The Newsletter of IIT College of Science and Letters

SCI + LETTERS

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Greetings:

Nothing is certain except for change, or so goes a modern paraphrase of the Greek philosopher Heraclitus’ quote “Everything flows, nothing stands still.” This is even the case in academe, and change is on the way. In fall 2013, the College of Science and Letters will transform into the College of Science, and the letters departments will join with psychology to form the new Lewis College of Human Sciences.

Why this change? Simply put, we are a tuition driven-institution, and our future largely depends on our ability to grow this source of revenue. The new college structure will allow an increased focus on science and science enrollments as well as expanding undergraduate enrollments in traditionally small programs in psychology, the humanities and the social sciences. Naturally, we are sorry to break the historic connection of science to the humanities and social sciences, and we must work hard to ensure that the strong intellectual and programmatic connections between the two are not lost.

For science, the new College of Science presents a great opportunity to grow and strengthen these areas and their programs.

Science at IIT has a distinguished history, dating back to IIT’s founding Armour and Lewis institutes. Even in the earliest days, to-be famous names, such as mathematician George Birkhoff and physicist Lee de Forest, were associated with IIT. Through the 21st century, science at IIT evolved in step with the overall evolution of the fields, through the revolution of quantum science, through the advent of computational science and computers, to the big science and big data of the 21st century. During these years, IIT has been home to luminaries such as Nobelists Herb Simon, Susan Solomon, and Leon Lederman as well as many other students and faculty who have distinguished themselves in the sciences or have taken the rigor of their IIT education to success in diverse areas outside of their original disciplines. This history is the backdrop on which we look to the future evolution of the new College of Science.

The new College of Science will educate outstanding math- and science-oriented students who want to make a difference in the world. Many of you—our alumni—who will read this, whatever pathway your life and career have taken, speak of the rigor of the education you received at IIT. That rigor equipped you well for the future and its opportunities. There is, however, another key ingredient: understanding of the potential relevance of the knowledge you gained during your stay at IIT. This too will continue to be the hallmark of the IIT education in the College of Science. We have been working hard to redefine the educational pathways that our students can follow while at IIT. The core undergraduate programs in mathematics and the sciences will always be of a quality and depth such that our graduates are equipped to gain entry to and succeed in the finest graduate programs in their discipline. We also believe, however, that the disciplinary pathway is not the only one. Our programs now allow students to combine their bachelor’s program with master’s level programs such that both degrees can be reached in a total of as little as five years. These new programs can be pathways into the professions, pathways into the world of business and technology, or into the ever expanding world of applications of digital computers and computation. We have already added new masters programs in applied mathematics and computer science and will soon have an interdisciplinary program in data science and analytics. This flexible combination of rigor and relevance will, we believe, be a powerful draw as we seek to grow enrollment.

At the center of all this and key to our future are the faculty. IIT seeks to combine the best features of a small, elite private institution with the intellectual and scholarly climate of a major research institution. We must recruit and retain faculty with a passion for knowledge creation and with an equal passion for the sharing of that knowledge with our students. Our current faculty members are distinguished by their research achievements. They also are committed educators and mentors to our students. Not only in
the classroom, but also through the opportunities our students have to engage in research and other project-based learning experiences.

IIT’s position in the science research community is heavily leveraged by our presence in the global city of Chicago. With two national laboratories and other world-class universities, Chicago is a powerful draw for the best and brightest. We have been able to recruit some outstanding faculty members and, over the past four years, we have renewed almost a quarter of the total CSL faculty—bringing new energy and ideas into an already distinguished body. Even with the inherent advantages of Chicago, this is an extremely competitive environment and, to ensure our future, we must be able to offer both our current faculty and those we wish to recruit facilities and a work environment at least equal to those of our competitors.

The core buildings for the College of Science—Engineering 1, Life Sciences, and Stuart Building—have supported both teaching and research for nearly 50 years. The growth of research at IIT over this period has placed severe stress on both the infrastructure and visible parts of the buildings, and they are now in sore need of restoration and renovation. This will be a time-consuming and expensive challenge—but one that we must undertake. Already we have started planning. On the cover and elsewhere in the newsletter you can see renderings of proposed renovations at the entrances of Life Sciences and Stuart Buildings. These new spaces will provide the gateway to classrooms and teaching laboratory space, initially in Life Sciences, worthy of an institute of technology in the 21st century.

