate in education in curriculum and social inquiry. His dissertation will deal with integrating design thinking and problem solving into teacher training curricula at the university level.

Luke D. Gong
ARCH '79, Morris Township, N.J., was the recipient of Keyspan's annual CEO award for his mentoring and leadership of the pharmaceutical group of the architecture department. Gong specializes in the design of research and development, and manufacturing facilities for the biopharmaceutical industry.

1980s

Ismail J. Al Ramahi
CE '80, M.S. '81, Abu Dhabi, United Arab Emirates, is director in three companies representing the Abu Dhabi National Oil Company—the Abu Dhabi Gas Liquefaction Company, Ltd.; the Abu Dhabi Gas Industries, Ltd.; and the National Gas Shipping Company, Ltd.

Edward P. Becker
MET '81, Brighton, Mich., has been elected president of the Society of Tribologists and Lubrication Engineers.



Richard E. Cohan
MGT '81, M.B.A. '82, Westminster, Colo., has accepted the position of

director, system integrity, with Providence Health & Services in Seattle.

Bruce D. Lund
M.S. PROD '81, River Forest, Ill., founder of Lund and Company Invention, LLC, accepted the Toy Industry Association's 2007 Toy of the Year Award and Preschool and Infant Toy of the Year for T.M.X. Elmo, one of his company's creations, at a ceremony held in New York in February. Lund's Hydrogen Fuel Rocket toy also was nominated for Toy of the Year in the Outdoor Toy category. Separately, Mattel-Fisher Price awarded the Lund and Company team with the Inventor of the Year award for T.M.X. Elmo.

Michael A. Dalton
CHE '83, Racine, Wis., has begun the Guided Innovation Group, LLC, a management consulting business with a focus on growth through innovation for industrial/B2B markets.

Diann T. Symonds
M.S. SOC '83, Alton, Ill., is an independent researcher who has written a book about her overseas experiences. Symonds has lent her expertise in policymaking in health care and military matters.

Nabeel A. Riza
EE '84, Lahore, Pakistan, has received a 2007 Fellow Award from the Lasers and Electro-Optics Society of the Institute of Electrical and Electronics Engineers (IEEE) for contributions to acousto-optic, liquid crystal, and micromirror device applications in photonic signal processing and controls. The IEEE is the world's largest technical professional society, with more than 365,000 members around the world.

Roy C. Robertson
MATH '84, M.S. CS '84, Glen Ellyn, Ill., volunteers

as a computer services representative for the People's Resource Center in Wheaton, Ill.

David P. Brodsky
LAW '85, Gurnee, Ill., was sworn in as an associate judge on the Illinois Supreme Court in March 2007. Before assuming his new position, Brodsky served as longtime county chief public defender.

Raymond E. Buck
ME '85, Ankeny, Iowa, received an M.B.A. from Capital University in Columbus, Ohio, in 1991. Buck also has received copyright status from the United States Copyright Office for the 25,000 algorithms and Trebco Personal Intranet Software Suite program he developed.

Nakhoon Kim
M.S. CS '85, Ph.D. '89, Seoul, South Korea, has been elected vice president of the Korean Alumni Association.

Randal L. Cartwright
ARCH '86, Hanover Park, Ill., has been promoted to associate in DeStefano + Partners, an internationally acclaimed architecture and interior design firm.

Peter M. Koliopoulos
ARCH '86, Scottsdale, Ariz., founder and president of Circle West Architects, PC, and his firm received two American Institute of Architects Arizona Citation Awards for 2006 in the fields of Built and Unbuilt Architecture. Circle West has been selected to design three light rail transit stations for the Utah Transit Authority in South Jordan.

Ramkumar Madugula
M.S. ME '86, Hoffman Estates, Ill., has been appointed as a vice president at Sargent & Lundy, LLC, where he is a project director in the Fossil Power Technologies group with responsibility for

the direction of Advanced Generation Technologies in areas such as IGCC. A registered professional engineer in four states, Madugula is a member of the American Society of Mechanical Engineers and is a past chair of the Combined Cycle Committee.

Hector J. Rodriguez
M.P.A. '86, LAW '90, Chicago, has been promoted to the rank of commander and assigned to the position of director of management and labor affairs for the Chicago Police Department (CPD). As director, he acts on behalf of the CPD in negotiating agreements with more than 10 labor organizations representing CPD members, represents the CPD in bargaining over grievance resolutions, and facilitates the uniform implementation of the collective bargaining agreements.



CLASS SCRIBES WANTED!

A great way to get involved with IIT is to be a class scribe. Class scribes help IIT and their graduating class to stay connected by sharing news about fellow classmates with one another and with the rest of the university. To sign up to be a class scribe, or to learn more, contact Marian Quirk at quirk@iit.edu.

William Walls

LAW '86, Chicago, was one of two mayoral representatives at the Westside Branch NAACP candidates' forum, held in February 2007 in Chicago. Candidates for mayor, city clerk, treasurer, and alderman were invited to present their positions and to take questions.

