

ILLINOIS INSTITUTE OF TECHNOLOGY

iit magazine

WINTER 2008



research at the crossroads

COVER STORY

IIT diabetes research is linking engineering, science, and medicine

A LIFE IN MOTION Mechanical and Aerospace Engineering Professor David Williams

INSPIRING HISTORY, PROMISING FUTURE African Americans at IIT set the standard for excellence



LETTER FROM THE

president

The Underrepresented Majority?

In 2005, the National Academies' report "Rising Above the Gathering Storm" was a call to action, concluding, "Unless the nation has the science and engineering experts and the resources to generate new ideas...we will not continue to prosper in an age of globalization."

That's a pretty big statement—one that is particularly weighty considering the forecasted growth and shifts of our population show tremendous increases for minorities, who in the past have been less likely to pursue degrees in science and engineering.

According to the American Society for Engineering Education (ASEE) and numbers reflected by the United States Census Bureau, although African Americans and Hispanics make up 25 percent of the U.S. population, only 11 percent of these underrepresented minorities earn bachelor's degrees in any field of study. The national averages are also reflected at IIT, with 11 percent of IIT's bachelor's degrees awarded to underrepresented minorities last academic year.

Even fewer underrepresented minorities obtain degrees in engineering and technology fields. ASEE's most recent figures, from 2006, indicate that African Americans received only 5 percent of the bachelor's degrees awarded in engineering that year. Just 6 percent of engineering bachelor's degrees were awarded to Hispanics. Last year 12 percent of IIT's engineering degrees were awarded to underrepresented minorities.

Inequalities exist among faculty and women as well. Underrepresented minorities currently make up only 5 percent of all engineering faculty in the United States. A quarter of the black engineering professors teach at just a handful of Historically Black Colleges and Universities. While women comprise the majority—56 percent—of all university undergraduates, only 19.3 percent received engineering bachelor's degrees in 2006, marking a steady eight-year decline. At IIT, one-fourth of our bachelor's degrees last year were awarded to women, who this year make up nearly a third of total undergraduate enrollment and 20 percent of engineering undergraduates.

By 2020, underrepresented minorities are expected to rise to nearly 35 percent of the population—Hispanics will comprise 18 percent, African Americans 14 percent, and the growing population of Native-American and other non-Asian races is projected to be 3.5 percent. By 2050, the combined African-American, Hispanic, and Native-American/other population will compose nearly 45 percent of our country. Clearly, today's underrepresented minorities stand to become tomorrow's underrepresented majority.

As former vice chair of the ASEE Engineering Deans' Council Executive Board, I know how great a challenge improving science and engineering education in this country, particularly for underrepresented minorities, can be. However, we cannot allow this challenge to become a missed opportunity for our young people or our country.

The National Academies' Committee on Prospering in the Global Economy of the 21st Century provides a variety of recommendations to improve engineering and science education: increasing interest in these disciplines among K–12 students, training more qualified teachers, improving masters in science education programs, and investing in math and science specialty schools, among other suggestions. In addressing minorities in these fields, the Building Engineering and Science Talent committee further notes the need for financial support for individuals, increased work experience, improved social networks, and campus-wide efforts to increase inclusiveness.

IIT is on the right track. From our new Collens Scholarship Program to our ongoing and strengthening ties with Chicago Public Schools and Bronzeville to improved recruitment and retention efforts, the university is taking important steps toward change. These and other initiatives are included in this issue's feature on African Americans at IIT [page 15]. However, much more effort is needed if IIT is to be a leader in educating today's minorities for tomorrow's opportunities in innovative technologies.

The acceptance of all people regardless of race or ethnicity is an important part of IIT's past and present [see Rewind, page 36]. We are a top research university with strengths in engineering, science, and professional studies. Through our location within Chicago, we are committed to educating increasingly more of today's minority population for future leadership in these fields and in society.

John L. Anderson
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**SEND ALUMNI NEWS TO
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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, humanities, 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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Chicago-Kent College of Law
College of Architecture
College of Science and Letters
Institute of Design
Institute of Psychology
Stuart School of Business

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inthisissue



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BUILDING A DREAM

Whether breaking boundaries or building the community, African Americans at IIT are the inspiration for a future of greater diversity.



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MOTION PICTURE

Professor David Williams' knack for flying and sailing is part of a successful career in fluid dynamics.

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ENGINEERING BETTER MEDICINE

IIT faculty are taking a novel, interdisciplinary approach to diabetes research at the university's Engineering Center for Diabetes Research and Education.

Cover Image

Computer graphic showing a part of the molecule of human insulin

Credit: Alfred Pasieka / Photo Researchers, Inc.

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Letters

writeback!

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Alumnus an “Environmentalist But Not Extremist”

I am writing in reference to the article titled “Hot Topic” in the fall 2007 issue. First, I would like to compliment you and the magazine staff on an excellent publication. Before I go any further, I should point out that I am retired from the medical device and pharmaceutical industry, and have been a supporter of the university over many years.

I would like to say that there are two sides to the story on global warming. I consider myself an environmentalist but not an environmental extremist. If we believe what the extremists say and take actions that they recommend, we will have the worst depression ever known. There will be panics because of shortages of power and food. One example is the use of solar and wind power. Wind and solar power cost 1,000 percent more than coal or nuclear, and are unreliable (it is hard to imagine a monthly electric bill going from \$200 to \$2,000 per month). In addition, they require about 300 times as much space. Nuclear power would be one alternative to the use of fossil fuels, but the environmentalists object to it. I am working with Assemblyman Chuck Devore [70th District, Calif.] on an initiative to overcome that problem here in California.

—Cliff Doubek (CHE '49)



Henry Heald, IIT president
from 1937–1952

Former Black Knight Recalls Heald’s Relationship With the Group

I enjoy *IIT Magazine* especially because it brings news and information to those of us here on the West Coast, and indeed all over the world. I would like to add to the letter submitted by Marshall B. Taylor [fall 2006], who reminded all of us about John Rettaliata. However, because I am a little older than Taylor, I believe I can reach back a bit further and add some information about Henry Heald, who was the first president of the newly formed Illinois Institute of Technology. I entered the first class that went through Tech as IIT Armour College.

I had the privilege of a personal meeting with the great man in my senior year in order to report on an event that was of interest to him. I, too, was a Black Knight during my senior year, which started in the fall of 1943 and ended in February of 1944. We were all on a three-semester year in order to graduate as many engineers as possible and to get us all out and into the war effort.

I entered his office, which was hallowed ground to all of us, and I can tell you even at this time I was in awe. Heald had an aura about him, like no other man I have ever met, then or since. He was, in my opinion, the right man in the right place at the right time to put Illinois Institute of Technology on the right path. He was tall and impressive, sort of Lincoln-esque.

I carried information to Heald because of my position on the campus, and consequently, as a Black Knight. The group was active during all of the eight semesters I was at Tech and was alive and healthy when I graduated, but I don’t know if it was active all through the changes that took place on campus during the latter part of the war. According to Taylor, it was reactivated in 1946. I assume it was deactivated because of the large number of Navy personnel in classes at that time.

The only time the group was recognized when I was on campus was a one-page list of the seniors and the heading “Black Knights” in our yearbook. No other information was offered. I, of course, will offer no more info about the group except to say that in my opinion we did many good things for Tech.

I wish I could add some information about the origin and where the name came from, but then that would not be in keeping with the tradition of the group. No one told me.

—Harry R. Gillespie (ME '44)



Alumnus Remembers Early Years at IIT

On Sunday, September 7, 1958, I matriculated at IIT. Prior to the commencement of classes, there was a full week of orientation, and two personalities in the winter 2007 issue of *IIT Magazine* were prominent in my new world. Of course, John Rettaliata was president, and I rudely denied my parents' meeting him at a reception that Sunday afternoon. The reason was a tryst, arranged long in advance, with the girl that would become, and remains, my wife.

Thoughtful portions of orientation were little lectures introductory to our majors. At that date it was my intention, soon to be thwarted by chemistry lab and other intimidations, to be a physicist, which brings me to the second personality in the magazine. Earl Zwicker, a handsome, pleasant young man, then an instructor, conducted a friendly session on my chosen science. He may have given us a puzzle I couldn't solve, but my clearest recollection from all the talks was his admonition to avoid notational misinterpretation by crossing one's 7's and z's.

These reminiscences prove that it was a slow process, but I came of age at Illinois Institute of Technology and was well educated there. Most importantly, though, I was loved; they were very good years.

—Larry Stanfel (MATH '62)

campusnews



Susan Solomon and colleague Qin Dahe with the 2007 Nobel Peace Prize

Updates on the people and places previously covered in *IIT Magazine*

Follow Up

“Hot Topic” Fall 2007

Susan Solomon (CHEM '77), co-chair of the Intergovernmental Panel on Climate Change (IPCC) and chief editor of its February 2007 report, was a recipient of the 2007 Nobel Peace Prize. The award was shared with Solomon's IPCC colleagues and former vice president Al Gore.

“Innovation By Design” Winter 2007

The IIT Institute of Design, featured last year for its innovative, user-centered design focus and dual design/M.B.A. degree program with IIT Stuart School of Business, was named to *BusinessWeek's* 2007 “Best Design Schools in the World” list.

“Many Voices, One Vision” Fall 2007

IIT's eighth president, John L. Anderson, was inaugurated on October 30, 2007. To read the complete story, see page 4.



PRESIDENTIAL INAUGURATION

Many Voices,
October 30, 2007

“The key to success is a commitment to excellence, and we at IIT have that commitment.”

—John L. Anderson
President, IIT

It was a time for pageantry, as delegates of 25 colleges and universities, resplendent in academic regalia, processed along with students, faculty, alumni, board members, and honored guests from Illinois Institute of Technology into the auditorium of Hermann Hall on IIT’s Main Campus.

It was a time for celebrating creativity, as students—in a display demonstrating equal parts whimsy and wherewithal—showed that a handcrafted catapult, trebuchet, or flywheel hurling a pumpkin into the air and across the length of Siegel Field is as much a feat of engineering in its own right as is a rocket blastoff.

It was the inauguration of John L. Anderson as IIT’s eighth president, a joyous recognition of the university’s past, its unique place in a vibrant metropolis, and its vision for a future of upward excellence. More than 1,000 members of the IIT community and their guests welcomed the new president in a ceremony that opened with 98 students carrying flags of their native countries, the VanderCook College of Music Instrumental Ensemble performing various selections, and the IIT Reserve Officer Training Corps Tri-Service Color Guard presenting the flags of the United States and the armed forces. Grand Marshal John S. Kallend, associate dean of Armour College of Engineering, introduced Master of Ceremony John W. Rowe, chair of the IIT Board of Trustees, who told the audience that, given the president’s abilities as a university administrator, engineer, and scholar, he and the rest of the Presidential Search Committee “found in John Anderson someone who met all of our academic hopes, and then some.”

“John, I know that you will wear this medallion with pride as you lead this institution to even greater distinction.”

—Lew Collens
President Emeritus, IIT

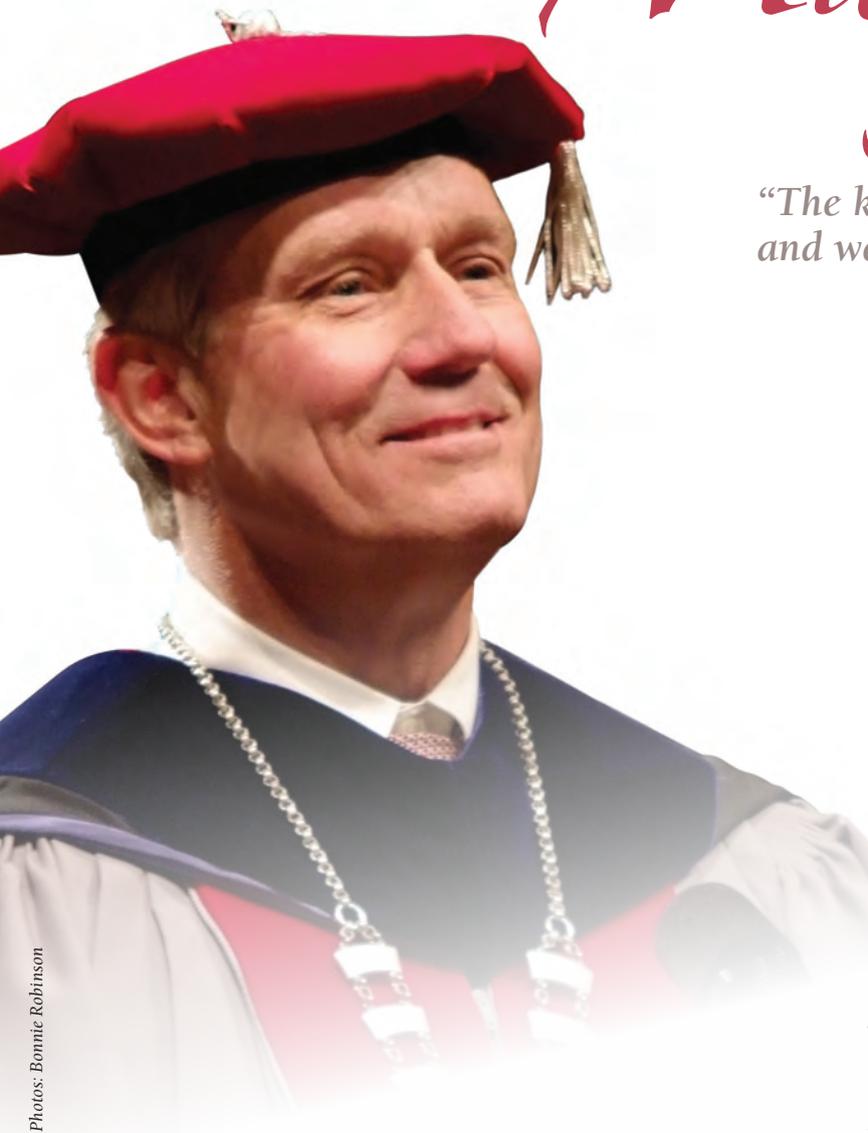
“Ask John Anderson what motivates him, why he chose an academic career, and why he’s so charged up about leading IIT. You’ll get an answer that’s common to most great university presidents, not only those of the twenty-first century. The answer is students.”

—Jared L. Cohon
President, Carnegie Mellon University
From *“The University Presidency in the Twenty-first Century”*

This sentiment was echoed by Jared L. Cohon, president of Carnegie Mellon University, who delivered the inauguration’s keynote address. Anderson’s friend and former Carnegie Mellon colleague, Cohon assured the IIT community that Anderson was the right person for the job.

“With excitement over your recent progress and great hopes for more, all against a backdrop of a rapidly changing world, you need a president who understands you and all that is revolving around you,” said Cohon. “In John Anderson, you have that person—a president who is up to the challenge of harmonizing your many voices into one hope-filled vision for IIT’s bright future,” he added, acknowledging the inaugural theme of “Many Voices, One Vision.”

In his address, which was streamed live online, Anderson commended the university community for its recent collaborative process of evaluation as well as its ambition in seeking to answer the question, “Who will we be?”. While



Photos: Bonnie Robinson





Scenes from the inauguration [left to right]: a light moment, Grand Marshal John S. Kallend, President John L. Anderson and Steve Brady of Institutional Advancement

One Vision.

Anderson outlined the goals he has for IIT—making improvements in the areas of enrollment, faculty research and recognition, fundraising, campus facilities, community relationships, and attracting high-quality faculty and students—he said that his priority for the coming year is to shape IIT’s vision for the future, a task he expects to do with a great deal of input.