Lastly, let me repeat and underline the importance of science at an institute of technology such as IIT. The theme of the ongoing capital campaign, “Fueling Innovation,” could not be more apt for science. Core scientific knowledge is the raw fuel without which the process of innovation cannot run. Discovery and knowledge precede application and invention which, coupled with the needs of the market place, finance, business and the law, lead to innovation. Innovation has provided the economic growth of our country and therefore its security. In an increasingly competitive world, the excellence of the education of the young people who will provide for the future is essential. Through its graduates, IIT has been a significant contributor to the cycle of innovation and, with the College of Science underpinning this cycle, and with your counsel and support, will continue to do so in the future. I believe that the changes will enhance the value of IIT science degrees for current students and alumni, and I welcome your help in recruiting students and raising money for facilities, faculty, and fellowships.

Dean Russell Betts
Science at IIT: A Brief History

Science at IIT: Past, Present, Future

Science at IIT has a history dating back to the founding Armour and Lewis Institutes. Through the work of its faculty and graduates, science at IIT has evolved in step with the overall evolution of the fields and has made significant contributions to their development. The following is a brief synopsis adapted from the lecture “Science at IIT” by Dean Russell Betts at the Golden Alumni Reunion in September. Alumnus David Silver (CHEM ’62), from Johns Hopkins’ Applied Physics Laboratory, introduced the dean. A video recording of the lecture can be seen at http://www.youtube.com/watch?v=JFwZ1GF3zoo

Science has played an essential role at IIT since the foundation of Armour and Lewis institutes in the 1890’s.

The course catalogs from that time show that science, as taught then, was much more narrowly defined than today. Biology was a largely empirical, observational science. Chemistry—inorganic, organic, and analytical—in many ways was leading the way. The chemists already knew about atoms and the structure of chemical compounds albeit without any deep understanding of the nature of the basic building blocks. The mathematics syllabus was like that of a pretty good high school course of today, with algebra, calculus, and differential equations. Physics was what we would call classical physics, covered today in the first two semesters of university physics: mechanics, thermodynamics, electricity and magnetism, and light.

Yet, even in these early days, we see a characteristic of IIT in the amazing people who came through the institution, studying or teaching here.

George Birkhoff, who attended high school and junior college at Lewis (1896-1902), became arguably the most famous U.S. mathematician of his day. He spent his whole subsequent career at Harvard University, ascending to the position of dean, and he became a member of the National Academy of Sciences. Birkhoff typified what mathematicians were doing at that period. There was a lot of interest in complex classical systems. His most famous result was the ergodic theorem, the basis of statistical physics—given enough time, a system will find its way to all the possible configurations.

Lee de Forest had received his Ph.D. at Yale University under Willard Gibbs, the most famous American scientist of his day. De Forest came to Chicago to work for Western Electric, and from 1900-1902, to supplement his income, he taught at both Armour and Lewis. De Forest made experimental radio transmissions from the top of Main Building out to a hotel not too far away and eventually to the Auditorium Theater in the Loop. He invented, later on, the Audion, a forerunner to the vacuum tube triode—the basis of the first electronic amplifier circuits.
Within 20 years of the foundation of Armour and Lewis, the scientific world was turned on end—from the discovery of the electron in 1897 to the introduction of the atomic model in 1913. Atoms and quanta were now the standard for describing the physical world. The new theory of quantum mechanics was introduced to deal with the new probabilistic world of the atom, and mathematics developed in the 19th century found application in the solution of the complex equations that evolved from this theory.

Between the great wars, economic and social problems dominated the world scene, and IIT, not for the first or last time in its history, faced financial difficulties. Merger with other Chicago universities was mooted but did not come to pass.

One of the huge impacts on American science and culture during this period was the exodus of some of the finest creative minds from Europe, driven by political upheaval and the rise of anti-Semitism. Like many American universities, IIT benefited from this migration. Mies van der Rohe had left Germany in 1937 and became the head of IIT’s architecture college; Laszlo Moholy-Nagy left Hungary in 1937 and founded the Institute of Design.