Praveen K. Gupta

M.S. EE '89, Schaumburg, Ill., has authored eight books: *Six Sigma Business Scorecard*, *The Six Sigma Performance Handbook*, *Business Innovation in the 21st Century*, *ISO 9000:2000 An Implementation Guide*, *The Six Sigma Black Belt Handbook*, *Six Sigma for Transactions and Service*, *Healthcare Excellence*, and *Service Scorecard*. Gupta is an adjunct professor at IIT and teaches a business innovation course.

Jean-Alix Peralte

CE '89, M.B.A. '96, Barrington, Ill., has joined STV Incorporated as a vice president with the firm's national transportation and infrastructure division. In his new position, Peralte is

1990s

Kenneth J. Kufner

ME '90, Darien, Ill., has returned to Flex-Kleen Corporation as a sales/application engineer.

Enrique H. Gracia

M.P.A. '91, Boynton Beach, Fla., has been deputy department director for information technology at the South Florida Water Management District since May 2004. Gracia is responsible for technology solutions, infrastructure (including email systems), geographic information systems, Web development, and applications.

Mahesh A. Iyer

EE M.S. '91, Ph.D. '95, Fremont, Calif., has been awarded the title of Synopsys Fellow by Synopsys, Inc., the world leader in electronic design automation software for integrated circuit design.

Timothy R. McGreal

ME '92, Tucson, Ariz., has developed and released the Alarm Arm®, a smoke alarm mounting system.

Insung Chu

M.S. ARCH '93, Chicago, has been promoted to senior associate at DeStefano + Partners, an internationally acclaimed architecture and interior design firm. Chu is a LEED-accredited professional and a certified Illinois capital development board project manager.

Victor A. Ramirez

DSGN '93, Chicago, announces the birth of twins Audrey and Katherine, born December 2006.

Junjian Tang

M.S. ARCH '93, Lisle, Ill., was architectural design lead for the \$230 million Camp John Paul Jones design/building project, which won the Best of 2006 Merit Award



from *Midwest Construction* magazine. The project was for M+W Zander, Tang's former employer.

Michael J. Hunter

ARCH '94, Seattle, wrote a talk, "Hallmarks of a Great Tester," which won Best Paper at the STAR East testing conference.

Stelios Symeonides

AE '94, M.S. MAE '97, Nicosia, Cyprus, celebrated the birth of his son in April 2006. He currently works with Kronospan Group as a business development manager for southeast Europe, the Middle East, and Africa.

Lynn T. DePeder

CHE '96, Chicago, has re-entered the workforce as a process engineer with Austin AECOM. She recently passed the principles and practice of engineering exam, and is now licensed in Illinois.

Share Your News!

We want to know what's new with you. Send us your class note update—news about births, marriages, career changes, and other events in your life. We'll publish your news on the alumni website and in a future issue of *IIT Magazine*.

Sharing is easy. To send in your class note, write to alumni@iit.edu, or visit www.iit.edu/alumni and click on "Class Notes." [Under "Alumni Community"]

Suzanne Ko

ARCH '96, Chicago, married Chris Dasse in August 2006 in Kohler, Wis.

Tim P. Lafave

PHYS '96, Charlotte, N.C., received his doctorate in electrical engineering from the University of North Carolina—Charlotte in August 2006. His dissertation was titled "The Classical Electrostatic Periodic Table, Capacitance of Few Electron Dielectric Spheres, and a Novel Treatment of One- and Two-Electron Finite Quantum Wells." Lafave is currently working as a temporary postdoctoral fellow at UNC—Charlotte to further investigate this research for device applications and a more comprehensive understanding of its broad-reaching implications.

Kathleen and Dave Lubke

both ME '96, Ypsilanti, Mich., celebrated the birth of their second child, Jessica Eileen, in September 2006. Kathleen has returned to work for Ford, and Dave is working on his master's degree in mathematics.

Felicia L. Townsend

M.B.A. '96, Chicago, has been promoted to assistant dean of recruitment, admissions, and marketing at Dominican University's Graduate School of Social Work. In 2006, Townsend was awarded the 7th Illinois Congressional District's Outstanding Doctoral Student Award. She is currently completing her doctorate in policy studies in urban education at the University of Illinois at Chicago.

Robert K. Brevelle

M.S. CS '98, Garland, Texas, was promoted



to the executive staff officer position at L-3 Communications, Integrated Systems. He graduated from the Executive Leadership Program at Cornell University and is a credentialed project management professional.

Amanda Holmes

CE '98, M.S. ENVE '98, Bonaire, Ga., is in her seventh year of active duty in the United States Air Force as a civil engineer.

Ketan Mody

CS '98, Vernon, Conn., completed his residency in family practice, and is attending the University of Connecticut with a fellowship in sports medicine. He and his fiancée married in July 2007.

Laurinda M. Reifsteck

ME '98, Navarre, Fla., completed the El Tour de Tucson XXIII, a 109-mile bicycle race, in November 2005, placing second among females in the military. In June 2006, Captain Reifsteck, a special agent with the Air Force Office of Special Investigations (AFOSI) at Eglin Air Force Base, Fla., was honored at the annual awards dinner for Women in Federal Law Enforcement (WIFLE). Reifsteck was selected as WIFLE's 2005 Outstanding Law Enforcement Employee, having demonstrated sustained superior performance in the previous five years. She currently serves as the youngest commander of the AFOSI unit at the world's largest military installation and is the recipient of the AFOSI junior officer 2006 Lance P. Sijan Leadership Award.