“We must hear from a variety of voices,” said Anderson. “I invite each of you to join me

“During the search process, we learned a great deal about John, and most of it comes down to the word ‘commitment.’ Commitment to undergraduate education, commitment to integrating the schools that make up IIT, commitment to enhancing our capabilities wherever we can, commitment to raising the money necessary to do that.”

—John W. Rowe

Chair, IIT Board of Trustees and Chief Executive Officer, Exelon Corporation

in this historic effort. I ask for your ideas and strategies, and I encourage you to engage in a vigorous debate and discussion on IIT’s future because we all have a stake in the outcome.”

In a symbolic gesture, individuals who represent the five main voices on campus—students, parents, staff, faculty, and alumni—greeted the president, lending their support. Eve Estrada, parent of two IIT

“On behalf of all 60,728 proud graduates of IIT: welcome, John. We look forward to joining you in advancing the vision of the university.”

—Bud Wendorf (ME ’71)

undergraduates, shared her gratitude for what she is confident the president will accomplish.

“On behalf of all IIT parents, I welcome you, John, to IIT, and thank you in advance for what you will do for our children,” said Estrada.

Other voices of welcome joined in weeks before the inauguration, as members of the IIT community filled out cards posing the question: What do (or did) you value most about your IIT experience? The responses were displayed onstage as part of the video component of the ceremony. For Alice Orphovos Kopan (HE ’54), it was the melding of lifelong friendships she made, critical-thinking skills she obtained, and excellent academic standards to which she aspired—a combination of ideals not unlike those shared by Anderson.

“I could not have been happier,” Anderson reflects on the inauguration day festivities. “From my investiture to the Chicago-style lunch to the Pumpkin Launch, the day was filled with moments that shone and represented the very best of IIT. The many gestures of welcome and warm applause, the fellowship of all of us enjoying a meal, and the unique demonstration of our students taking an innovative approach to education are memories I will always remember. I look forward to working together to realize the potential of the university that matters so much to each one of us.”

Launch Draws Record Entries

Armed with a can-do spirit and plenty of engineering know-how, a record 19 teams competed in the third annual Pumpkin Launch, which took place on Siegel Field on Main Campus following the inauguration. Using a 32-foot tall trebuchet, the American Society of Civil Engineers (ASCE) team propelled its pumpkin a record 234 feet on its third and final attempt, besting by 65 feet, 4 inches the second-place Delts, who took the top prize for most creative launcher with its ballista crossbow. The *Chicago Tribune*, *Chicago Sun-Times*, *Medill Reports*, CNN, and channels CBS 2, ABC 7, and Fox 32 all covered the event.

The winning team claimed a special guest as one of its crew members: John L. Anderson. “It was our honor to have President Anderson on our team for support. He chose our team to support our cause, to support a team that included young women engineers in a field that is predominantly male, and to support a team that exemplified diversity,” says Kaitlyn Conley (CAEE 3rd year), one of the team’s leaders. “Our team showed the dynamics that diversity both in gender and race offers in conjunction with our mutual passion and commitment when working together to successfully achieve a common cause.” Conley says that the team has donated its \$1,000 prize to ASCE for the spring concrete canoe competition.



Visit the Inauguration Website

You can hear President John L. Anderson’s address by visiting the Presidential Inauguration website at www.iit.edu/inauguration. The site features video of the ceremony, links to Anderson’s biography and curriculum vitae, the biographies of past presidents, IIT history, and photos of the inauguration and Pumpkin Launch.



Life (and Law) Lessons

Sean Wieber (LAW '07)

When Sean Wieber (LAW '07) sent videotapes of his high school football highlights to college coaches around the country in 1997, he never imagined at the time that he would eventually land a spot on Northwestern University's starting roster. Neither could he have envisioned the life-altering event that would occur on the sidelines three years later, or the personal and professional journey on which it would take him.

On August 3, 2001, Wieber's teammate Rashidi Wheeler went into cardiac arrest on the practice field at Northwestern toward the end of a rigorous conditioning test. Wieber held Wheeler's hand during the violent attack. For the six-foot-one, 200-pound free safety, it was a rare moment of powerlessness. "I felt absolutely helpless," Wieber says.

The head trainer and EMTs performed CPR on Wheeler, but he was pronounced dead at Evanston Hospital an hour later. According to the Cook County medical examiner, the cause of death was exercise-induced bronchial asthma.

A lawsuit ensued, and Wieber was deposed by attorneys for Wheeler's mother. When the case eventually settled out of court in 2005, Wieber thought the legal issues surrounding his friend's death were finally over.

They would resurface two years later, however, in a very different way. Fast-forward to spring 2007. Wieber—at this point a third-year student at Chicago-Kent College of Law—was handed a daunting assignment. Within a week's time, he would have to develop and present a proposal to his Legislative Advocacy class on an initiative that might make a difference in the real world. His thoughts turned to Wheeler.

Wieber began researching Illinois law and learned that a law passed in 2005 required all publicly or privately owned indoor physical-fitness facilities to have automated external defibrillators (AEDs) on site. However, the statute did not include provisions for outdoor facilities.

Within 48 hours of conceiving the idea, Wieber had drawn up the R.A.W. Initiative, named after Rashidi Ayodele Wheeler, which proposed mandating AEDs at all public or private outdoor athletic facilities in Illinois, including schools.

At the time, Wieber was serving as assistant to former governor James R. Thompson at the Chicago office of Winston & Strawn, LLP. Through Thompson, Wieber got in touch with Representative Daniel Burke (D-Chicago), the sponsor of the original AED bill. After an enthusiastic initial conversation, events occurred at warp speed; barely a month passed between Wieber's class presentation in January and Burke's filing of the bill.

After being passed unanimously by the House in March and receiving majority approval by the Senate in May, amendments made to the bill required that it be sent back through both houses. On October 2, 2007, the Senate's amended bill was unanimously concurred upon by the House and sent to Governor Rod Blagojevich, who signed it into law in December 2007.

Wieber, who is now a litigation associate for Winston & Strawn, is excited about the positive response the bill has received. "It's gotten a tremendous amount of support in the state legislature, in part because they appreciated the fact that I was a citizen drafter," he says.

While the experience has provided him with a close-up professional view of the law-making process, Wieber says he has found the personal reward to be equally valuable. "As [the late Northwestern] Coach [Randy] Walker would always say, 'Teammates take care of teammates,'" he says. "This was my opportunity to help Rashidi in a way, even after death. My hope is that something positive will come out of what was truly a tragedy."

—Abby Nall

Facilities

Kloda Family Laboratory Dedicated

Last August, the Department of Electrical and Computer Engineering (ECE) dedicated its new James C. Kloda Family Laboratory. The guests of honor at the dedication were James Kloda (EE '50), his wife Marilyn, and their family. IIT has benefited from more than two decades of support from Kloda and his family.

The lab is located in Siegel Hall, home to IIT's many computer architecture courses. "Computer architecture is an industry that evolves quickly and can take an extraordinary turn in a matter of months," says Professor Jafar Saniie, ECE associate chair. "Our students are very fortunate to have alumni like Jim and Tom Kloda [EE' 85] who support the need for of-the-moment technology to stay competitive in such a fast-paced field."

Undergraduate students in the Kloda Laboratory learn the fundamentals of designing and building hardware, logic systems, and computational devices. Using an array of equipment, including teaching systems designed by Saniie, the students are able to test their devices to evaluate their efficiency and speed.

Kloda founded Elite Electrical Engineering, Inc. in 1954. Located in Downers Grove, Ill., Elite serves a variety of clients in the high-tech industry, including those in automotive, commercial aviation, military, telecommunications, industrial equipment, and consumer product manufacturers.



Graham Resource Center New Expansion Project Completed

Following a nine-month expansion project, the IIT College of Architecture's Graham Resource Center (GRC) has been completed. The re-opening celebration was held November 2, 2007, and featured renowned British architect, critic, historian, and Ware Professor of Architecture at Columbia University, Kenneth Frampton. Frampton presented his lecture, *Reading Architecture: A Comparative Study*.

The project was funded by the university and the College of Architecture. IIT faculty member Tom Brock designed the library, which doubled the library's square footage, quadrupled the shelving capacity, and provided a conference room for students. In addition, a Rare Book Room was added, and marked enhancements in acoustics, lighting, and seating were made. These updates improve the overall quality of the library and greatly aid students as they conduct serious research.

www.gl.iit.edu/grc

FLIX2CLIX

Flix2Clix Captures Essence of IIT

The Flix2Clix contest challenged IIT students to identify the university community as an “academic experience grounded in engineering, science, and technology” in a video of 2.5 minutes or less. The winner was Nastaja Terry (ME 4th year).

Terry, who is from Chicago’s Ashburn neighborhood, received the top prize of \$1,000 for her entry. “I saw the Flix2Clix contest as a creative outlet, an escape from hard-core engineering,” Terry says. Her video featured an array of fast-paced Chicago scenes and landmarks, and incorporated many of the “iit” words that are already familiar from the university’s branding campaign.

The contest garnered an impressive response: the five finalist videos were viewed 8,500 times by people from around the world, including those from 192 different colleges and universities, 85 high schools, and 32 different countries.

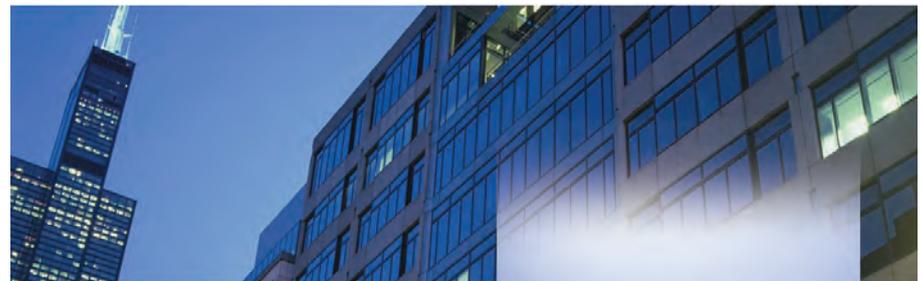
Watch the finalist videos online at www.flix2clix.iit.edu.



UTP Watch

University Technology Park At IIT (UTP) now has 22 companies located in it, with a total of 384 employees. The latest company to join UTP is a University of Chicago spin-off, Chromatin, Inc., whose novel genetic marking technology is helping to revolutionize the commercial seed industry. Chromatin has signed strategic alliances with some of the nation’s leading agricultural products firms, including Monsanto. Chromatin is the first life sciences company to move into the newly renovated Technology Business Center, owned and operating by UTP’s development partner, Wexford Science and Technology. Chromatin signed a multi-year lease with the option to double its size as the company grows.

www.universitytechnologypark.com



Stuart Launches New Center for Strategic Competitiveness

Stuart School of Business has launched its new Center for Strategic Competitiveness (CSC), a virtual nexus of partnerships aimed at addressing the challenges in today’s globally competitive environment. The center brings together government and business leaders, researchers, IIT faculty and students, and other individuals and organizations to provide solutions-development services across the globe.

This business-without-borders approach situates the CSC as a key player in preparing Stuart students for “the next economy.” Harvey Kahalas, Stuart dean and executive director of the CSC, says, “Tomorrow’s globally competitive environment, based upon the next economy precepts, requires new, different, and unique processes and systems to generate innovative and effective outcomes.” Citing that traditional business practices are no longer effective, the CSC utilizes a multi-discipline approach—integrating the concepts of creativity, innovation, entrepreneurship, incisive decision-making, leadership, and sustainability to prepare individuals and organizations to expand their thinking and modes of problem solving.

An additional factor predicted to define the next economy is a critical reliance on creativity and innovation. One way in which society will see this played out will be through relationship building that changes how companies approach competition. No longer the familiar “me against you” concept, concern over depleting environmental resources will necessitate companies to look to one another for ways to work in tandem.

In an early campaign speech Franklin D. Roosevelt said, “Competition has been shown to be useful up to a certain point and no further, but cooperation, which is the thing we must strive for today, begins where competition leaves off.” For Kahalas, the idea supports his vision for the CSC: “Combine radical innovation with market savvy and bold leadership, and you get strategic competitiveness.”

www.stuart.iit.edu/csc



Remembering the Spirit

It's a well-known rite of passage: Each year as college freshmen begin their academic experience, they leave behind family and friends, often finding themselves a long way from home. Few will introduce themselves to new friends as being "of the water clan people born for the black sheep clan," but distinctions are part of life for first-generation college student Henrietta Tsosie (ME 3rd year), a full-blooded Navajo.

Having grown up on a reservation in Klagehoh, Ariz., Tsosie lived in a small community without electricity until 1991 or running water until 1997. During the summers, she traveled throughout the United States to pursue a variety of educational and extracurricular activities, including programs and seminars in Massachusetts, Albuquerque, N.M., and Washington, D.C. She admits that those opportunities prepared her for living in Chicago. "These past experiences opened my eyes to other possibilities. I learned at a young age that there is more in the world than what the reservation had for me," she says.

Yet nothing quite takes the place of total immersion.

When Tsosie left the reservation in 2005 at age 18, she says she spent her first weeks at IIT "bedazzled" by all the buildings and "hiding under the wings" of her orientation counselors, hoping they would tell her what to do and where to go. She also had some catching up to do academically. Despite being at the top of her high school class, she had to learn advanced elements to subjects not even offered at her school.

Those early days of uncertainty must seem like a distant memory to Tsosie, now a junior, who completed a 10-week summer internship last year with the National Science Foundation (NSF) in Washington, D.C., in the Chemical, Bioengineering, and Transport Systems Division. She was the only intern in the division, researching grants and compiling reports related to technology and climate change. In the evenings, she took classes on federal Native-American policy.

While the internship was influential in developing her current interest in alternative energy and hybrid vehicles, she feels that her upbringing and heritage have played a considerable role in directing her future. "Growing up, I would help my father fix his '78 Chevy, taking the engine apart, fixing the carburetor, or just changing the oil. I found it amazing how so many small pieces in an engine make a car move." Throughout her life she has participated in Native-American rituals, firm in the belief that "our earth is our mother; she will provide us with what we need as long as we take care of her," a message that is also a part of most Native-American ceremonies.

"I really want to help make a difference in how we consume energy and use what has been given to us," says Tsosie.

Using what has been given to her is something Tsosie innately understands, her summer internship being yet another part in a very

complex engine that drives her toward success and meaning. "The biggest thing I got out of being at NSF was continuing my education past my bachelor's. I know where I want to go and am no longer afraid to take the next step. I hope that the world will be ready for me."



Photo: Bonnie Robinson

Henrietta Tsosie (ME 3rd year)

Live and Let Live

IIT Center for Work Zone Safety and Mobility

If Jonathan Shi has his way, no more names will be added to a tribute that has been displayed in more than 50 communities throughout the United States since its inception in April 2002. The exhibit—the American Traffic Safety Services Foundation (ATSSF) National Work Zone Memorial—is a living tribute that lists the names of motorists, work zone employees, and law enforcement officials from around the country who have died as a result of roadway work zone accidents. As director of the IIT Center for Work Zone Safety and Mobility (CWZSM), Shi leads a consortium of organizations determined to make work zones more navigable for all.

“Work zones are related to more than 1,000 fatalities and 40,000 injuries per year involving workers and motorists,” says Shi, noting that, given the age of many of the nation’s roadways, zone projects are not likely to end in the foreseeable future. He is confident, however, that the CWZSM will be a strong force in addressing work zone issues. “Work zone safety presents new challenges that require expertise from both construction and transportation disciplines; fortunately, we have the needed expertise in both areas and a close, collaborative team at IIT,” he explains.