In mathematics, Karl Menger was already a well-known mathematician and professor in Vienna when he came to the United States in 1937. After first spending time at Notre Dame University, he came to IIT in 1946 and spent the rest of his career, until 1971, here. He is best known for the Menger sponge and work on classic problems such as the four-color map problem.

Jack Steinberger attended IIT from 1938 to 1940 before going on to the University of Chicago. He worked at Princeton University, University of California-Berkeley, and Columbia University and eventually at CERN. He won the Nobel Prize for Physics in 1988 for his research into neutrinos with Leon Lederman, a faculty member at IIT until his retirement this year, and Melvin Schwartz. He also received the National Medal of Science and is a member of the National Academy of Sciences.

Armour and Lewis eventually joined in 1940 to become the IIT we know today. World War II, as elsewhere, had a huge impact on the new university and on science. Research became increasingly important to IIT and was manifest not only by activity on campus but by the contract research work for the government carried out at the newly formed IIT Research Institute (IITRI).

Following WW II—where government-funded research had produced such profound advances as radar, penicillin, operations research, digital computers, and so much more—many people asked, “Why should this stop?” In the report “Science, the Endless Frontier (1945),” Vannevar Bush proposed that the U.S. government continue to fund research in peacetime “for the improvement of the national health, the creation of new enterprises bringing new jobs, and the betterment of the national standard of living.” This new initiative led to the formation of the National Science Foundation and the federal national research laboratories and to the research compact between the federal government and U.S. universities which continues to this day.
As a result, post-WW II was a wonderful time in science at IIT. For example: Martin Kilpatrick was recruited to IIT in 1947 as chair of chemistry, and he increased the faculty count from six to 24, and undergraduate enrollment in chemistry rose to 100. Research became an important component of the department, with nationally and internationally recognized research. Very importantly, this growth included the genesis of computational science at IIT, as Peter Lykos and others realized the power of computers to deal with challenging computational problems in physical chemistry.

Computer science also grew in mathematics as information science, in the research foundation and at Argonne National Laboratory, with important contributions including IIT’s version of FORTRAN. In 1971, as we celebrated last year, the computer science department was formed. It had an enormously successful faculty and students who went out to success in the field, with such people as Robert Dewar, Jack Dongarra, Robert Tobey, Anthony Wojcik, and Martha Evens. Computation and computer science have been a major component of what goes on here ever since.

During that period, “Big Science” made its appearance on campus as universities became home to instruments of a scale hitherto impossible. At IIT, these included a Van de Graaff accelerator and a nuclear reactor (once at 3400 S. State Street, no longer there). Students had the opportunity to participate in research with major scientific instrumentation on campus.

A key advantage for IIT has been being in Chicago near Argonne National Laboratory (founded in 1946) and Fermi National Accelerator Lab (1968). IIT people have played important roles in the development of programs at these labs. This includes at Argonne’s Advanced Photon Source, where IIT was involved very early on in construction of beam lines for the study of biological structure, material structure, and more recently radiologic materials. It’s a major powerhouse in computational research, materials research, and more. Fermilab is a flagship of particle physics and accelerator physics in the United States and is also an important link to the worldwide physics community and their facilities.
As in the early days, science at IIT has been distinguished by the achievements and recognition of its graduates and faculty.

**SOME NOTABLE IIT SCIENCE PEOPLE**

[above from left] George Langford (BIOL '69, Ph.D. '71) Dean, Syracuse; National Science Board; Susan Solomon (CHEM '77) Co-Chair of IPCC which won the Nobel Peace Prize; National Medal of Science; Samuel Karlin (MATH '44, M.S. '45) National Medal of Science; Jack Dongarra (M.S. CS '73) National Academy of Engineering, Turing Fellow; Paolo Radaelli (PHYS '93) Dr. Lee’s Professor of Experimental Philosophy, Oxford University.

[above from left] S.S. Shu (Mathematics Faculty) Chairman, Co-Founder, Hsinchu Science and Industrial Park, Taiwan; Timothy Zamb (BIOL ’68, Ph.D. ’78) Former Head, AIDS Vaccine Development Laboratory, International AIDS Vaccine Initiative; Watts Humphrey (M.S. PHYS ’50) National Medal of Technology; Jim Lemke (PHYS ’59) Member NAE; Founder, ACHATES Power, Spin Physics; Victor Tsao (M.S. CS ’80) Founder Linksys.