Tyra S. Taylor-Buckley

LAW '98, Decatur, Ga., recently opened a bed and breakfast in the Hyde Park neighborhood of Chicago.

Jazib Frahim

CPE '99, Cary, N.C., along with his sister, Erum Frahim (M.S. EE '00), recently published two books with Cisco Press: *Cisco Network Admission Control, Volume II: NAC Deployment and Troubleshooting* and *Building Cisco Multilayer Switched Networks (BCMSN Authorized Self-Study Guide), 4th ed.* The Frahims are the siblings of Shazib Frahim, IT manager and head of the Library Technology Group for IIT's Paul V. Galvin Library.

Christopher J. Walsh

Ph.D. CHEM '99, Washington, D.C., an associate with Sterne, Kessler, Goldstein & Fox,



PLLC, has been recognized by Whitman-Walker Clinic Legal Services Center with a Distinguished Volunteer Award in appreciation of his efforts as a member of the Legal Community AIDS Walk Taskforce, raising critically needed funds to provide pro-bono legal assistance to persons living with HIV/AIDS in the Washington metropolitan community. By working with fellow volunteer attorneys to raise funds from local law firms, Walsh, who holds a J.D. degree from The George Washington University, helped raise nearly \$220,000 to support the efforts of Whitman Walker's Legal Services Center.

2000s

Erum Frahim

M.S. EE '00, Cary, N.C., along with her brother, Jazib

Frahim (CPE '99), recently published two books with Cisco Press: *Cisco Network Admission Control, Volume II: NAC Deployment and Troubleshooting* and *Building Cisco Multilayer Switched Networks (BCMSN Authorized Self-Study Guide), 4th ed.*

Naveen Gupta

MBB '00, Valinda, Calif., is a recent medical school graduate.

Jerry A. Hanttula

ENVE '00, M.S. EM '01, Woodstock, Ill., joined Cardinal Health in February 2006 after serving for four years in the United States Navy as a commissioned officer. He served the first two years onboard the Frigate U.S.S. Curtiss (FFG-38) in San Diego and the following two years on the aircraft carrier U.S.S. John C. Stennis (CVN-74) in San Diego and in Bremerton, Wash.

Dexter Yarbrough

M.P.A. '00, Fort Collins, Colo., Colorado State University's chief of police and adjunct faculty member, was one of six individuals to receive a 2006 Best Teachers Award. The awards recognize outstanding educators as selected by students and alumni.

Elena Sze Y. Yu

CHE '00, Ossining, N.Y., has changed her name to Elena Sze Yan Yu.

Youngsoo Kim

M.S. EE '01, Darien, Ill., an electrical consulting engineer with Ketchmark & Associates, Inc., received his PE license in February 2007.

Emery Jordan

CS '02, Edwardsville, Ill., works as a hall director in university housing at Southern Illinois University—Edwardsville and was involved with the planning of the recent Illinois Residence Hall Association

student conference. Jordan donated funding to enable two IIT students to attend the conference.

Shannon B. Kelly

CHEM '02, Dorchester, Mass., is a member of the female-fronted symphonic metal band Avariel.

Melissa G. Haldeman

CE '03, Chicago, is engaged to Don Mcghee, whom she met through friends on the IIT campus. The couple has set a wedding date of January 19, 2008.

Syed M. Zaidi

CPE '03, Nashua, N.H., is currently employed with State Farm Insurance as a senior information-technology consultant in its systems department.

Michelle Chen

MBB '04, San Jose, Calif., is a medical student at the Albert Einstein College of Medicine of Yeshiva University in Bronx, N.Y.

Neva I. (Wheeler) Grey

PPPS '04 and Jeremy Grey, PPPS '03, Lisle, Ill., were married on September 8, 2006.



Priya Roy

M.S. CPE '04, Phillips Ranch, Calif., joined the staff of Motorola for one year and is now employed at Sprint.

Michelle L.

(Van Der Puy) Casper

LAW '05, Chicago, married Mark Scott Casper on June 3, 2006, at Trinity Lutheran Church in Sheboygan, Wis. The Caspers traveled to Prague, Czech Republic, for their honeymoon. Michelle Casper is employed with Eichhorn and Eichhorn in Hammond, Ind.



One Family—Five IIT Graduate Degrees

Nick and Elaine Thomopoulos and three of their children all have IIT graduate degrees—and a fourth child is now taking graduate courses at IIT. Could this be an IIT record?

In addition to being an alumnus, Nick also is a professor at Stuart School of Business.

[Back row, left to right] Marie (Thomopoulos) Sussman (M.B.A. '93), Melina (Thomopoulos) Collins (M.B.A. '95), Elaine Thomopoulos (Ph.D. PSYC '74), Nick Thomopoulos (Ph.D. IE '66) [Front row] Diana Thomopoulos (M.B.A. '03), Christopher Thomopoulos (ITM)

If you or someone you know is part of an IIT family of graduates, tell us about it. Write to iitmagazine@iit.edu.