The CWZSM was established in October 2006 with a four-year, \$1.03 million grant awarded to Shi by the Federal Highway Administration (FHWA), the Illinois Department of Transportation (IDOT), and the State of Utah Local Technical Assistance Program Center. The first facility of its kind in the country, the CWZSM has a three-fold mission: to develop and update highway work zone safety audit guidelines; to discover, develop, identify, and transfer new technologies and measures for improving work zone safety and reducing its negative impacts on private industries and the national economy; and to provide work zone safety training and education to the transportation community. The grant also supports the center’s first

project—the development of national work zone safety audit guidelines that can be adapted to state and local needs, the creation of tools to assist individuals in conducting the audits, and the promotion of best practices for preventing fatalities and injuries in work zones.

Shi, a professor in Armour College of Engineering’s Department of Civil, Architectural, and Environmental Engineering (CAEE), is building a consortium of transportation agencies; construction, trucking, and insurance companies; and other educational institutions for the CWZSM. He has also assembled a core team of CAEE faculty—David Ardit, C. Jotin Khisty, Zongzhi Li, and Jamshid Mohammadi—who have been awarded grants from the Midwest Regional University Transportation Center, the Galvin Congestion Initiative, and IDOT to investigate a variety of topics, including innovative methods for accelerated construction of overpasses and highway transportation asset management. The group is planning collaborative projects with CAEE faculty members Sidney Guralnick and Eduardo De Santiago to assess the structural integrity of highway bridges in work zones.

Another significant project undertaken by the team is on the research and development of an automated system for the installation of raised markers—the white or colored reflective safety devices—on roadways. With \$500,000 in funding from the FHWA, Shi has brought together design, construction, and testing groups from across the country to work on various aspects of the project. “The program manager at the FHWA is very happy with the effort and hopes that the team composition will set a good example in attracting more manufacturers, road contractors, and researchers to team up with innovative technologies to improve roadway safety,” says Shi.

www.grad.iit.edu/researchcenters/cwzsm/index.html



Professor Jonathan Shi,
CWZSM director



Building Strength for the Future

While the CWZSM is focusing its current research towards engineers and other professionals in the transportation field, the ultimate recipient of its efforts is the driver. "The goal is to provide better coordinated and efficient work zones for motorists to get through and around in the transportation network," says Shi. One way that the CWZSM is doing this is in the development of a Google Earth-based tool for analyzing work zone impact on traffic delays. Google Earth, a virtual globe program created in 2004, maps the planet by the superimposition of objects such as buildings and cars obtained from satellite imagery, aerial photography, and a geographic information system 3D globe.

Shi is hopeful that his team's success in achieving this technology along with the other components of the CWZSM mission will result in the facility being designated a University Transportation Center (UTC) when the next round of funding takes place. "We plan to build up our strength on the specific area of work zones," Shi explains, noting that 65–70 UTCs exist around the country.

National Work Zone Awareness Week will be observed April 7–11, 2008, with states hosting activities for motorists and their passengers.

Photo: Bonnie Robinson

faculty honors & awards

Low Collens

Illinois lawmakers honored Low Collens, IIT president emeritus and former dean of Chicago-Kent College of Law, with a resolution recognizing his service to the university, the state, and the legal community. The resolution, introduced by Representative Kurt Granberg (LAW '80), was passed by the Illinois legislature.

Ophir Frieder

Ophir Frieder, IIT Research Institute Chair Professor of Computer Science and director of IIT's Information and Retrieval Laboratory, is the recipient of the 2007 American Society for Information Science and Technology (ASIS&T) Research Award. ASIS&T cited several reasons for selecting Frieder as its awardee, including his work with the National Institutes of Health in creating efficient sequencing tools for the Human Genome Project.

Daniel T. Coyne

Chicago-Kent College of Law Professor Daniel T. Coyne was named president of the Chicago Council of Lawyers, Chicago's public interest bar association. Coyne was also named Faculty Member of the Year by the Chicago-Kent Student Bar Association.

Allan Myerson

Allan Myerson, Philip Danforth Armour Professor of Engineering, provost, and senior vice president of Illinois Institute of Technology, is the recipient of the American Chemical Society Award in Separations Science and Technology. Myerson received the award for his work in the field of crystallization.

The Best Defense: Policing America's Food Supply

Every year, contaminated food causes illness in nearly 76 million Americans. Of these, 325,000 typically require hospitalization and 5,000 die, according to the Centers for Disease Control and Prevention.

Although most individual outbreaks are limited in scope, the potential for a massive epidemic is ever-present. Tainted clams in China caused one of the largest foodborne outbreaks in history in 1991, with some 300,000 stricken with hepatitis A. Three years later, *Salmonella enteritidis* poisoned around 224,000 people in 41 U.S. states—the result of a contaminated mixture used in ice cream.

More recently, the contamination of leafy greens with *E. coli* bacteria and a contamination of pet food with the nitrogen-rich adulterant melamine have heightened public awareness of food safety issues.

While inadvertent poisonings remain a significant threat, such cases pale in seriousness when compared with the potential for deliberate sabotage. The challenges of safeguarding the nation's food supply from malicious tampering—while establishing measures to deal with a serious outbreak, should one occur—are being met by a unique consortium headquartered at IIT: the Food Defense Platform.

A collaboration among industry, the Food and Drug Administration, and academe, the Food Defense Platform is part of IIT's National Center for Food Safety and Technology (NCFST).

Martin Cole, research professor and NCSFT director, says, "Since 9/11 we have been aware of the potential of the food supply as a target for terrorism activity." Adulterating food with microbes or chemicals offers those with ill-intent a cheap, comparatively simple, and devastating means of societal disruption.

The methods and potential targets in the food supply chain—from farm to table—are myriad, and may include contamination with spore-forming organisms. "Some bacteria are able to form small structures known as spores. They're like seeds for plants," Cole explains. "Spores are so important because they are a very resistant form of bacterial pathogen. They survive drying, are more heat resistant, and persist for long periods of time." The deadly spores of *Bacillus anthracis* may survive intact for hundreds of years.

www.ncfst.iit.edu

NCFST scientists Cynthia M. Stewart, director of microbial food safety, and Peter Slade, director of education and outreach, are working to ensure the safety of our nation's food supply.



Photo: Bonnie Robinson

Some of the platform's research into such bacteria is being carried out by IIT's Professor Peter Slade, a leading authority on the role of these pathogens in food: "Spore-forming organisms fall into two main categories: bacilli and clostridia," he notes. "The clostridia group contains the species botulinum, which produces botulism, a toxin."

In addition to in-depth studies of the behavior of unconventional pathogens in foods and food processing equipment, the platform is focused on the challenges of decontamination. "If you did have an incident," Cole asks, "how would you go about cleaning up the food supply? You're not going to be able to just bulldoze food plants."

Rather, Slade and others working in collaboration with the Department of Homeland Security and the National Center for Food Protection and Defense are examining the use of gaseous sterilants for inactivating bacillus spores, including hydrogen peroxide, ozone, and chlorine dioxide. "There are limitations with liquid sanitizers or liquid sterilizing agents—they can't reach in all the nooks and crannies we have in a food sanitizing facility," Slade points out, adding, "Gases have far better penetrating capabilities."

The platform's specialized facilities offer researchers unparalleled ability to study a variety of food toxins, from so-called Category A agents (including *Bacillus anthracis* and *Clostridium botulinum*) to less virulent strains, to pathogen analogues.

Describing research with interrelated biological forms, Slade says: "We've been working in the lab here with what we call surrogate organisms." One such organism is known as *Bacillus cereus*, another is *Bacillus thuringiensis*. The use of these surrogate organisms allows IIT students and faculty the opportunity to conduct leading-edge research into potentially virulent pathogens, without the attendant risk.

"*Bacillus cereus* is a very low-grade pathogen. It does cause conventional food poisoning," Slade explains. "*Bacillus thuringiensis* on the other hand is not a human pathogen; in fact, it's used to control insects. Both of these are genetically related to the *Bacillus anthracis*. They're cousins, so the responses of these surrogate organisms are very similar to what we expect to see in the *Bacillus anthracis*."

Efforts to avert another accidental multi-state outbreak like the one affecting bagged spinach last year—or worse, a deliberate act of food terrorism—are also in full swing. "We're part of a very large consortium within the USDA examining how to build a robust risk management framework across the food supply," Cole explains.

The new consortium combines the resources of the NSFST, the University of Georgia, Michigan State University, and Clemson University under a USDA grant of \$2.5 million. The target is *Escherichia coli* O157:H7, the pathogen culprit in the poisoning of fresh, leafy greens. "It's a complicated thing," says Cole. "You can't just pasteurize lettuce—you'd have lettuce soup." Instead, the consortium will examine which segments of the food distribution chain are suitable for *E. coli* decontamination, while providing vital public outreach in food safety.

Innovative research like that undertaken by the Food Defense Platform is essential for safeguarding a complex, increasingly global food network from malicious attack. Slade summarizes the general food safety climate, in light of the platform's recent efforts: "There are no cast-iron guarantees that something couldn't happen," he warns. "But there has been so much time, effort, and money put into these programs in the past year. I feel we are far better off than we were around the time of 9/11."

—Richard Harth



Photo: Bourne Robinson



Debugging the Brain

Associate Professor David Mogul's work focuses on the hippocampus.

A seizure in the brain may begin as a sort of premonition, a constellation of symptoms often referred to as an aura. Unusual tastes or smells, tingling sensations, or racing thoughts sometimes accompany feelings of gathering dread, nausea, or lightheadedness.

A few seconds to a few hours after such warning signs, a broad range of unpleasant and debilitating effects associated with a seizure may follow, including temporary deafness, tremors or convulsions, and loss of consciousness. Alternatively, seizures may arise with no apparent warning at all. The causes of epilepsy—a condition characterized by repeated seizure activity—are varied, and not all are well understood. More than 20 percent of epilepsy patients have difficulty controlling seizures with standard drug treatments.

IIT Associate Professor of Biomedical Engineering David Mogul is investigating new means of limiting or alleviating seizures through manipulation of the brain's electrical activity. Much of Mogul's present research focuses on the electrophysiology of partial epileptic seizures—those arising at a single site or within a few limited foci within the brain.

The primary target of Mogul's investigations is a structure of the brain's medial temporal lobe, known as the hippocampus. "Part of the reason the hippocampus may be important in the origin of seizures is that a lot of crosstalk between multiple regions of the brain goes through the hippocampus," Mogul explains.

Further, normal hippocampal activity often involves a significant amount of positive feedback, causing recurrent electrical excitation of nerve cells. Thus, Mogul points out, "The hippocampus is an area that lends itself to being on the edge of stability under normal circumstances. Sometimes little things can nudge it into instability, resulting in seizures."

The many possible origins of seizure activity present a challenge to understanding epilepsy. "One of the problems is that people think of epilepsy as a disease, and I think of it more as a family of diseases," Mogul says. "There could be some genetic mutation of proteins that underlie the electrophysiology of brain cells in some cases. Then again, you could have had head trauma from a car accident or be in a war that results in seizures for the rest of your life with no apparent genetic mutation involved."

Apart from its importance in seizure activity, the hippocampus has been the focus of intense scrutiny among neuroscientists; the region of the brain is believed to play a crucial role in memory. A specific form known as declarative memory allows the brain to remember names, things, and relationships. Curiously, the hippocampus does not appear to be the storage site for long-term memories, nor is it necessarily required for their retrieval. "But for creating new memories, the hippocampus is essential," Mogul points out.

Because of this, damage or deficit in the hippocampal region can produce tragic conditions in patients. For example, a patient with hippocampal damage could retain a keen musical ability while having amnesia so severe that fresh memories are wiped clean after only a matter of seconds.

As Mogul states, "One way of looking at the hippocampus is as a short-term memory buffer, if you think of it like a computer. Memories are stored there for a short period of time until later when they are stored further up the brain. That's one of the reasons why the hippocampus is such a fascinating area. It's also an area where a large number of epilepsies originate."

During seizures, the activity of neurons in the hippocampus becomes tightly organized. "What that suggests is that parts of the brain that are normally not highly synchronized synch up in a very extreme way," Mogul explains. The effect may be seen in an electroencephalogram, or EEG—a measurement of brain electrical activity taken at the surface of the skull. The seemingly random squiggles observed on an EEG trace of normal brain activity become patterned in the case of a seizure.

This characteristic synchronous activity may offer clues for treating the condition. "What we're trying to do, partly using mathematics," Mogul says, "is to understand the dynamics of the electrical behavior of a brain as it goes into this aberrant electrical activity, then see if we can revert it or change it."

The research involves a search for algorithms that may be used to neutralize the tsunami of electrical activity associated with seizure. Two approaches might then be applied to patients. The first—known as deep brain stimulation—involves implanting a device, sometimes referred to as a brain pacemaker, to selectively stimulate areas of the brain.

"It's clear that the ability to manipulate the brain is coming."

(It has already been applied with some success to patients with Parkinson's as well as treatment-resistant depression.)

The second technique, now being explored in Mogul's lab, is called transcranial magnetic stimulation and may be applied non-invasively. Both possibilities may one day help those who suffer from partial seizures—a boon for medical science as currently only 8–9 percent of such seizures may be treated with surgery, often at considerable risk.

"It's clear that the ability to manipulate the brain is coming," Mogul says. "Parkinson's is one pathology where already there are some very remarkable improvements in some patients. There's no reason why epilepsy may not also be treated in a similar way using electrical stimulation."

—Richard Harth



making a **dream**

by Steve Hendershot

Since it was founded in 1890, Illinois Institute of Technology has embraced a progressive view of diversity, welcoming students and faculty of all races and ethnicities, even during years of segregation. Increasing diversity is a priority of the university today, and IIT's African-American alumni, students, and faculty are proving that success is colorblind.



A Rich History

As an engineering student at IIT, Frank Crossley could appreciate the value of an experiment. When he joined a United States Navy V-12 Program in 1944 that paid for his tuition and led to a commission as an officer, he *became* part of the experiment—the Navy had no black officers at the time, and the commanding officer of the IIT unit told him the government was interested in testing whether white military personnel would take orders from black officers.

It worked. Crossley was assigned to the U.S.S. Storm King at the tail end of World War II, and soon had 36 men reporting to him, including one officer. For two days he felt like a curiosity to his fellow crew members, but soon, he remembers, the enlisted men regarded him like any other officer. A fellow officer even overheard a sailor telling a friend that, “All the officers on this ship are S.O.B.s except Mr. Crossley.” Crossley’s success, along with that of the other African-Americans in the program, influenced President Harry S. Truman to outlaw discrimination in the military in 1948.

Crossley’s impact didn’t stop with the Navy. As a renowned metallurgist at aerospace firm Lockheed Martin in the 1970s, he received a patent for inventing a new class of titanium alloys.

Crossley is one of many African-American graduates of IIT who have made landmark contributions in professions ranging from engineering and architecture to law and journalism. Along the way, IIT’s African-American alumni have also been at the forefront of the struggle for civil rights in America.

First, there are the pioneers. Ida Platt, who earned her law degree from Chicago College of

Law in 1894, is believed to be the first African-American woman to pass the bar in Illinois. (Chicago College of Law and Kent College of Law merged in 1900, and became IIT Chicago-Kent College of Law in 1969).