These are all amazing people who took what they learned, in and out of the classroom, and went on to do extraordinary things. IIT now has a century of distinguished history because of the quality of the faculty and students and the way they interact. This is not an easy place, and it shouldn’t be.

What about the future of Science at IIT? In fall 2013, the current College of Science and Letters will lose the letters departments of humanities and social sciences to become a standalone College and Science with departments of applied mathematics, biology, chemistry, computer science, math and science education, and physics. This change will allow for an increased focus on science and presents a wonderful opportunity to grow both reputation and enrollments. We are working to envision improvements to our classrooms and facilities such that science at IIT in the 21st century will be as exciting and distinguished as it was in the 20th.
Genetic Engineering of Bacterium

A focus of Biology Professor Benjamin Stark and his students and collaborators has been the genetic engineering of bacterium for a variety of uses. With graduate student Jia Wang, he is focusing on a high-temperature bacterium that can metabolize the sulfur-containing compound at very high temperatures.

A key recent contribution was improving bioethanol production using genetic engineering with bacterial hemoglobin. With Krishna Pagilla, professor of environmental engineering, Stark and his team have recently started a project on improving wastewater treatment with the same genetic engineering strategy—offering great promise for energy savings and sustainability.

Sun Elected IEEE Fellow

The Institute of Electrical and Electronic Engineers (IEEE) elected Computer Science Chair Xian-He Sun as a Fellow for contributions to memory-bounded performance metrics and scalable parallel computing. Peers nominate fellows for distinction in the profession, and the IEEE board of directors approves them. Only 0.1 percent of IEEE voting members are elected by the Board of Directors every year to receive this honor, the highest membership grade in IEEE. IEEE is the world’s leading professional association for the advancement of technology.

Solomon Joins MIT

Susan Solomon (CHEM ’77) became the Ellen Swallow Richards Professor of Atmospheric Chemistry & Climate Science, Department of Earth, Atmospheric and Planetary Sciences, Massachusetts Institute of Technology in 2011. Solomon is credited with identifying the cause of the ozone hole. She was a co-chair of Working Group 1 of the Intergovernmental Panel on Climate Change and helped to compile a landmark report on global warming. In 2007, the IPCC and former Vice President Al Gore shared in the Nobel Peace Prize for their efforts.
The National Institutes of Health (NIH) awarded an IIT team $4.3 million to continue to operate the BioCAT X-ray facility at the Advanced Photon Source at Argonne National Laboratory for the next three years. The team includes principal investigator **Thomas Irving**, professor of biology and physics; co-principal investigator **Joseph Orgel**, associate professor of biology and biomedical engineering; and **Raul Barrea**, associate research professor of physics. The mission of BioCAT is to develop and operate advanced facilities “for the study of the structure and dynamics of biological systems under non-crystalline conditions similar to their functional states in living tissues.” BioCAT is now in its seventeenth year of operation.

John F. Zasadzinski, professor of physics, was invested with the Paul and Suzi Schutt Endowed Chair in Science. Zasadzinski is a popular teacher and active researcher who has done important work in, among other things, the mechanism of high $T_c$ superconductivity. He is a fellow of the American Physics Society.

**NIH Awards BioCAT $4.3 Million**

**Thomas Irving** research professor of physics. The mission of BioCAT is to develop and operate advanced facilities “for the study of the structure and dynamics of biological systems under non-crystalline conditions similar to their functional states in living tissues.” BioCAT is now in its seventeenth year of operation.
Chris White: Daya Bay Neutrino Mass Results

Physics Chair and Professor Chris White was a co-author on the Daya Bay neutrino mass paper released in March. It received recognition throughout the scientific world and in such media as Science Daily, Scientific American, Nature, The Economist and more.

The Daya Bay Reactor Neutrino Experiment is a multinational collaboration operating in the south of China. The three basic neutrino “flavors”—electron, muon, and tau neutrinos, as well as their corresponding antineutrino—mix together and oscillate (transform), but this activity is extremely difficult to detect. Scientists in the Daya Bay collaboration observed tens of thousands of interactions of electron antineutrinos, caught by six massive detectors buried in the mountains adjacent to the powerful nuclear reactors of the China Guangdong Nuclear Power Group.