Diwakar Rana

M.S. CHE '06, Panchkula, India, is working as a process engineer—biodiesel at Bratney Companies in Des Moines, Iowa.

Jacqueline L. Sokolowski

PSYC '05, Chicago, is engaged to Stephen J. Anderson, who also attended IIT. The couple has set a wedding date of February 9, 2008.



Shirley S. Cho

ARCH '06, Chicago, has accepted a design position as an intern architect with the architecture firm Built Form. Prior to Built Form, she spent two years as a development manager at Genesis Housing Development Corporation.

IIT Alumni Awards 2008

To nominate a classmate today, visit www.iit.edu/alumni/updates/awards/nomination_form.html. Nominations due October 15, 2007.

responsible for managing the civil engineering group in the firm's Chicago office, including project financial and technical performance, as well as growing STV's Midwest transportation engineering practice.

James T. Walton

AE '89, Crested Butte, Colo., is the CEO of trailsource.com. He received his M.B.A. in strategic marketing in 1993. TrailSource, started in 1997, is the oldest trail information website on the Internet and has more than 300,000 visitors monthly.

Frank R. Muraca

M.S. ARCH '92, Vernon Hills, Ill., is the founder of ARCH Consultants, Ltd., a program management firm specializing in the building process from vision to occupancy.

Michael E. O'Rourke

LAW '92, Fond du Lac, Wis., has been appointed as Fond du Lac County district attorney through January 5, 2009.

By David McKay Wilson

HOT TOPIC



SOME HARD, COLD FACTS ON A HOT TOPIC

- The Earth's temperature has risen 1.4 degrees Fahrenheit since the late nineteenth century.
- Eleven of the hottest 12 years have occurred since 1995.
- Sea levels have risen about six inches over the past century.
- Arctic sea ice has been shrinking steadily over about the past 30 years.



Susan Solomon (CHEM '77), one of the world's top climate-change scientists, walks a mile-and-a-half to work each day and drives a hybrid Toyota Prius that gets up to 55 miles per gallon.

While Solomon is doing her part to reduce heat-trapping gases in the atmosphere, the senior scientist at the National Oceanic and Atmospheric Administration (NOAA) in Boulder, Colo., says it will take far more to halt the steady rise of global temperatures.

"Everybody wants to do the right things and act prudently, but it's more important what we as a society want to do," says Solomon, chief editor of the 900-page report on climate change published in February by the United Nations' Intergovernmental Panel on Climate Change (IPCC). "That's where the rubber hits the road."



But Solomon won't say how she thinks society should act, stressing that it's not scientists' duty to decide how our world should cut the production of heat-grapping gases. Those choices, which involve the use of fossil fuels, could have widespread economic consequences.

"It annoys me when people think that the issues are only scientific," she says. "Science is an input on this issue, but only one input. It's up to society as a whole—all of us—to decide what to do, or not to do."

For Solomon, publication of the IPCC study capped a project that began in 2002 when the international scientific community elected her to lead the review of scientific literature on climate change. It was a Herculean task, coordinating the contributions of 152 authors and addressing the comments of more than 600 outside experts. One hundred-thirteen governments also approved the study's 20-page summary.

The report concluded that global warming was "unequivocal," a term selected carefully by Solomon's team to convey the reality of our increasingly warm climate. The report found that the Earth's temperature has risen 1.4 degrees Fahrenheit since the late nineteenth century, with 11 of the hottest 12 years occurring since 1995. Sea levels have risen about six inches over the past century. Arctic sea ice, meanwhile, has been shrinking steadily over about the past 30 years.

Among those working on the report was Gabriele Hegerl, professor of earth and ocean sciences at Duke University, who appreciated Solomon's rigor.

"She is driven uncompromisingly by the science," says Hegerl. "She is a very strong leader, she asks tough questions, and only a convincing answer will satisfy her, so she pushed us all to give our best."

Solomon, who grew up in Peterson Park on Chicago's North Side, became enthralled with atmospheric gases in high school, where she won third place in a national competition for her project that measured oxygen content in gas mixtures. At IIT, she majored in chemistry and became interested in studies of the atmosphere surrounding the planets, particularly Jupiter.

After earning her doctorate at the University of California, Berkeley, Solomon began researching the

Mack McFarland, chief atmospheric scientist at DuPont Company, says Solomon's ability to communicate complex scientific data to policymakers was crucial in the CFC debate.

"Her achievements, leadership, and willingness to communicate scientific information to non-scientists has played a critical role in edifying key constituents and making atmospheric science relevant to the policy community," he says.

Solomon's work on the ozone issue vaulted her into the top echelon of United States scientists. The international scientific community honored her in 1994 by naming two landforms on Antarctica in her honor—the Solomon Glacier and the Solomon Saddle, which are both at 78 degrees south latitude. In 2000, she was awarded the U.S. National Medal of Science, the nation's top science honor.

Completion of the IPCC report this winter freed up Solomon to return to her own research at NOAA's Colorado research center. She's currently studying how the depletion of the ozone layer over Antarctica influences climate change.