Charles Pierce, a 1901 graduate of Armour Institute of Technology, was the nation’s first African-American graduate in chemical engineering. Pierce later taught at DuSable High School in Chicago while Crossley was a student there. (Armour merged with Lewis Institute in 1940 to create IIT.)

Then there’s Gloria Ray Karlmark, who had already done her pioneering when she arrived on campus. The 1965 graduate came to IIT from Little Rock, Ark., where she was one of the famed “Little Rock Nine”—the nine students who attended previously segregated Little Rock Central High School under the U.S. Army’s protection in 1957.

The university’s highest-profile African-American alumnus may be Robert Abbott (LAW 1900), who founded the newspaper *The Chicago Defender*. Through the *Defender*, Abbott campaigned against racial injustice; his suggestion that southern blacks move north to escape discrimination helped draw more than 50,000 southern African Americans to Chicago between 1915 and 1920.

IIT has consistently graduated African-Americans who are leaders in their fields. Other notable alumni include Henry McGee (PA ’49), who became Chicago’s first black postmaster in 1966; Stephen Burks (ID ’92), who the *New York Times Style Magazine* hailed in 2005 as “the first African American to make an impression on the rarefied world of international industrial design”; Perri Imer (ARCH ’81), who runs U.S. Cellular Field as chief executive officer of the Illinois Sports Facilities Authority; and Dorothy Brown (LAW ’96), current clerk of the Circuit Court of Cook County, who became the first African American to hold that position when she was elected in 2000.



Stephen Burks

In the 1940s and ’50s, there were fewer black students, but those who attended say the culture at IIT was supportive because they and their work were regarded on par with fellow students, regardless of race.

“I don’t know how long I was around IIT until anyone in the administration knew I was black,” says David Sharpe (ARCH ’60, M.S. ’62), who came to IIT as a student in 1956 to study under Ludwig Mies van der Rohe and joined IIT’s architecture faculty full-time in 1982 after a 20-year career at Chicago architecture firm Skidmore, Owings, and Merrill (SOM). While at SOM Sharpe also taught part-time at IIT. “[Race] just wasn’t something that was important to Mies, so it didn’t come up,” he says.



Perri Imer

Over time, the university attracted more black students, who supported and challenged one another.

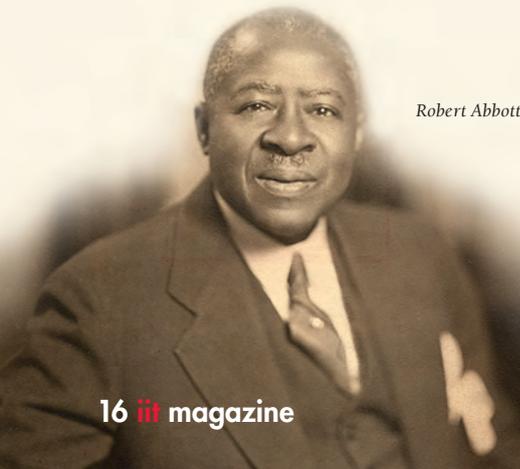
“We had a drive to succeed that came from an understanding that our success or failure would impact the perception of the African-American students who would follow us,” says Jeff Carroll (ME ’94), who works in business development at Siemens Business Technologies in Chicago. “If a classmate was feeling like they couldn’t cut it, we would reach out to them, encourage them, help them with their understanding of the curriculum—whatever it took for all of us to graduate.”

Two important programs that drew minority students to IIT and into the engineering and science professions were initiated in the 1970s and 1980s. IIT’s Early Identification Program, headed by Nathaniel Thomas, worked to increase the number of African-American students at IIT to nearly 12 percent of the undergraduate student population and Hispanic students to nearly 10 percent. The Early ID program lost federal funding in the late ’80s.

The Chicago Area Health and Medical Careers Program (CAHMCP, pronounced “Champs”), a State of Illinois-sponsored consortium of Chicago-area medical and dental schools, IIT, and several health-focused community groups, was started in 1979. The program works as a pipeline to identify and recruit underrepresented minorities—as early as in the seventh grade—



Frank Crossley



Robert Abbott



Charles Pierce

The celebrated musical play *Crowns* will be staged at IIT February 22–24, 2008 in Hermann Hall Auditorium. Written by Regina Taylor, *Crowns*, a soul-stirring celebration of African-American women and their church hats, has appeared at Chicago's Goodman Theater. The Open Door Theater Company (Oak Park, Ill.) production of *Crowns* was nominated for six Black Theater Alliance awards. The IIT shows are co-produced by Open Door and the university. For more information about *Crowns* visit www.opendoorrep.org/mainstage.



Photo: Doug Plummer



into medical professions. Led by Reggie Jones and John Bradley, CAHMCP is housed on IIT Main Campus and continues to serve as a novel approach to minority recruitment.

“Both the Early Identification program and CAHMCP have single-handedly been responsible for IIT’s efforts to help create trailblazers in the underrepresented minority population,” says Kevin Smith (CS ’89), executive director of the Office of Multicultural Student Services (OMSS).

Some of IIT’s African-American alumni, like Crossley, see themselves as barrier breakers and standard bearers for fellow African Americans. Others have viewed race as playing a less predominant part, as Sharpe notes, “I’ve never had a desire to be anybody’s role model. I’m just interested in doing good work.” In all cases, they’re part of a legacy of success at a university that has long sought to foster limitless discovery and achievement in all of its students.

Diversity on Campus Today

The community of African-American students at IIT is small but close-knit. The university wants to increase its numbers and is looking to do so by both recruiting more minority students and retaining those already studying here through programs that allow them to acclimate and succeed.

Local recruitment efforts include partnerships with Chicago Public Schools (CPS), where 52 percent of students are African American. Each semester IIT partners with 8–12 CPS high schools to provide students campus tours that showcase the unique IIT educational experience through lectures and Interprofessional Projects demonstrations. The university also co-hosts

college fairs that introduce CPS students and their families to the college admission process. Through the Advanced Mathematics Program, IIT offers Jones College Prep students advanced calculus courses at the university, providing tuition waivers and covering the cost of books. And launched in academic year 2007–08, the Collens Scholarship Program awards full-tuition scholarships to talented CPS graduates whose annual family income is less than \$40,000.

The Department of Mathematics and Science Education (MSED) continues its collaboration with CPS through programs that foster engagement in math and science at the middle school and high school level. The Way2Go summer program introduces science concepts to students entering the eighth grade. In its second year, the CPS High School Transformation project, funded by the Bill and Melinda Gates Foundation, pairs MSED with The Field Museum and Glencoe Publishing to provide teachers professional development in science. Through their teachers’ enhanced science knowledge and teaching ability, students obtain an improved understanding and achievement in the subject, and increased awareness of science as a career.

For students outside Chicago, IIT’s Office of Undergraduate Admission has piloted and plans to expand a Fly-In Program that underwrites the cost of travel, enabling newly admitted students with financial need to visit campus before the beginning of their freshman year. This and other minority recruitment initiatives are being studied

and developed by the offices of undergraduate admission and financial aid, and also by a designated subcommittee of the Retention and Student Life Task Force. IIT has also created a new Committee on Diversity, which will take a lead role in improving diversity university-wide.

Retention is as important as recruitment, and the Office of Undergraduate Admission in conjunction with the Office of Undergraduate Academic Affairs is launching a new campaign to help retain minority students. Through a rigorous advising platform, students’ academic success and career goals will be monitored, with additional counseling, mentorship, and support services offered for students needing them. On-campus living is also important to these retention efforts, according to Herek Clack, a member of IIT’s minority



Herek Clack

student retention committee and an African-American member of the engineering faculty.

“Our African-American students now are more flexible and better able to maneuver in an environment where there are few students of color than those of my generation. They’re reporting that even where they may be the only black student in class, they’re reaching out and forming friendships, forming study groups,” says Clack. “If you live on campus, you’re far more likely to form those social bonds and join those groups.”

Student organizations such as the Black Student Union and IIT’s National Society of Black Engineers chapter plan social and professional events, and their leaders agree that it is important to build the number of black students who live on campus. Christian Hubbard, a senior



Christian Hubbard

architecture major and president of the BSU, says his organization struggles to draw commuter students at its evening events and acknowledges that living on campus helps him feel more connected to IIT.

"I've spent so much time in S. R. Crown Hall—once I put in four all-nighters in a row—and people there with me, the better students in class, have become my friends," says Hubbard. "I see what they're making and hear what they're reading, and that helps make me better."

Adjusting to college life can be challenging, though, for black students. In addition to the usual adjustments associated with starting college, there can be a significant culture shock.

"Black new students come in with a slight disadvantage because there are not many groups of people on campus they can quickly and easily relate with. They meet faculty and students who are very different from where they came from," says Ikechi Emelogu, a senior electrical engineering major and president of IIT's NSBE chapter.

Groups like the NSBE and BSU help build that community, in conjunction with the Office of Multicultural Student Services (OMSS), which also provides academic support and other resources. This includes the new High Performance Institute (HiPI), designed to connect underrepresented minorities with academic and co-curricular programs such as academic assistance, cultural enrichment, and social engagements.

"Black students have needs that are different than those of other students—for instance, commuters or students in fraternities. We can't make the mistake of generalizing and not addressing their needs," says Kevin Smith. "As we look at how we recruit black students, we need to make sure we have the resources in place to support them."

Black History Month Events at IIT

The 2008 theme of IIT's Black History Month events is *Our Foundation: Celebrating Founders, Trailblazers, and Today's Trendsetters*.

Kickoff Celebration

Friday, February 1, 2008
12:15 p.m.
Main Campus, MTCC Ballroom
Keynote speaker: Perri L. Irmer (ARCH '81), chief executive officer of the Illinois Sports Facilities Authority
Special performances by the Northwest Indiana Dance Alliance
Soul food reception and special recognition of black student leaders

Soul Food Friday and Umoja Marketplace

Friday, February 15, 2008
11 a.m.–2 p.m.
Main Campus, MTCC Welcome Center and Ballroom
Special teaser performance of Crowns, a musical play by Regina Taylor

Crowns

Friday, February 22–Sunday, February 24
Main Campus, Hermann Hall Auditorium, 3241 S. Federal Street
Special scholarship performance on Friday, February 22 for the Charles Pierce Scholarship Program and Open Door Repertory Company

Invited Guest Alumni Speakers for Black Student Organizations throughout February 2008

African Student Organization: Justin Akujjeze (PHYS Ph.D. '91) interim dean, School of Graduate and Professional Studies, Chicago State University

Black Student Union: Cheryl Hudson-Jackson (MGT '83) and Eric Fullilove (EE '94)

National Society of Black Engineers: Lerry J. Knox (MET '95), senior vice president, Loop Capital Markets

For more information, contact Kevin Smith (CS '89), executive director of the Office of Multicultural Student Services, at omss@iit.edu or 312.567.5250.

Connection to Chicago's African-American Community

By the time Armour Institute of Technology and Lewis Institute merged in 1940 to create Illinois Institute of Technology, the surrounding Bronzeville neighborhood, once booming in the 1920s following the Great Migration, had fallen hard. Many of its once opulent buildings were in disrepair, victims of the Great Depression. During this time, IIT participated with the City of Chicago in an urban renewal effort that required the razing of many of Bronzeville's legendary structures where Main Campus now sits. Later in the 1950s and '60s, the Chicago Housing Authority built public housing projects like Stateway Gardens and the Robert Taylor Homes at the edge of campus.

While the relationship between university administrators and community leaders soured in the mid-1900s, taking on an adversarial tone that persisted for decades, IIT officials later changed their approach. In 1989, the university hired a neighborhood advocate, Leroy Kennedy, to direct the university's community relations efforts. Following the recommendations of the National Commission for IIT, created in 1992, the university decided to work with neighborhood leaders to improve the area and to reinvest in Bronzeville.

"IIT has grown even though the neighborhood has experienced mounting problems," says Kennedy, IIT's vice president of community affairs and outreach. "We have an obligation to help come up with some of the solutions."

Community leaders say they can feel the difference that's occurred because of the university's new commitment.

"The university has begun to look at the neighborhood as an asset, as something of value, and the students now see the place where they live as a destination—something that adds value to their experience," says Leonard McGee, president of the Gap Community Organization, a neighborhood within Bronzeville. McGee cites the new IIT Collens Scholarship Program as a sign of commitment to the neighborhood, as well as a technology-training program for area teachers. "The university and the community have a symbiotic relationship—arm in arm, we can achieve a level of success that's beyond our reach separately."

Leroy Kennedy and Leonard McGee



Alumnus James Peters

A Charge for Integration

“The university has stepped up as a partner,” says Harold Lucas, president of the Black Metropolis Convention and Tourism Council. In March 2007, IIT provided financial support toward a bid to designate parts of Bronzeville as a National Heritage Area, the latest in a series of university-supported projects to benefit the neighborhood. Other initiatives range from providing Web hosting for local community groups to supporting the restoration of some of the remaining historic buildings from Bronzeville’s golden age. The housing projects south of Main Campus are gone, replaced by mixed-income housing and retail businesses such as Starbucks that both employ and cater to neighborhood residents.

Third Ward Alderman Pat Dowell, whose territory includes Bronzeville, says IIT has fueled the neighborhood’s rebirth. She points not only to the university’s more visible contributions, like the financial support for the heritage district, but also to the way that university staff have become active in neighborhood groups; IIT students and faculty serve as tutors for area schoolchildren. Says Dowell: “IIT recognizes its role in the community and reaches beyond its walls to serve.” ■



Photo: Bonnie Robinson

It’s been more than a half-century since James S. Peters II (M.S. PSYC ’52) earned a master’s degree from IIT. The 90 year old sometimes needs a wheelchair to get around, but the energy and ideals that propelled him into a successful career as both a clinical/counseling psychologist and professor, as well as toward a lifetime of social justice advocacy, remain undimmed.

Peters came to IIT after serving as a specialist teacher psychologist for three years in the United States Navy at the U.S. Naval Training Center in Great Lakes, Ill., in a segregated camp for “negroes.” However, in part due to his research on the relationship between black and white sailors, the Navy desegregated its ranks in 1945, three years before President Harry S. Truman ordered the other branches of the military to do so.

“My research showed that African-American sailors, if given the opportunity, could do the same things that white sailors did,” he says.

Peters’ passion for civil rights began during his youth. “We always felt that some day we would have equal citizenship in spite of the Jim Crow laws, segregation, and discrimination,” says Peters, who was born in Arkansas and grew up in Louisiana. “We always worked hard to get an education and do the right thing. We were not taught to hate white people because there were a number of very fine whites who resented the fact that we were segregated as we were.”

His experience at IIT was positive. He did not encounter any racial prejudice at the university and was welcomed on campus from the start. “I was right at home; everyone was so nice to me,” Peter says of his time at IIT. “The community seemed to be glad to have me there, and I won’t forget it.”

Former Department of Psychology Chair P. S. Shurrager and his wife, who was also a professor, were two of those people. So was Professor David Boder, who supervised Peters’ master’s thesis about the psychological and social problems of black and white veterans.

After graduating from IIT in 1952, Peters spent about a decade with the Veterans Administration in the beginning of a distinguished career as a clinical/counseling psychologist. He also continued to work for social justice, eventually meeting and becoming friends with fabled civil rights leaders, including Martin Luther King Jr.

Peters’ attentions have not been limited to the rights of African Americans. Beginning with his time in the military, Peters also has advocated for the rights of people with physical and mental disabilities. He served for 25 years as associate commissioner of the State Department of Education and state director of vocational rehabilitation for the State of Connecticut.

Peters’ related concerns of psychological testing and civil rights are reflected in his writings, which cover a wide range of topics. In October 2007 he sent his 26th book to print. In addition to scholarly titles, including a source book of research by black psychologists and *Social Justice for the Disabled*, Peters has written three memoirs and two books of poetry.

He and his late wife, Marie, who was associate professor of family studies at the University of Connecticut, have three children and three grandchildren.

Peters has garnered many honors—a particularly noteworthy one came in 2005, when he was named to the Connecticut Veterans Hall of Fame—and he says that the education he received at IIT played a significant role in his accomplishments.

“It enabled me to continue on for my Ph.D. at Purdue University and post-doctorate work at Harvard University School of Medicine, and practice my profession,” Peters says. “Drs. Shurrager and Boder took me in and they encouraged me.”

—Jeff Kelly Lowenstein



Studying the *Flow* of Life

On a typical summer day, colorful sailboats stream across Lake Michigan, their graceful bows neatly carving the water. For many enjoying the afternoon, the gusts and currents of air filling the sails, the curling eddies of water developing in the boats' wake, are incidental to the relaxation and pleasure of sailing.

For IIT's David Williams, however, the behavior of these liquids and gases in motion is a source of fascination. As a professor of fluid mechanics, Williams studies the dynamics of fluid flow, using mathematical models to better understand complex phenomena. Such research helps him design new ways to modify fluid performance to suit a multiplicity of human needs. Williams' chosen field is also well suited to his twin recreational passions: competitive sailboat racing and piloting small airplanes.

A devotion to sailing began early. "I built my first sailboat when I was 15," Williams recalls. Noting some errors in the original plan designs, the youngster made a few modifications. "I fixed it and it sailed fine. I ended up selling that boat after about a year and buying my first racing boat when I was 16."

Thus began a 40-year romance with the sport of sailboat racing. So far, Williams has been in three Olympic sailing trials and recently qualified for the World Sailing Championships, to be held in Chicago this June.

Williams' fascination with flight also dates from his childhood. "I grew up on an Air Force base and have always been interested in airplanes," he remembers. "In the '60s there was a lot of excitement about high-speed planes and rockets. I wrote to NASA in fifth grade, asking for information on the X-15 project, and they sent me a big brown folder full of reports and tons of information. That made a big impression on me."

It wasn't surprising that Williams' boyhood infatuation with boats and airplanes (and the currents of water and air they ride on) stimulated a deep, scientific curiosity. Intrigued by the study of fluid flow, Williams eventually earned both master's and doctorate degrees in fluid dynamics from Princeton University.

At IIT, research on such diverse areas as unsteady aerodynamics, fluid-structure interaction, turbulence, hydrodynamic stability, and aeroacoustics is carried out through the Fluid Dynamics Research Center (FDRC), part of the Department of Mechanical, Materials, and Aerospace

David Williams

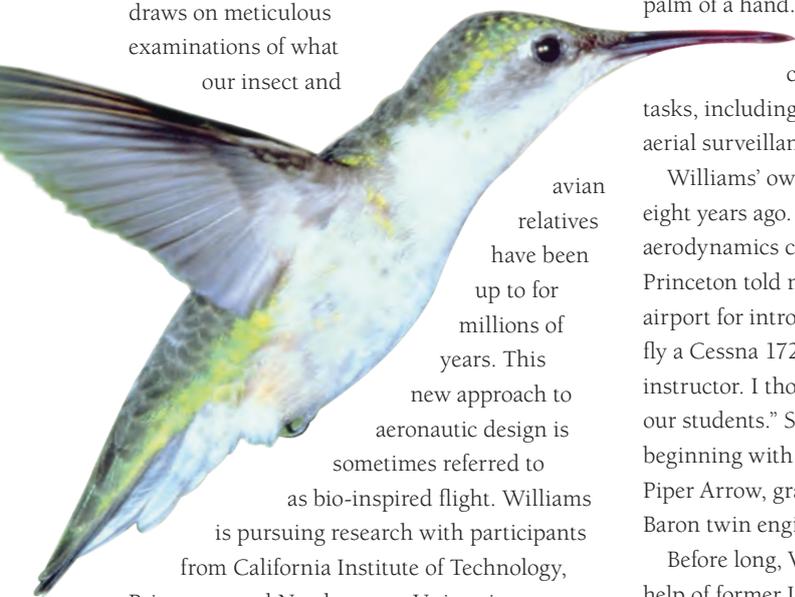
Engineering. The department's state-of-the-art facilities have been selected as among three National Centers of Excellence by the U.S. Air Force Office of Scientific Research.

The National Diagnostic Facility, a large wind tunnel with exceptionally high flow qualities, complements other wind tunnels, water channels, and compressor facilities, and possesses formidable computing capabilities. Using FDRC's unsteady flow wind tunnel, for example, Williams is able to carry out real-time simulations of wings in flight.

"Through computer control, we can measure the forces on the wings. We can reproduce how an airplane can fly in the tunnel," he explains, adding, "You're not just holding the model in a fixed position; it's actually going up and down, and pitching."

Birds and Bees

A crucial area of Williams' research concerns the efficiency and maneuverability of wings in flight. Such cutting-edge research draws on meticulous examinations of what



our insect and avian relatives have been up to for millions of years. This new approach to aeronautic design is sometimes referred to as bio-inspired flight. Williams is pursuing research with participants from California Institute of Technology, Princeton, and Northeastern University in Boston.

Pondering creatures such as dragonflies, hummingbirds, and other master fliers, Williams observes, "The real question is how these things can fly at all." On a recent trip to Pennsylvania, he was captivated by one peculiar specimen, a hovering, hand-sized bird that locals have dubbed the 'helicopter bird.' "It caught my attention because it appeared to be perfectly stationary and wasn't flapping its wings with any noticeable amplitude. You couldn't build a model airplane of the same size to do that. It was just incredible."

One of the ways that both birds and insects achieve superlative flight performance is through their ability to generate so-called leading edge vortices. The flight of the Common Swift, for example, has been studied in considerable detail, Williams says. Swifts use their remarkable aerial dexterity to snatch insects in mid air. Their ability has to do with the Swift's two-part wing design, consisting of a shorter 'arm wing,' similar to the wing of a conventional airplane, and a longer, swept back 'hand wing,' which is flatter on top, angles toward the rear, and is much sharper, like the wing of a fighter jet.

Swifts use their arm wings to generate the leading edge vortices—low pressure zones that create lift. By subtly modifying wing angle, Swifts and other acrobatic birds can alter the ratio of lift to drag, permitting extreme mid-air maneuverability.

If some of nature's avian secrets can be applied to human designs, Williams suggests, a new class of startlingly nimble aircraft will emerge. Further, some of these will fit comfortably in the palm of a hand. Known as micro air vehicles, such cyber-birds and insects could be used for a variety of tasks, including search and rescue operations, aerial surveillance, or biological agent detection.

Williams' own airborne adventures began eight years ago. "I teach the junior-level aerodynamics class," he explains. "A friend at Princeton told me he took his students to the airport for intro flights, where they'd get to fly a Cessna 172 for half an hour with an instructor. I thought that was a good idea for our students." So Williams learned to fly, beginning with single-engine planes like the Piper Arrow, graduating more recently to a Beach Baron twin engine.

Before long, Williams was hooked. With the help of former IIT student Jerome Chiecchio (AE '01), he began ferrying planes to buyers in the U.S. and overseas. One memorable trip brought the pair to Riga, Latvia via Bangor, Maine; Goose Bay, Canada; Greenland; Iceland; Scotland; and Denmark during the course of a six-day odyssey in 2006.

Current Affairs

These days, Williams would more likely be spotted in the water than in the air, however, as he eagerly prepares for the World Sailing Championships. Williams and his two team members will race a 30-foot "One-Design"

sailboat in the Etchells Class. One-Designs are built specifically for racing and must conform to rigid hull specifications.

Despite this, Williams insists, all boats are not created equal, and newer boats tend to be faster. Williams claims the formula for success relies 60–70 percent on the quality of the team and about 30–40 percent on the boat. His own team includes two of Williams' longtime sailing companions. "We do each other's jobs simultaneously. There's a lot of discussion on the boat between us about what we should do next during the race," he says.

Presently, the three are honing their tactics by studying a rival Chicago contender for the Worlds trophy. "This guy did very well at the national championships—he's significantly faster than us," Williams says, adding, "We're researching what he's doing that's different and gives him a little bit of an edge."

When it comes to the art of sailboat racing, Williams tends to downplay his scientific knowledge. "I have an understanding of what the flow is doing over the sails, but it really doesn't help. The difference between first place and fifth place in a typical race is about 1 percent in performance. I can't tell you on the basis of my knowledge of fluid dynamics or of airfoils what changes would give you that 1 percent. It's kind of trial and error, based on experience of the racecourse."

Lately, Williams is vigorously rehearsing for race day whenever his teaching and research schedules allow. "We'll sail unless there's ice in the harbor. We'll begin again in March." While a first place finish at the Worlds would surely electrify the team, Williams is gratified for the opportunity to compete in such a prestigious event. "A lot of former Olympic and America's Cup sailors race these boats, so it's really good competition at the top levels," he says.

"You have to have a first-rate boat, first-rate sails, and a first-rate team. Those are the three essentials to win the World Championships." ■
www.fdrcc.iit.edu

1 Engineering home

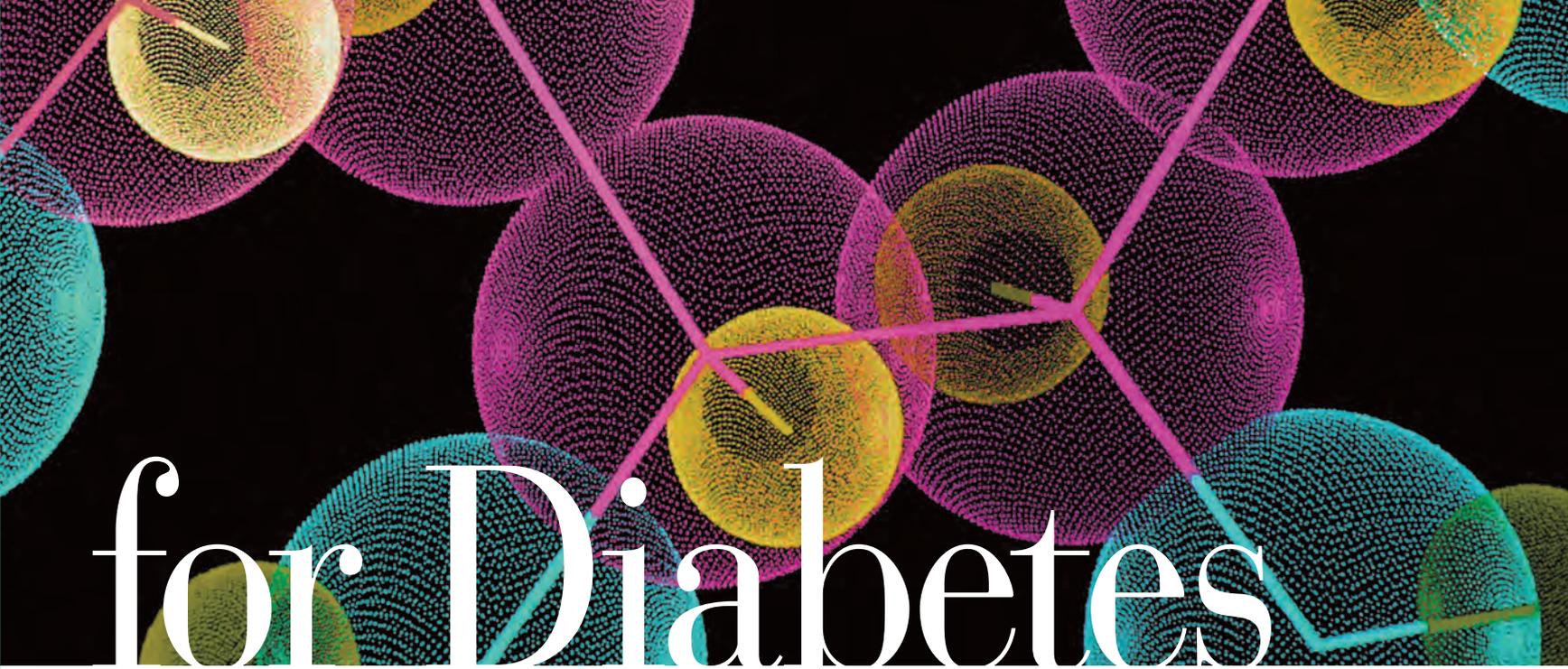
Joyce Lofstrom was thirsty. Then food editor and restaurant critic for the *Daily Herald* newspaper, Lofstrom was conducting a restaurant review in 1978 and mentioned her insatiable thirst as of late to her lunch companion and reporter friend, Thea. “It was a cloudy day,” Lofstrom recalls. “No sunshine, just one of those winter Saturdays when you are hoping spring comes soon.” After an eighth glass still did not quench Lofstrom’s thirst, Thea urged her colleague to leave the restaurant and go to the emergency

room. Though in recent weeks Lofstrom had experienced rapid weight loss, increased urination, and that constant thirst, she was not prepared for the results of her blood test. “I really hadn’t planned on finding out I had diabetes,” she says about the disease that has, in some way, touched the life of almost every person in America. Statistics compiled by the National Institute of Diabetes and Digestive and Kidney Diseases cite that nearly 21 million

people in the United States have diabetes mellitus, with close to one-third of this population as of yet undiagnosed. As of 2002, an additional 54 million were estimated to be pre-diabetic, with many of those expected to develop type 2 diabetes within 10 years.



Joyce Lofstrom, IIT
doctoral candidate

The background of the top section is a dark field filled with overlapping circles of various colors (yellow, orange, red, purple, blue, green). These circles are connected by thin, light-colored lines, creating a network-like or molecular structure. The overall effect is a vibrant, textured pattern.

for Diabetes

Collaborations Key at Engineering Center for Diabetes Research and Education

Second-Century Greek Roots

Meaning “a siphon,” the word diabetes was coined by the second-century Greek physician Aretus the Cappadocian, who routinely observed one of the classic symptoms of diabetes—frequent urination—by his patients. A metabolic disorder, diabetes is the result of high levels of sugar in the blood. After food is broken down during the digestive process, sugar in the form of glucose enters the blood, becoming the main source of fuel for the body. In order for glucose to enter the cells, insulin, a hormone produced by the islet cells of the pancreas, must also be present in the blood. In a nondiabetic individual, for glucose absorption to occur, the pancreas automatically produces the correct amount of insulin. In people with diabetes, however, either little or no insulin is produced (type 1), or the body’s cells do not sufficiently respond to the insulin that is produced (type 2). The consequent build up of sugar in the blood spills over into the urine and out of the body. A third type of diabetes, gestational diabetes, occurs in 3 to 8 percent of women during pregnancy. While gestational diabetes usually disappears after the baby is born, women with this type have a 20 to 50 percent chance of developing type 2 diabetes within five to 10 years.

Lifelong Treatment Regimen

A diagnosis of diabetes is generally made through a fasting blood glucose reading of greater than 126 mg/dc (deciliter) done on two separate occasions. Lofstrom’s visit to the ER yielded a blood glucose reading of 650; random blood glucose readings should be below 200 mg/dc. Individuals like Lofstrom with type 1 diabetes are taught to give themselves insulin, from one to four times daily. Continuous-flow insulin pumps, worn at all times, are also available; a new insulin inhaler was given FDA approval in 2006 and can replace some of the daily injections. A program of regular physical activity is prescribed, as insulin balance is achieved by food intake and daily exercise. Blood glucose levels by finger sticks must be done several times daily to ensure that sugar neither rises too high nor drops too low. Type 2 patients are not immediately prescribed insulin for their disease but a treatment plan of exercise, diet modifications, and, if needed, oral drugs that lower the amount of sugar in the blood.