Solomon has found that the ozone depletion substantially cools the stratosphere. This in turn has influenced wind patterns and climate patterns over Antarctica, she says.

No matter what society decides to do to combat global warming, Solomon warns that even dramatic action today won't stop its inexorable rise. Studies show that temperatures would rise by 0.8 degrees Fahrenheit in a century with massive cuts in greenhouse gases, while current consumption patterns would drive temperatures up by as much as 6 degrees or more.

Despite the predictions, Solomon isn't one to paint a Doomsday scenario. As a scientist, she sees her role as the dispassionate researcher who details the planet's ever-changing face and tells the world about it. And those findings, detailed in the IPCC report in February, were heard loud and clear around the world.

"It was the consensus of what the scientific community could say, and that's why it was so powerful," says Solomon. "The data has gotten so much clearer. And the hotter it gets, the easier it gets to tell the story."

"Science is an input on this issue, but only one input. It's up to society as a whole—all of us—to decide what to do, or not to do."

Earth's atmosphere. When huge holes in the ozone layer opened up over Antarctica in the mid-1980s, Solomon led a research expedition to the planet's southern-most reaches. The Chicagoan worked from the McMurdo Base, where temperatures dipped to minus-50 F, with a minus-100 wind chill.

Solomon says her Chicago upbringing prepared her for the frigid conditions.

"I grew up knowing there's no such thing as bad weather, just bad clothing," she says. "When you are in the Antarctic, you need a hat and gloves when you go out. In Chicago, without the proper clothing, you could feel just as cold."

Her team found high levels of chlorine dioxide in the atmosphere over the Antarctic, which backed theories linking chlorofluorocarbons (CFCs) to ozone depletion.

The findings brought rapid action, with industry working quickly to develop new products to replace CFCs, which were subsequently banned.

"On the ozone issue, we had well-documented research, and industry found substitutes," says Solomon. "The same issues hold with climate change. The first step is improving our understanding of the problem."



2007alumniawards

AWARD RECIPIENTS

IIT Alumni Service Award

Robert Growney (ME '74, M.B.A. '82)
Marilyn Kouba (CHEM '50, M.S. '63)

IIT Collens Alumni Merit Award

Roy Gignac (EE '52)
Edward Ross (ME '43)

IIT Global Service Award

Rajeev Chandrasekhar (M.S. CS '88)

IIT Lifetime Achievement Award

Irving Footlik (ME '39)
Robert Ladevich (ME '43)
Hugh Story (ME '43)

IIT Outstanding Young Alumnus/a Award

Anshu Dewan (EE '97)
Dariy Zlatarsky (ME '01)

IIT Professional Achievement Award

Dorothy Brown (LAW '96)
Stephen Burks (ID '92)
Perri Irmer (ARCH '81)
Ronald Krueck (ARCH '70)
Mark Sexton (ARCH '80)
Victor Tsao (M.S. CS '80)

This April the IIT Alumni Association honored recipients of the 2007 Alumni Awards. Outstanding alumni were recognized for their commitment to the university and their community, as well as for their personal and professional achievement.

Nominations for the 2008 Alumni Awards are due October 15, 2007. To nominate an alumnus/a online, visit www.iit.edu/alumni/updates/awards/nomination_form.html.



The family of Hugh Story (ME '43) accepts his Lifetime Achievement Award on his behalf. [Left to right] Magita Story, Seoma Emrys, Hugh Story Jr., Colleen Story, Marilyn Story, Kim Waters, Charlotte Story



Rajeev Chandrasekhar (M.S. CS '88), recipient of the Global Service Award



Edward Ross (ME '43), recipient of the Collens Alumni Merit Award



Stephen Burks (ID '92), Professional Achievement Award recipient, and family



[Left to right] Thomas Chan (ARCH '81) joins Professional Achievement Award winners Perri Irmer (ARCH '81) and Ronald Krueck (ARCH '70) as well as Donna Robertson, dean of the College of Architecture.



Roy Gignac (EE '52) [left], Collens Alumni Merit Award recipient, and his son Mark



Trustee Robert Growney (ME '74, M.B.A. '82) accepts the Alumni Service Award from Chair of the Alumni Board Adrian Nemcek (EE '70), Alumni Awards Selection Committee Chairman Manu Vora (M.S. CHE '70, Ph.D. '75) [right], and Betsy Hughes, vice president, Institutional Advancement.



Trustee Robert Growney (ME '74, M.B.A. '82), Alumni Service Award recipient



Victor Tsao (M.S. EE '80), Professional Achievement Award recipient



[Left to right] Colleagues Ronald Krueck (ARCH '70) and Mark Sexton (ARCH '80), recipients of the Professional Achievement Award

obituaries



George Edson Danforth

ARCH '40, Chicago

While an undergraduate architectural student at Armour Institute of Technology, George Edson Danforth worked as a draftsman in the office of a man he would one day replace as director of the College of Architecture at IIT: Ludwig Mies van der Rohe. When Mies left the directorship, Danforth assumed the role in 1959, leading the program for the next 16 years. Along with serving as the program's chief administrator, Danforth also was a practicing architect, and with two partners, formed the firm Brenner, Danforth, Rockwell, from which he retired in 1980.