Pandora’s Box of Complications

Though a veteran of the diabetes regimen of insulin dosing, Lofstrom, now a doctoral candidate at Illinois Institute of Technology and senior manager for corporate communications at the Healthcare Information and Management Systems Society, says the thought of problems arising from so many years of having the disease is never far from her mind. “Monitoring diabetes is very trying at times for me—and for my family,” she admits. “I worry about having high blood sugar so sometimes I over-amp my insulin, which results in low blood sugar.” Lofstrom credits her family for their constant support and keen observation in providing another level of checks in her proper monitoring of insulin, which she now administers via an insulin pump. They can tell by one word whether or not her levels are askew. “They know by the way I am talking that it is low. I am used to doing the finger sticks to check my blood sugar, but the worry about the long-term effects never disappears. So far, after almost 30 years with the disease, I am lucky: no complications.”

Vincent Turitto, director of the Pritzker Institute of Biomedical Science and Engineering and chair of IIT’s Department of Biomedical Engineering (BME), understands Lofstrom’s concerns about her future. “If you don’t keep your glucose levels low, you tend to run into complications 10 or 20 years down the road,” says Turitto, whose brother has type 1 diabetes. “By not monitoring sugars well, you end up with a whole host of disorders—advanced cardiovascular disease, loss of kidney function, neuropathies, abnormal wound healing, and blindness.” Moreover, many type 2 patients develop a need for insulin injection treatment and with the growing numbers of such patients developing this disorder at earlier ages, they are likely to develop the long-term complications associated with type 1 diabetes.

First-of-Its-Kind Center

IIT faculty-researchers are investigating many of the disorders associated with diabetes at the university’s Engineering Center for Diabetes Research and Education (ECDRE), the first engineering center in the nation to focus on the treatment and cure of diabetes. Formed two years ago, ECDRE is directed by Ali Cinar, vice provost for research and professor of chemical and biological engineering (ChBE). It is one of several centers under the Pritzker Institute, which seeks to develop and coordinate relationships with

traditional science and engineering departments within IIT, as well as with outside institutions. The ECDRE's collaborative relationships with various institutions, including the University of Chicago (U. of C.), a longtime leader in medical diabetes research, as well as with faculty from Armour College of Engineering, the College of Science and Letters (CSL), the Institute of Psychology, and Chicago-Kent College of Law, distinguish it as being unique in what it is able to offer.

One priority initiative being jointly investigated by ECDRE and the U. of C. is on the only "cure" currently available for type 1 diabetes patients: the development of a bioartificial pancreas through islet cell encapsulation. Naked pancreatic islet cells from two donor cadavers are injected into

"Medicine has become more and more quantitative over the past 15 years, and the reliance on disciplines such as engineering and the physical sciences has become stronger."

—Vince Turitto, IIT

the patient's liver, where they lodge in the blood vessels and respond appropriately to sugar levels. "It has been shown that patients injected with functional islet cells from cadavers will actually become insulin independent; they won't have to inject themselves with insulin," says Turitto. "But the long-term studies are not in yet. Some fail, some are successful. It's not yet clear why they fail, and it's not clear what the maximum lifespan would be."

U. of C. surgeon Marc Garfinkel, along with Emmanuel Opara, ECDRE associate director and BME research professor, and Seda Kizilel (Ph.D. BME '04) have already published one paper on the topic. Kizilel, now working at U. of C., is spearheading an islet project using biopolymer hydrogels—another ECDRE priority initiative—as a means of encapsulation. Garfinkel has also collaborated with BME Assistant Professor Connie Hall on blood clotting and islet cell transplantation. "As is demonstrated by these projects, the unique combination of engineering science and biologic science has tremendous potential to impact many diseases, but particularly type 1 diabetes," notes J. Michael Millis, professor of surgery and chief of the Section of Liver Transplantation and Hepatobiliary Surgery at U. of C.

Collaboration is also taking place within IIT's traditional science community as researchers from Armour and CSL have joined to study

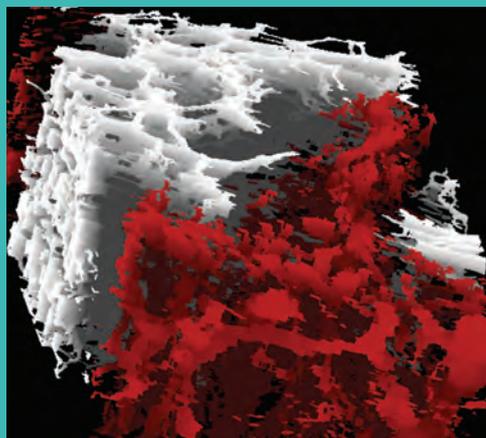
type 1 diabetes. An interdisciplinary team that includes BME Assistant Professor Eric Brey and Jialing Xiang, assistant professor of biology, and Rong Wang, associate chair of the Department of Biological, Chemical, and Physical Sciences and associate professor of chemistry, is advancing bioartificial pancreas research through two projects: differentiating human embryonic stem cells into functional, insulin-producing islet cells and developing novel cell encapsulation methods for islet cell delivery. The project is one of nearly 30 funded by Pritzker Institute seed grants over the past two years.

Engineering and Law Collaborative

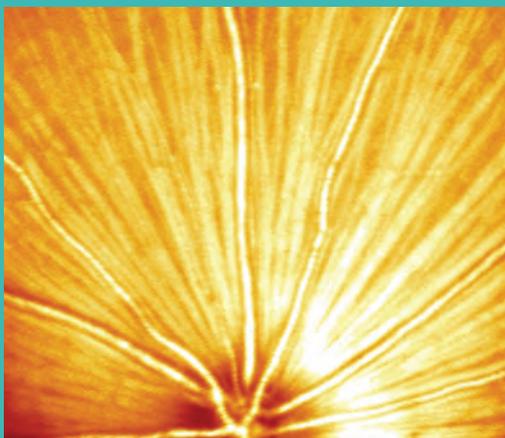
Last summer, IIT was one of five institutions selected to share a \$20 million court award from the settlement of a consumer class-action lawsuit challenging the effectiveness of the diabetes drug Rezulin. The windfall benefits the Center for Diabetes Research and Policy, a collaboration of the ECDRE and two organizations within Chicago-Kent—the Institute for Science, Law, and Technology (ISLAT) and the Health and Disability Law Clinic.

Directed by Lori Andrews, Distinguished Professor of Law, ISLAT undertakes research and disseminates information on the implications and applications of medical and scientific technologies within societal and legal contexts. Among the ethical issues associated with diabetes are patient privacy, intellectual property rights of patients, patents on human genes, and the funding of research and recruitment of subjects for studies. Part of the Rezulin funding will go toward developing overall policy recommendations on facilitating access to treatment, insurance coverage, and related government benefits, and to examining the conflicts that arise among competing interests of patients, diabetes researchers, research institutions, pharmaceutical companies, and the public health community. "Lori sees the value in looking at scientific research and engineering development, and matching how intellectual contributions should facilitate solutions as opposed to being barriers," says Cinar.

Through the funding, Chicago-Kent's Health and Disability Law Clinic, directed by Associate Professor Ed Kraus, will provide a wide spectrum of pro bono legal advocacy for its clients with diabetes and diabetes-related disabilities who are discriminated against and/or denied access to appropriate medical treatment. The award will also help to develop and support a Web-based advice center for patients and family members, giving them access to information, resources, and a guide to the various application processes necessary for acquiring benefits and treatments.



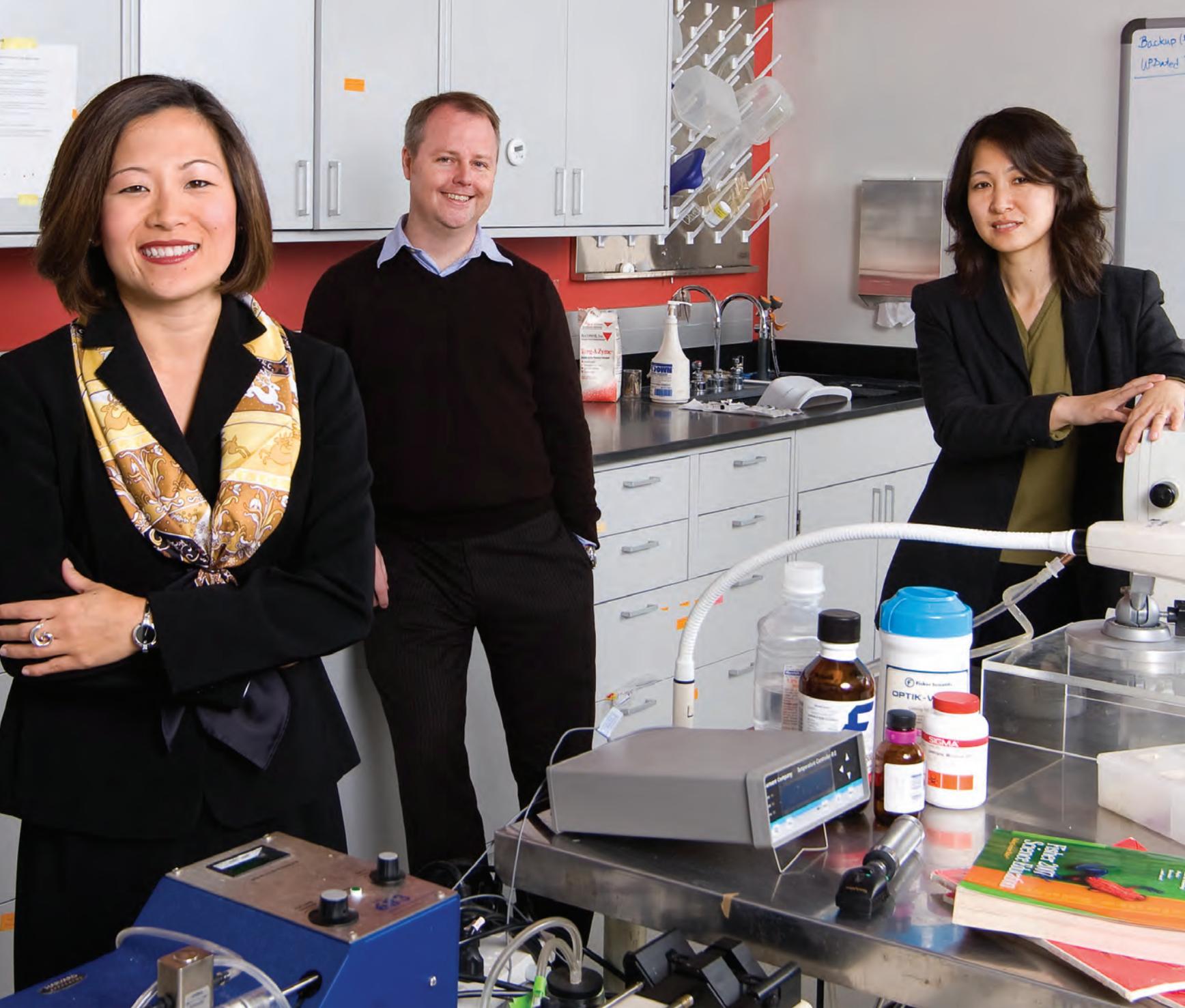
Three dimensional image of blood vessels (red) growing into a tissue engineering scaffold (white), a technique used to study wound healing processes in diabetes



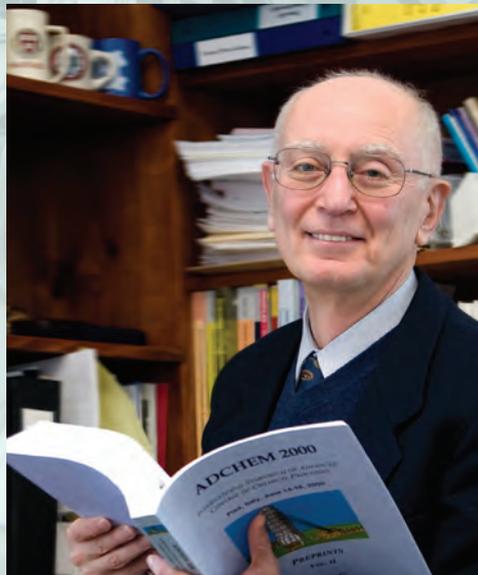
Infrared reflectance (IR) image of the region above the optic disc of a normal rat retina; the arterial and venous vessels are protruding from the optic disc.



Structure of collagen fibers in the skin of diabetic patients; the structure of the fibers is altered relative to non-diabetic patients.



Photos: Michael Goss



Collaborators in diabetes research:
 [top photo, left to right] Jennifer Kang
 Derwent, Eric Brey, and Rong Wang from
 IIT; [left to right] Vincent Turitto, IIT; Ali
 Cinar, IIT; and J. Michael Millis, University
 of Chicago (Millis photo courtesy of U. of C.
 Medical Center)

Windfall Furthers Research

According to Cinar, the funds earmarked to further diabetes research through the ECDRE are helping expand efforts in three core areas “where IIT would make its major contributions.” The first is in the continued development of biomaterials used both as hydrogel protective coverings for islet cell encapsulation and as the coating of drug-delivering microcapsules useful for patients on long-term therapy, a project being investigated by a joint IIT ChBE, Pritzker, and BME team that includes faculty members

“As is demonstrated by these projects, the unique combination of engineering science and biologic science has tremendous potential to impact many diseases, but particularly type 1 diabetes.”

—J. Michael Millis, University of Chicago

Victor Perez-Luna, Fouad Teymour, and Opara. Funding will also go toward researching biomaterials as a type of scaffolding useful in wound healing and tissue generation, spearheaded by Brey. His efforts are being combined with the use of hydrogels in the development of new tissue engineering methods for treating diabetic ulcers, peripheral vascular disease, and chronic wounds.

A second core area is the prevention of vascular complications that arise from having diabetes. “Diabetes tends to be what we call a microvascular disease,” explains Turitto. “Small vessels get injured and damaged, and actually disappear.” Cinar agrees with his colleague. “The sneaky thing with diabetes is when it starts affecting the vascular system it doesn’t start with a major artery that would be signaling early in the game that something is wrong. It will start with the tiniest vessels whose effects are not readily noticeable.” When the effects do become noticeable, however, they make themselves apparent in a devastating way. As nerves die, individuals lose their sense of cold and heat, resulting in increased chances for frostbite and burns. Wounds are slower to heal because the restorative properties of microcirculation are absent. Once the larger vessels do become affected, accelerated atherosclerosis sets in, which could result in gangrene and eventual limb amputation.

Vascular problems are also observed in the kidneys, where vessels narrow and become damaged. “Half of all patients on dialysis are diabetics who’ve lost kidney function,” says Turitto, noting that ECDRE faculty are working with members of the U. of C. dialysis clinic on this aspect of the diabetes problem. A final vascular complication resulting from high levels of sugar in the blood is diabetic retinopathy, or blindness. Jennifer Kang Derwent,

BME associate professor, is leading a group that is measuring and analyzing variations in dynamic blood flow in the vessels of the eye, and collaborating on an ocular drug-delivery system with William Mieler, professor and chair of the Department of Ophthalmology and Visual Science at U. of C.