Before assuming the directorship, Danforth taught at Armour Institute from 1941–53 and at Western Reserve University for the following three years. In 1967, he was elected to the College of Fellows of the American Institute of Architects. Each year since 2006, one architecture faculty member at IIT is honored with the Danforth Distinguished Teaching Award.



William P. Mahoney

IE '57, M.B.A. '61, Inverness, Ill.

William P. Mahoney spent nearly his entire career in executive roles at major companies in the Chicago area. Upon his graduation from Armour College of Engineering, Mahoney began working at Ford Motor Company then went on to positions at Motorola, Sara Lee, Beatrice Companies, and American Appraisal Associates. In 1990, Mahoney founded The Everest Group, a consultancy firm, and devoted much of his time and talents to the nonprofit sector, raising funds for and serving on the boards of hospitals, churches, and schools, including IIT, where Mahoney was elected to the Board of Trustees in 1981 and became a Life Trustee in 1987. In 2000, he and his wife, Eileen, established a scholarship to support Armour undergraduates.

In addition to his wife, Mahoney is survived by two daughters, two sons, a sister, and four grandchildren.



James Y. Oldshue

CHE '47, M.S. '49, Ph.D. '51, Sarasota, Fl.

Internationally known chemical engineer James Y. Oldshue was a triple alumnus of IIT, having received his bachelor's degree, master's degree, and doctorate, all in chemical engineering, from the university. The holder of many patents and the author of more than 100 articles and book chapters, Oldshue wrote the acclaimed textbook *Fluid Mixing Technology*. President of Oldshue Technologies International, Inc., Oldshue, in his later years, also taught technical seminars and a course for his fellow senior citizens called Science Made Simple. Oldshue was a member of the National Academy of Engineering and served as an adjunct professor of chemical engineering at Beijing Institute of Chemical Technology.

From 1950–1992, Oldshue was vice president and director of research at Lightin' Mixers, and while a student at IIT, was called to work on the Manhattan Project from 1944–45. Among the many honors Oldshue received was his election as president of the World Congress of Chemical Engineering, president of the Inter-American Confederation of Chemical Engineering Societies (IACCE), and national president and national treasurer of the American Institute of Chemical Engineers. Oldshue was the recipient of the Honor I and Alumni Professional Achievement awards from IIT, the Victor Marquez Award from the IACCE, the Kenneth A. Rowe Award from the American Association of Engineering Societies, and the Founders Award from the American Institute of Chemical Engineers, where he was also a fellow.

Besides his professional and academic work, Oldshue was greatly involved in church and YMCA activities, especially in efforts to support and stabilize YMCAs in the Middle East and in Africa. Oldshue is survived by his wife, Betty, three sons, and seven grandchildren.



Albert Zimmerman

ME '43, Los Angeles

Albert Zimmerman was the retired principal of Albert Zimmerman & Associates, a practice focusing on engineering design and supervision of construction work for various types of projects. In 2000, he instituted the Albert Zimmerman Endowed Scholarship Fund at IIT, which supports one undergraduate each year in the area of mechanical, materials, and aerospace engineering.

While at IIT, Zimmerman was a member of Pi Tau Sigma academic honor society, the American Society of Mechanical Engineers, and the Co-op Speaker's Club.

Ralph Zirkind

M.S. PHYS '46, Silver Spring, Md.

Known to many colleagues as the "physicist's physicist," Ralph Zirkind spent a lifetime working on various scientific projects related to nuclear physics and the brain. Notable projects included the Department of Defense Joint Robotics Program, analysis and forecasting of embedded computer processing compatibilities, and studies of nuclear power systems and electro-optical sensors. Additionally, Zirkind helped establish a major infrared astrophysics observatory in Hawaii.

Former chief scientist and deputy director of the Advanced Research Projects Agency, Zirkind was most recently a resident consultant at Science and Technology Associates. He also did work for the aeronautics and weapons branch of the United States Navy, which awarded Zirkind the Meritorious Service Medal. In academia, Zirkind served as an adjunct professor of aerospace engineering at Polytechnic University in Brooklyn and as a professor of electrical engineering at the University of Rhode Island.

Zirkind is survived by his wife of 65 years, Ann, three children, four grandchildren, and a great-grandson.

inmemoriam

Joyce A. Anderson
FE '56, Littlefork, Minn.

Andy Angelos
EE '75, Naperville, Ill.

Thomas M. Banach
MATH '65,
Winston-Salem, N.C.

John H. Bickley
LAW '51, Long Grove, Ill.

J. Michael Bollman
LAW '65, San Diego, Calif.

Rose A. Carney
Ph.D. PHYS '61,
Naperville, Ill.

Lester V. Catmull
M.S. SOCT '71,
Salt Lake City, Utah

James E. Corrigan
CHE '49, Mesa, Ariz.

Abraham A. Covo
M.S. EE '52, Ph.D. '65,
Boston

Edward B. Dubois
EE '51, Rolling Prairie, Ind.

Allan J. Gaynor
CHE '47, Barrington, Ill.

Robert Cameron Greenlees
ARCH '60, Palatine, Ill.

Henry E. Gula
EE '56, Ventura, Calif.

Harold C. Johnson
CHE '39,
Apache Junction, Ariz.

John J. Kelly
ME '55, Evanston, Ill.

Marvin M. Kessler
CHE '43, Bellevue, Wash.

Joseph Kichaven
ARCH '37,
Beverly Hills, Calif.

Rosalie Kirschner
M.S. PSYC '69, Ph.D. '71,
Skokie, Ill.

Richard W. Kush
ME '59, Darien, Ill.

Chester S. Le Blond
ME '39, Vernon Hills, Ill.

Johnson Lee
Ph.D. PHYS '77,
Needham, Mass.

Richard B. Lindner
ENGL '51, Middletown, Ohio

E. J. Maas
M.S. CHEM '68,
Arlington Heights, Ill.

John B. McCormack
EE '39, Irving, Texas

Alvezio J. Morelli
ARCH '34,
Mechanicsburg, Pa.

Fred L. Morrizz
Ph.D. CHEM '53,
Northbrook, Ill.

Harry S. Nachman
ME '36, Boulder, Colo.

Charles G. Pesek
CHE '43, Sarasota, Fla.

Paul A. Reh
ME '37, Long Beach, Calif.

Robert B. Richards
CE '36, Grove, Okla.

Harry G. Rodman
CHE '45, Colts Neck, N.J.

James A. Thomsen
EE '83, Tucson, Ariz.

Robert Warner
ME '55, Lake Lemon, Ind.

Walter J. Zwierzycki
ME '47, Sandy, Utah

Of Engineers and Presidents

rewind

My father worked for the CB&Q Railroad all his life, so as a small child I always knew what an engineer did: he drove the train. Many years later, as a college student, I read Thomas Hardy's *Tess of the d'Urbervilles* and came away with quite a different image of an engineer: that of a small businessman who owned and operated a steam engine that he traveled around the countryside so he could thresh farmers' wheat. While this understanding of an "engineer" was different from my image of the train engineer, I could see the connection.

It wasn't until I came to IIT that my concept of an engineer was really challenged. A mechanical engineer seemed self-evident, but I had to assimilate the concept of an electrical engineer, a civil engineer, or a fire protection engineer. Newer IIT programs in biomedical and computer science engineering have added more options to the mix. The work of professionals in these fields is surely a long way from that of the man who stoked a boiler and fired up a machine so gears, wheels, cogs, and belts could convert steam into miles traveled or separate grain from fodder.

While yesteryears' engineers may have been apprenticed entirely on the job, our current education system has moved the training of tomorrow's engineers into lecture halls, classrooms, and laboratories. So in roles as research scientists and teachers, many of today's engineers are college professors and university administrators. Between preparing lesson plans and grading papers, IIT's chemical engineer may be conducting experiments in a campus

laboratory even as her professional colleague in the private sector is doing product development for clients. An IIT architectural engineer may spend his morning in a departmental curriculum planning session before meeting with a graduate student to check on the progress of his dissertation research. Obviously, IIT's engineers experience a wide variety of professional activities, but "drive a train" or "operate a steam engine" are not lines you'll likely find on their resumes.

Which brings me to John L. Anderson—a former engineering student, lecturer, professor, dean, and provost—who has now stepped into the role of university president. He is in good historical company, as several of his predecessors came to occupy IIT's presidential suite by way of the engineering classroom, administrative office, and laboratory. When we add the names of men who served as CEOs of former schools that have since become part of IIT, we can find educators, jurists, economists, and even one who preceded Anderson on the lecture circuit—preacher Frank W. Gunsaulus. Anderson is indeed in good company.

The IIT Archives extends a sincere welcome to President Anderson. We look forward to his tenure as IIT's "chief engineer."

For more information about IIT's past presidents, see www.iit.edu/president/past_presidents.html.