The third area under the ECDRE to benefit from the Rezulin award addresses the metabolic aspects of diabetes—how the body uses digested food for growth and energy—especially as it relates to obesity and type 2 diabetes. Cinar believes that education is key to one’s awareness of how diet, exercise, and possibly insulin therapy all play a role in successful diabetes management. To that end, the ECDRE is developing Web-based glucose simulators, diet-planning software, and an online food and exercise diary useful to patients and nutritionists. K–12 teachers have taken diabetes and nutrition education into their classrooms across the Chicago area in a National Science Foundation (NSF)-funded Research Experience for Teachers program where they develop a diabetes education module over a seven-week period in one of the ECDRE’s research laboratories. And for the past two summers, promising undergraduate students from IIT and around the country have participated in a NSF-funded program that paired them with ECDRE mentors working on various diabetes-related projects.

From Collaboration Comes Hope

With a solid base in Armour College of Engineering and through interdisciplinary, collaborative relationships with law, the sciences, and medicine—the ECDRE is positioned to make substantial contributions to diabetes research and education, now and in the years to come. The partnership between IIT and the U. of C. is one that is mutually beneficial, allowing for opportunities that may not be possible if each institution were working alone. “Establishing key partnerships with our engineering colleagues at IIT will allow us to explore enabling technologies that merge molecular biology with biomedical engineering science,” says Jeffrey B. Matthews, Dallas B. Phemister Professor and chair of the U. of C. Department of Surgery. “Such efforts create a unique synergy in which new approaches to surgical treatments can be realized and in which novel lines of inquiry can be developed.”

As fields such as medicine evolve and expand in uncharted directions, the opportunity for mutually beneficial partnerships develops. “Medicine has become more and more quantitative over the past 15 years, and the reliance on disciplines such as engineering and the physical sciences has become stronger as the need for new techniques and devices arise to better detect, treat, and help cure disease,” says Turitto. “Biomedical engineering promises to change the practice of medicine in the coming century much as traditional engineering sciences have changed our society over the past 100 years.” ■
www.ecdre.iit.edu

A Unique Approach to the Diabetes Solution

Rong Wang [see article] believes the diabetes effort on which she is collaborating is unique, in part because of contributions being made by the interdisciplinary team of IIT biologists, chemists, biomedical engineers, and mechanical engineers. All will be indispensable in helping to accomplish the project’s early two goals: the differentiation of human embryonic stem cells into functional pancreatic islet cells and the development of novel cell encapsulation technologies for cell delivery to effectively reduce or eliminate the patient’s rejection of the cells, a problem commonly encountered in currently existing stem cell therapies.

“The growth of stem cells in the human body relies on a micro-environment, so-called physiological niches, within the tissue,” explains Wang. “The tissue is actually

exerting forces to the cell; the cell receives the signal, which significantly impacts the decision-making along a certain differentiation path.” One task for Wang’s interdisciplinary team is to prepare just the right tissue substrate for differentiation to occur. “Engineers know how to manipulate materials to make this structure,” she says, “and scientists determine what that material should be.” Wang acknowledges that many challenges need to be addressed, including how to control cellular growth to prevent tumor formation and determining the best method for islet cell delivery, but is confident her collaborative team is well-equipped to find solutions.

“We need the scientists and the engineers working together,” she says. “I feel that it’s really important.”

Mies Birthday Party

In the fall of 1957, IIT students organized a dance and concert on campus featuring Duke Ellington and his orchestra. This spring, as part of the annual celebration of Ludwig Mies van der Rohe's birthday, the Duke Ellington Orchestra will return to campus and perform in S. R. Crown Hall.

On Saturday, March 29, 2008, please join members of the Mies Society for the annual birthday party. The party, featuring cocktails and desserts, will be held from 8–11 p.m. For more information about the Mies Birthday Party and the Mies van der Rohe Society, contact Meg Rains at 312.567.5042 or rains@iit.edu.

The Office of Alumni Relations is also looking for alumni who attended the Duke Ellington event back in 1957. If you have photos, other memorabilia, or stories to share about the 1957 event, please contact Marian Quirk at 312.567.5017 or quirks@iit.edu.



IIT Career Fair

Because of the increased demand from employers for experienced job candidates, the IIT Career Management Center is inviting alumni to the Spring Career Fair on February 13, 2008. The Spring Career Fair will be the largest such event held at IIT, with more than 140 employers on site.

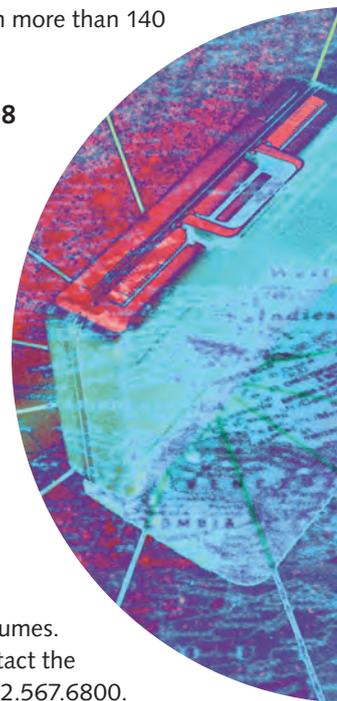
Wednesday, February 13, 2008

Hermann Hall, noon–4 p.m.

Participating employers include:

- Exelon
- Siemens
- Banco Popular
- Blue Cross Blue Shield
- Brill Street + Company
- City of Chicago
- Grainger
- Navistar
- Northrop Grumman Corporation
- URS Consulting
- ...and many more

Dress professionally and bring resumes. For more information, please contact the Career Management Center at 312.567.6800.



Gunsaulus Society The estate giving society of Illinois Institute of Technology



Gunsaulus Society member Susan Moy (M.B.A. '92) with Puifai Santiskultarm (BME '07)

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

classnotes

1950s

David H. Chittenden

CHE '56, Orange, Calif., after several successful years as a Toastmasters member, joined the South Coast Storytellers Guild, where he enjoys learning how to sharpen his oratorical skills and finding new venues for his work.

1960s

Edward Pavlini

BE '62, Manchester, N.J., has retired after a 42-year career with Hamon Research-Cottrell and Custodis Chimney Construction Company.

Sylvia E. Davis

M.S. DSGN '67, Chicago, was an art teacher in the Chicago Public Schools for 16 years before she retired and became a part-time art consultant for Davco Publishing Company.

1970s

MacKie J. Blanton

M.S., Ph.D. LING '70, Chicago, has been named associate dean of multicultural affairs in the Office of Student Life at the University of New Orleans. Blanton has been a member of the faculty since 1980 and has chaired the diversity advisory committee of the Office of Academic Affairs since 1994.

Stuart E. Zwang

CHE '70, Highland Park, Ill., is owner of the Home Raters, Inc., a home inspection company, with a relocation subsidiary and a home inspector training subsidiary. Zwang does expert witness work in construction and home-related fields. The company is licensed in synthetic stucco, radon, and lead testing.

Thomas R. Waters

ECON '73, Ramstein, Germany, has been selected as the 2007 Department of Defense Education Activity's Assistant Principal of the Year for Elementary and Middle Level. Waters is assistant principal of the Ramstein Middle School. The award is given annually to recognize exemplary elementary and middle school assistant principals who set the pace, character, and quality of the education children receive during their early school years.

Katherine T. Grenier

ARCH '78, Weston, Conn., has been named chief of design and construction for the renovation of the United Nations in New York.

MAJOR KEY

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

1980s

Scott C. Baker

ARCH '80, Chicago, has been promoted to associate, senior project manager in the Chicago office of SmithGroup, Inc. A member of the American Institute of Architects and the United States Green Building Council, Baker is responsible for day-to-day project management and client relations.

Robert W. Matanky

LAW '80, Chicago, has been elected president of the Associated Talmud Torahs of Chicago, an organization on whose board he has served for 25 years. Matanky is a principal at Matanky Realty Group and the law firm of Matanky and Matanky, Ltd.

Mark D. Haines

M.B.A. '82, Crete, Ill., purchased Lincoln Oaks Golf Course in Crete in July 2006. While at IIT, Haines was a four-sport letter winner in basketball, bowling, cross country, and golf. He also was assistant basketball coach from 1982-83, head golf coach from 1980-82, and sports information director from 1980-83.

Angelina O. Lee

ARCH '82, Chicago, has been named new vice president of the Chicago branch of the SmithGroup, Inc., in a recent merger with AREA Design, Ltd., a commercial interiors firm Lee founded and headed. A licensed architect, Lee is a fellow of the American Institute of Architects and the 2007 president of the Illinois chapter of the International Interior Design Association.

Anthony E. Spahr

Ph.D. PSYC '82, Westmont, Ill., has been named managing director of human resources for Elgin Community College. Spahr previously was executive director of human resources for St. Charles Community Unit School District 303.

Patricia F. Cathey

CRP '84, Chicago, was named Junior Reserves Officers' Training Corps (JROTC) military property director, managing all of the Chicago Public Schools JROTC programs for the Department of the Army (DA). Cathey retired from active duty in the United States Army in 2007 after 22 years of service, during which she served in peacekeeping efforts in Afghanistan and Bosnia; she was awarded the Legion of Merit for her years of service. In June 2001, Cathey married her husband, Phillip, who works for the DA in Kuwait.

IIT Alumni Policymakers

Five IIT Chicago-Kent College of Law alumni presently serve in legislative office, representing different parts of the State of Illinois. Three members of the Chicago-Kent Class of 1993 presently serve in the Illinois State Senate. State Senator Kwame Raoul represents the 13th District, State Senator A. J. Wilhelmi represents the 43rd District, and Randy Hultgren is the senator from District 48. Kurt Granberg (LAW '80) is also serving in the Illinois General Assembly as the state representative from District 107. Peter Roskam (LAW '89) is the 6th District congressman representing more than 30 western suburbs of Chicago in the United States House of Representatives.

Karl Lee

ARCH '85, Los Angeles, has been named a senior associate with OJMR Architects, a firm he has been with since 2001. Lee is responsible for project documentation reviews and quality control management, and manages the technical detailing and specifications writing on all projects.

Rajeev Chandrasekhar

M.S. CS '88, Bangalore, India, founder of India's BPL Mobile and member of the Intel team that launched the Pentium chip, serves on India's Parliament and is chair and chief executive officer of Jupiter Capital. With business interests in high-end hospitality, media/entertainment, technology, transport infrastructure, and aviation, Chandrasekhar is involved in projects in all these areas, including the securing of a maintenance contract for all Airbus aircraft in India.

1990s

Steven S. Mannina

M.S. CS '91, M.B.A.'03, Chicago, is the chief information officer at the Cook County Office of the Treasurer.

V. N. Bryan

ARCH '93, Phoenix, Ariz., has been promoted to

studio leader of the Chicago office of the SmithGroup, Inc. A member of the American Institute of Architects, Bryan has been a part of the SmithGroup management team for the past seven years.

Natascha M. Meuser

M.S. ARCH '93, Berlin, Germany, and her husband, Philipp, founded Meuser Architekten BDA, a firm that does projects for private clients and public contractors in the areas of architecture, interior decoration, and furniture design, in 1996. The Meusers and their team of architects and editors also plan exhibitions and produce publications on architecture and urban planning in an international context.

Junjian Tang

M.S. ARCH '93, Lisle, Ill., is one of a group of architects from Murphy/Jahn who contributed in the design of Suvarnabhumi Airport in Bangkok, Thailand. The \$1.4 billion project took more than 10 years to complete.

Tim P. Lafave

PHYS '96, Iowa City, Iowa, received a Ph.D. in electrical engineering from the University of North Carolina in 2006 and has accepted a position as postdoctoral research scholar in the Department of Physics and



Astronomy at the University of Iowa.

David W. Lubke
Katie Lubke

ME '96, Milan, Mich., announce the birth of their second child, Jessica Eileen, in September 2006.

Athar A. Khan

EE '99, Irvine, Calif., works at Broadcom Corporation, where he is a certified professional for products and technologies created by Microsoft, Symantec, and Citrix. Additionally, Khan is attending law school with an anticipated completion date of May 2008 and recently passed the United States Patent and Trademark Office registration examination.

Sandra M. Le

CHE '99, Arlington, Va., graduated from Golden Gate University School of Law in 2006 and became licensed to practice law in California the following year. She is working as a patent examining attorney at the United States Patent and Trademark Office in Alexandria, Va. Le and her husband, Justin Spears, whom she met while both attended IIT during their freshman year, are expecting their first child in February 2008.

Arun Prakash

AE '99, Oklahoma City, Okla., received an M.B.A. from Massachusetts Institute

of Technology's Sloan School of Management and is employed as an investment professional for Virgo Capital.

2000s

Molly M. Gentleman

METM '01, Saratoga Springs, N.Y., received a Ph.D. in materials from the University of California, Santa Barbara in 2006 and moved to New York to take a position as a materials scientist in the Advanced Ceramics Lab at GE Global Research Center.

Richard J. Smolen

M.S. OTM '01, Lake in the Hills, Ill., is an American Society of Quality-certified Six Sigma Black Belt and president of RJS Consulting.

Aybige Tek

M.S. ARCH '01, Chicago, has been working in residential design for the past five years. Tek returned for a short period to her native Turkey to participate in commercial team projects in Istanbul.

Ankit I. Mehta

CHEM '03, Boston, has received an M.D. from Harvard Medical School, where he graduated from the Harvard-MIT Health Sciences and Technology Society. Mehta is currently in a surgical internship at Brigham and Women's Hospital, a major teaching

hospital of Harvard Medical School.

Jaclyn C. (Baine) Webb

CHE, ENVE '03, Chicago, married Timothy Webb on October 14, 2006.

Jennifer A. (Waller) McDaniel

ARCH '04, Austin, Texas, and Loren McDaniel (AE '02, M.S. MAE '04) recently married.

Erin M. Perry

CS '04, Aurora, Ill., and her husband, Tim, announce the birth of their daughter, Evelyn Renee, on May 23, 2007.

Michael D. Prince

ME '04, South Lyon, Mich., is employed as a project engineer, developing fuel-efficient hydraulic hybrids at the Environmental Protection Agency National Vehicle and Fuel Emissions Laboratory in Ann Arbor. Prince also received a master's degree in mechanical engineering from the University of Michigan in 2007. He is engaged to Amanda Stieb, a math teacher from the Detroit area.

Vladimir Andrijevik

AMAT '06, Chicago, is employed as a software engineer at Centro, LLC.

Syed A. Kazimi

AE, ME '07, Indianapolis, Ind., has joined the Indianapolis office of BSA LifeStructures, a national leader in designing health care, education, research, and technology facilities.

Sang M. Oh

EE '07, Gyeonggi-do, South Korea, has joined the Chicago office of BSA LifeStructures, a national leader in designing health care, education, research, and technology facilities.



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John Massura

By Marcia Faye

Photos: Bonnie Robinson

Alumnus Longtime Member of IIT Model Railroad Club

Above the fifth floor of Main Building, in an area inaccessible by elevator and reachable only via a short stairway largely out of view, is a firehouse, a gas station, a shopping district, even a freight warehouse and a cold storage facility—all of it part of 3,000 feet of miniature train track crossing over a trestle, coursing through a tunnel, cruising down a straight-away. Friday evenings, the sounds of steam being emitted from an engine, two whistle blasts, then a locomotive with cars and caboose in tow fill the room, the train chugging down the tracks.





Matthew Gibbs and Edward Schmidt run model trains.