Frank W. Gunsaulus
President, 1892–1921



Howard M. Raymond
President, 1922–1932



Willard E. Hotchkiss
President, 1933–37



George N. Carman
Director, 1896–1936



Dugald C. Jackson, Jr.
Director, 1936–38



Fred A. Rogers
Co-director, 1938–1940



Clarence L. Clarke
Co-director, 1938–1940



Henry Townley Heald
President, 1937–1952



John T. Rettaliata
President, 1952–1973



Maynard P. Venema
President, 1973–74



Thomas Lyle Martin Jr.
President, 1974–1987



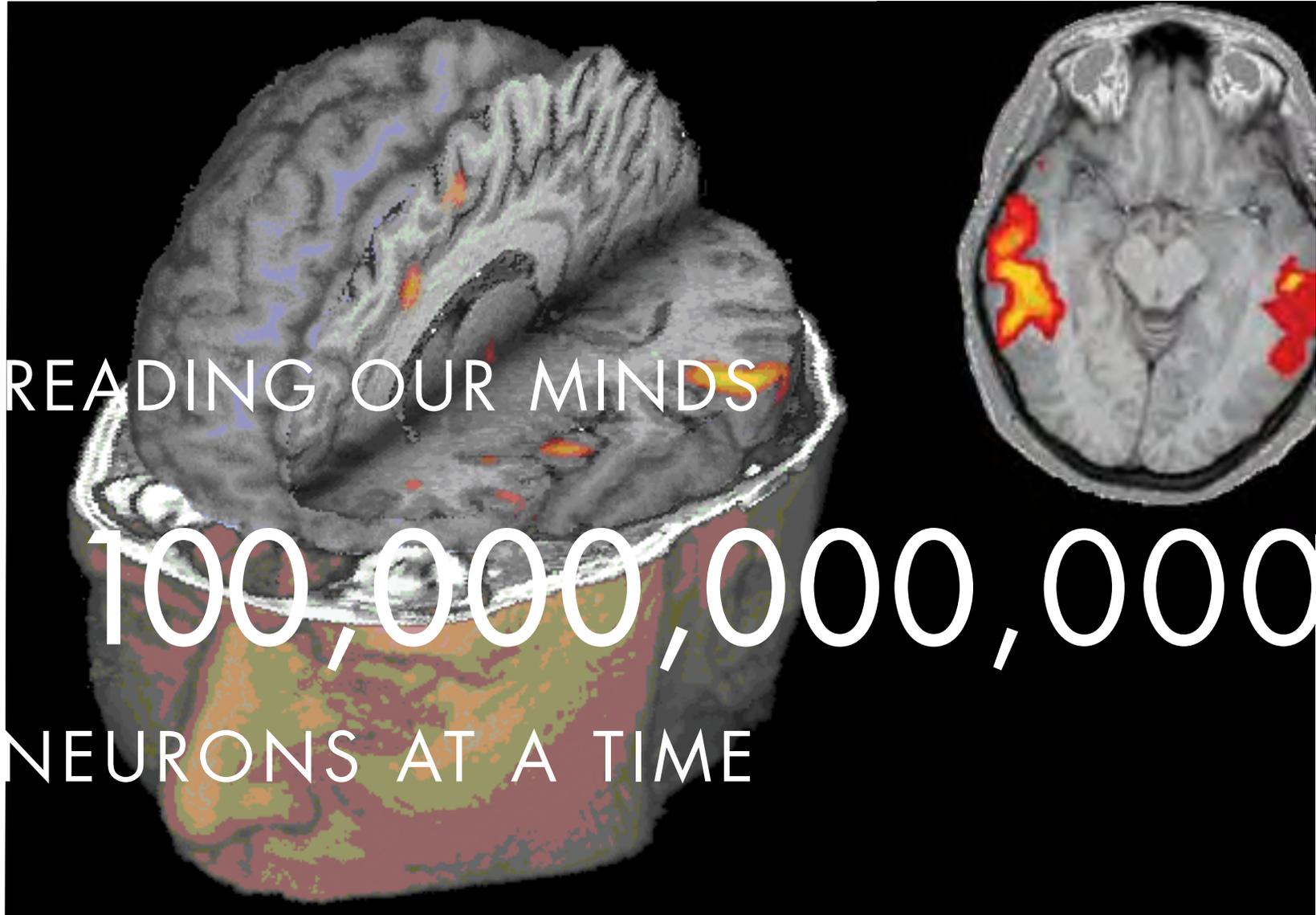
Meyer Feldberg
President, 1987–89



Henry R. Linden
President, 1989–1990



Lew Collens
President, 1990–2007



READING OUR MINDS

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NEURONS AT A TIME

THE HUMAN BRAIN CONTAINS APPROXIMATELY 100 BILLION NEURONS. TODAY, IIT SCIENTISTS ARE HELPING DOCTORS TAKE A CLOSER LOOK AT THEM.



Surgeons may soon be able to use a new kind of MRI imaging during surgical planning to help avoid damage to important nerves. IIT professor Konstantinos Arfanakis has advanced imaging technology so that getting clearer brain images faster is now possible. And thanks to IIT professors Miles Wernick and Yongyi Yang, pharmaceutical researchers can better evaluate the effectiveness of new medications, using advanced methods to extract patterns of brain activity from imaging scans.

Unlocking the secrets of the human brain. Just another way IIT is *Transforming Lives and Inventing the Future.*

To learn more about the exciting things happening at IIT, visit www.iit.edu.

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Two Reasons to Celebrate this Fall!

Alumnifest 2007

Friday-Saturday, October 5-6

Whether you graduated one year ago or 50 years ago, join us for food, fun, and fellowship including:

- 50th reunion luncheon for the Class of 1957 and all prior classes
- Casino Night with cards, casino games, cocktails, and hors d'oeuvres
- *Many Voices, One Vision*: a town hall meeting with new president John Anderson. Bring your questions and comments, and join the conversation.

For more information on Alumnifest 2007 visit www.iit.edu/alumni/alumnifest/2007.

Inauguration of President John Anderson

Tuesday, October 30



Join your IIT friends for an inauguration ceremony and full day of events to help welcome the eighth president of IIT as he launches an exciting new era for the university!

Visit www.iit.edu for more information.

Email: rsvpevents@iit.edu

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