Welcome to the Illinois Tech Model Railroad Club (ITMR).

The club was started by students in 1948, a time when passenger and freight trains were a primary means of transport, and the city as train hub was host to the Chicago Railroad Fair. One student asked his father, the superintendent of buildings and grounds, to help locate space on campus for ITMR. The “attic” of Main Building was found to be largely unused and fit the club’s needs. Since several early members were civil engineering majors who spent summers practicing surveying at IIT’s Camp Armour in Boulder Junction, Wis., the first layout was given the name Camp Armour and Boulder Junction Railroad. Over the nearly 60 years that the club has been in existence, the layout has changed several times. In 1974, the main route was redesigned to run from Chicago to Peoria, a layout that remains to this day. For sentimental reasons, the name of the railway line has remained and among its members is affectionately known as “The Cabbage (CA&BJ) Route.”

Train enthusiast John Massura (CHEM ’72) has been driving from his home near Chicago’s Midway Airport to Main Campus most Friday evenings for 37 years, give or take time off for illness, the occasional Boy Scout trip, or a railroad show. “We operate the first three weeks of the even months,” explains Massura, one of ITMR’s 37 dues-paying members—men and women of all ages and life statuses, some with IIT connections and others without, all bound together by their love of trains. “The other weeks we continue constructing the railroad because it’s not done. And it will probably never be, because they say if your railroad is done, then you have to tear it down and start over.”

In 1950, however, club members had to remake the layout because the peak above the attic was destroyed by fire and the train setup was irreparably damaged by water. Today’s layout, which fills every alcove of the attic, comprises three lines: a main line, running from Chicago to

Peoria; a foreign, or short line, running from Joliet to Streator; and a narrow gauge line, running from Streator to Galena. All lines trace fictitious routes that conform to practices and standards established by the National Model Railroad Association to ensure a level of consistency in layouts throughout the country, and to provide for interchange of cars and locomotives.

The club’s standard gauge lines, for example, are scaled to the proportion of .1378 inches to every one foot of real rail measurement, known as HO Scale. According to Massura, each basswood tie is hand-laid, with every other tie hammered into place with Lilliputian-sized metal spikes. This degree of detail is not only achievable but is a source of pride for club members who are eager to augment a hobby they intensely enjoy.

“Almost everything I learned about model railroading—when you get down to this kind of ability—I learned from people here,” says Massura, crediting his ITMR “crew” as being the prototype for his model railroad learning experience.

While he used his knowledge of circuitry and wiring obtained as a telecommunications employee to configure much of the inner workings of the layout’s DC-powered system, Massura notes that club newcomers need not feel intimidated by their lack of certain capabilities. “This is one hobby where you need quite a few skills—carpentry, electrical, artistry, machinery, and probably a half dozen more,” he says. “But someone will help you where you’re unsure, so you will learn from them.” Members are next planning work on track detection, a sophisticated electronic technique whereby signals are cued to turn from red to green through a “gentle short” applied to the rails by means of the caboose, a car that is a required feature of any train that is run at the club.

The train that eventually brought Massura to the attic of Main Building was the one that circled his family’s Christmas tree in the home where he grew up, one block from where he now lives. After three years of displaying the set only during the holiday season, Massura’s father, John, put the train onto a 4x8 plywood sheet, and he and his son began adding switches and assorted cars, eventually moving the setup from under the tree to the dining room and finally to the basement where the one plywood sheet grew to four sheets. After his father passed away, Massura inherited his entire train collection, including the Lionel Christmas cars. Now he is passing on his joy of trains to members of Generation Z. Massura

plans to purchase Lionels for his 4-year-old grandsons, and he counsels Boy Scouts who are earning a merit badge in railroading. He is also building a model railroad in the basement of his home, a fantasy narrow gauge route through southwestern Colorado. His ITMR colleagues have helped him add to it over the years; Massura expects it to be 25x40 when complete—that is, if it is ever completed.

A soft-spoken man who enjoys wearing railway-inspired T-shirts purchased at train conventions, Massura retired from AT&T in April 2007. He is former treasurer of the Chicago chapter of Mensa and remains an active member. It is the train life, however, that Massura loves, and for him and a cadre of ITMR friends, it has become a true labor of love.

Each Tuesday evening for the past 16 months, Massura and a half-dozen members who comprise a “round robin” railroading group have been

meeting to complete the construction of a model setup begun by a man most of the group has never met.

One member of Massura’s group was approached by the widow of a member of

the church to which he belonged, who asked him if he knew of any model railroad buffs who could complete the train layout her late husband started. Massura and his friends readily agreed. After all, this project is another opportunity to share in their passion and fellowship.

“We talk about all kinds of things, mostly railroading, sometimes not,” says Massura. “It’s the camaraderie.” ■

The Illinois Tech Model Railroad Club meets every Friday from 7–11 p.m. in Main Building on Main Campus. Contact John Massura at jmassura@chicago.us.mensa.org to arrange for a visit or for additional information.



[Left to right] Edward Schmidt, John Massura, Joseph Legnar, Matthew Gibbs, Pat Egan, Nadine McFee, Robert Fredland

Alumnifest October 5–6, 2007

Reuniite!



At the Town Hall meeting, President John L. Anderson addresses a question from Adrienne Chin-Perez (PSYC 4th year).



President Anderson, alongside Mike Merkley, Jonathan Tam, and Pradeep Shenoy, all members of the Class of 2007, helped dedicate a new bench, which was a gift from the class to the campus.



Fifteen members of the Class of 1957 were presented with medallions during their induction into the Golden Alumni Society as part of their 50th class reunion.



The current members of the Scarlet Hawks volleyball team took on volleyball alumnae in their annual match. The current team won this year's competition.



Director of Athletics, Lee Hitchen, visited with former athletic director Jim Darrah [right] at the annual Athletics Alumni Barbecue.



Alumni LaShuna M. McFee (PPPS '04) and Joe D. McFee (CS '99) enjoy a chance at the roulette wheel during Casino Night.



Alumnus Mike Wayte (ME '61) visited with recent graduates at the Graduates of the Last Decade After Party.



Former members of the baseball team gathered for the Athletics Alumni Barbecue and to play the members of the current team. The alumni team won the game.

Upcoming Alumni Events

February 13, 2008

noon–5 p.m.
Hermann Hall Exposition Center
Career Fair
Sponsored by the Career Management Center
Open to Alumni and Students
Contact Cameron Watkins at watkins@iit.edu or 312.567.3049 for more information.

February 14, 2008

4–7 p.m.
Jimmy Fig's
160 N. Franklin, Chicago
Thirsty Thursday
Sponsored by the Alumni Association and Graduates of the Last Decade
Contact Dylan Easley at easley@iit.edu or 312.567.5061 for more information.

February 19, 2008

6–8 p.m.
Maggiano's Little Italy
9109 International Drive, Suite 2400
Orlando, Florida
Orlando Alumni Gathering
Contact Marian Quirk at quirk@iit.edu or 312.567.5017 for more information.

February 21, 2008

6–8 p.m.
Maggiano's Little Italy
203 West Shore Plaza
Tampa, Florida
Tampa Alumni Gathering
Contact Marian Quirk at quirk@iit.edu or 312.567.5017 for more information.

February 23, 2008

9–11 a.m.
Rice Campus
Engineers' Week Saturday Expo
Contact Barb Kozi at kozi@iit.edu or 630.682.6040 for more information.

February 23, 2008 Ft. Lauderdale/Miami Alumni Gathering

Contact Marian Quirk at quirk@iit.edu or 312.567.5017 for more information.

March 13, 2008

4–7 p.m.
Jimmy Fig's
160 N. Franklin, Chicago
Thirsty Thursday
Sponsored by the Alumni Association and Graduates of the Last Decade
Contact Dylan Easley at easley@iit.edu or 312.567.5061 for more information.

April 10, 2008

4–7 p.m.
Jimmy Fig's
160 N. Franklin, Chicago
Thirsty Thursday
Sponsored by the Alumni Association and Graduates of the Last Decade
Contact Dylan Easley at easley@iit.edu or 312.567.5061 for more information.

April 14, 2008

2–8 p.m.
IIT Main Campus
Remembering Karl Menger
Lecture by Lloyd N. Trefethen FRS, professor of numerical analysis and fellow of Balliol College at the University of Oxford
4:30 p.m., McCloska Ballroom, MTCC
Dinner, Pritzker Club, 6 p.m.
Sponsored by the Department of Applied Mathematics and the College of Science and Letters
Contact Patty Cronin at cronin@iit.edu or 312.567.3132 for more information.



May 8, 2008

4–7 p.m.
Jimmy Fig's
160 N. Franklin, Chicago
Thirsty Thursday
Sponsored by the Alumni Association and Graduates of the Last Decade
Contact Dylan Easley at easley@iit.edu or 312.567.5061 for more information.

May 15, 2008

7–9 p.m.
Alumni Reception, the American Institute of Architects (AIA) National Convention and Design Exposition
Boston Convention and Exhibition Center
Contact Jackie Sokolowski at sokolowski@iit.edu or 312.567.5012 for more information.



obituaries



Scott E. Wood

Department of Chemistry

Scott E. Wood began his 26-year career at Illinois Institute of Technology in 1954, when he joined the Department of Chemistry as an associate professor. He was later promoted to full professor and assumed several administrative roles within the department, including acting dean of research, acting chair, and vice chair, until his retirement in 1980.

Before coming to IIT, Wood served as a research assistant at Massachusetts Institute of Technology, then went on to Yale University, where he was promoted from instructor to associate professor while working on the Manhattan Project. Wood earned bachelor's and master's degrees from the University of Denver, and a doctorate in chemistry in 1935 from the University of California, Berkeley.

The coauthor of the books *Thermodynamics: An Introduction* and *Thermodynamics of Chemical Systems*, Wood was also an associate editor of the *Journal of Chemical Physics* and an abstractor and section editor of *Chemical Abstracts*. In 1971, he received the Outstanding Educator Award from the American Association for the Advancement of Science. Wood was a member of the American Physical Society, Sigma Xi, and the American Chemical Society. He was appointed to the Advisory Board of Higher Education for the State of Illinois and was an active community volunteer.

Wood was preceded in death by his wife of 65 years, Marie. He is survived by his son, Ed.



Joseph Yohanan

ARCH '58, Winnetka, Ill.

While a student at the College of Architecture, Joseph Yohanan studied under Ludwig Mies van der Rohe. Over his long career, Yohanan held positions at Skidmore, Owings, and Merrill, the University of Illinois at Chicago, and Harper Junior College, where he headed the Department of Architecture for 35 years. Yohanan continued to teach classes and maintain a private practice upon his retirement. He was a member of many service, scientific, and cultural organizations, including the American Institute of Architects and the Skokie School Foundation, which he helped found. Each year, the Joseph and Janice Yohanan Architecture Award at the College of Architecture is given to one Ph.D. student.

Yohanan is survived by his wife of 52 years, Janice, their three children, and four grandchildren.

inmemoriam

Mildred A. Eichholz
DSGN '55, Jackson, Miss.

Richard Hood
ME '44, Hendersonville, N.C.

Gerald L. Mueller
CE '72, Carol Stream, Ill.

James T. Waber
CHE '41, Glendale, Ariz.

rewind



*IIT Junior Prom at the
Congress Hotel, April 30, 1949
(from the 1950 Integral)*

Photo courtesy of IIT Archives

One of my favorite photographs in the IIT Archives is the one shown on this page. Taken today, or any time in the last 40 years, this photo would not be remarkable, but considering its 1949 date, it speaks volumes about IIT and Chicago.

Worth noting here is that recognition of a student's race, religion, or ethnicity apparently was not part of either school's official record keeping. While this may be true for many nineteenth century colleges, the point was often moot, at least with regard to race, if only whites were admitted. Making it harder to determine who our first, or even early, minority students were is the question of racial or ethnic classification. Today, we usually allow people to self-select these categories (how did you list yourself on the last national census?), whereas in the past, a school administrator or a legal definition may have made that assignment for the individual.

Photographs can be of help, but they are not totally reliable. An individual may seem to be African American, based on skin hue and facial features, but photos in school yearbooks can be deceptive. And what about students who didn't have photos taken? Without specific documentation, it can be difficult at best to identify anyone definitively in one group or not in another.

So why am I so taken with this 1949 photo? Well, it represents just one of the challenges, perhaps a welcome one, to today's historians. Lewis and Armour, with their open-door policies that fostered opportunities for minority group members to attend and teach, were an alternative to the generally accepted pattern of early-twentieth century higher education. Current historical theory would tell us that interracial social events didn't occur in pre-Civil Rights era Chicago. Yet this 1949 photo is evidence of not only an interracial social activity, but one that was a formal event held at a public location—the Congress Hotel. So while other United States colleges were consciously recruiting their first African-American students in the 1960s, IIT's student body was already integrated and socially interactive.

This scenario could set up interesting research questions: Was there something particular about Chicago that nurtured this atmosphere? What influenced Allen Lewis and Philip Armour to provide these educational opportunities? What other mid-twentieth century colleges had multiracial student bodies before mandated integration, and how do their foundings compare with IIT's? I welcome any comments or insights from readers.

IIT Colors



A question frequently posed to university archivists is, "Who and when was the first African American admitted to your school?" As IIT's archivist, I am proud to answer this question by responding, "We don't know," and then go on to explain that IIT never restricted blacks, nor any member of any ethnic, racial, religious, or social group, from attending IIT. Partly a result of how IIT was begun in 1940 by the merger of Lewis and Armour institutes, with the then-existing multicultural student bodies of those schools becoming IIT's first students, IIT classes have probably always included minority members.

What makes our institutional history with regard to this issue worth a second look is that the inclusion of diverse populations was intentional and directed by the founders of our predecessor schools at a time—the 1890s—when other schools often excluded minorities, either by overtly denying them entry or subtly screening them out. Both Allen Lewis and Philip Armour mandated that Chicago's European immigrants and African-American migrants from the South be welcomed into Lewis' and Armour's degree programs. To support this, both men also required that financial assistance, from the schools' budgets, be made available to students who could not afford higher education on their own.

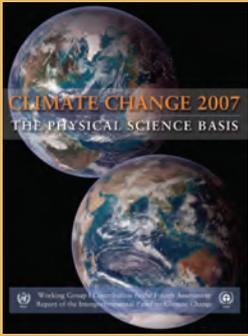


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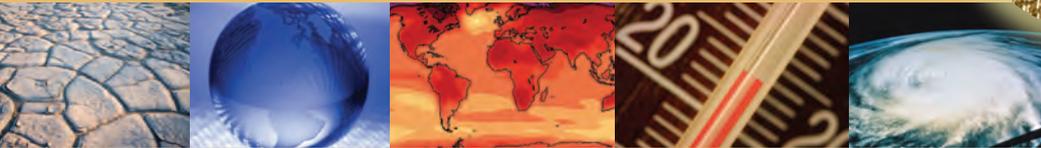




The IIT Alumni Association congratulates **Susan Solomon** (CHEM '77) on the Intergovernmental Panel for Climate Change's recognition as co-recipient of the 2007 Nobel Peace Prize. Solomon provided leadership to the science assessment process as its co-chair. The

team of scientists that worked on this report were indeed noble in their efforts to communicate the importance of protecting the planet.

The report found that warming is unequivocal. It also found that there is high confidence (9 out of 10 odds) that most of the warming is due to humanity's emissions of greenhouse gases.



"It is pretty cool that science's value has been acknowledged—not only in disseminating knowledge, but in serving world peace."

— Susan Soloman (CHEM '77)

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