The data revealed a so-called “mixing angle” named theta one-three (written $\theta_{13}$), which the researchers measured with unmatched precision. Theta one-three, the last mixing angle to be precisely measured, expresses how electron neutrinos and their antineutrino counterparts mix and change into the other flavors. “This is a new type of neutrino oscillation, and it is surprisingly large,” said Yifang Wang of China’s Institute of High Energy Physics (IHEP), co-spokesperson and Chinese project manager of the Daya Bay experiment.

Read more about Christopher White’s Daya Bay research on page 16.

Jialing Xiang: Discovery of Powerful Tumor Suppressor

A team of IIT biology researchers has discovered a powerful tumor suppressor found only in cancer cells, BaxΔ2, suggesting the possibility that the sick cells are generating a heretofore unknown protein to stop their growth. The discovery offers exciting possibilities for cancer prognosis and treatment. An article about the research, “BaxΔ2 Is a Novel Bax Isoform Unique to Microsatellite Unstable Tumors,” was published in the October issue of the Journal of Biological Chemistry.

“This isn’t just another isoform. This is ‘out of bad comes good,’ a potential new approach to utilize mistakes made in cancer cells to restore gene function exclusively in cancer cells,” said Biology Professor Jialing Xiang, who leads the team.

Antibody Rheumatoid Arthritis

Joseph Orgel, associate professor of biology and biomedical engineering, and Olga Antipova, research assistant professor of biology, discovered a plausible cause of rheumatoid arthritis: the Biglycan antibody. Orgel and Antipova found that an antibody against a molecule (called a proteoglycan) that binds collagen fibrils causes the tissue to fall apart. This mechanism might be analogous to what happens in rheumatoid arthritis. Their results were published in March in an article in PLoS ONE, “Non-enzymatic decomposition of collagen fibers by a Biglycan antibody and a plausible mechanism for rheumatoid arthritis.”
Menhart Receives Three-Year MDA Research Award

Associate Professor of Biology Nick Menhart was awarded a three-year research grant totaling $265,251 from the Muscular Dystrophy Association to study the properties of modified dystrophin proteins in Duchenne (DMD) and Becker (BMD) muscular dystrophies.

Li Receives NSF Grant for Cognitive Radio Networks

Xiang-Yang Li, professor of computer science, has been awarded a three-year grant for $498,122 from the National Science Foundation for "EARS: Providing Predictable Service and Spectrum Access With Realtime Decision in Cognitive Multihop Wireless Networks."

Raicu Receives NSF CAREER Award

Assistant Professor of Computer Science Ioan Raicu received a National Science Foundation (NSF) CAREER Award for "Avoiding Achilles’ Heel in Exascale Computing with Distributed File Systems." Raicu will receive $450,000 over the next five years to fund his groundbreaking research in distributed storage systems for exascale computers.

Accelerator Research and Development

Pavel Snopok, assistant professor of physics at IIT and associate scientist at Fermilab National Accelerator Lab, was awarded funding from the Department of Energy (DOE) Early Career Research Program to do muon accelerator research. Snopok’s project is titled “Advanced Simulation Tools for Muon-Based Accelerators” and was selected for funding by the Office of High Energy Physics. According to his abstract, “The objective of this project is to develop new modeling tools based on modern software frameworks, G4beamline and COSY Infinity, and to incorporate the most accurate theoretical calculations and experimental data available for crucial and not-yet-considered physics processes specific to muon accelerators.”

Dynamic Conic Finance

In a series of papers, Applied Mathematics Professor Tomasz R. Bielecki and Igor Cialenco, assistant professor of applied mathematics, and their Ph.D. students Rodrigo Rodriguez and Ismail Iyigunler, present a theoretical framework for determining dynamic ask and bid prices of derivatives using the theory of dynamic coherent acceptability indices in discrete time. They prove a version of the First Fundamental Theorem of Asset Pricing using the dynamic coherent risk measures. They introduce the dynamic ask and bid prices of a derivative contract in markets with transaction costs. Based on these results, they derive a representation theorem for the dynamic bid and ask prices in terms of dynamically consistent sequence of sets of probability measures and risk-neutral measures. To illustrate their results, they compute the ask and bid prices of some path-dependent options using the dynamic Gain-Loss Ratio.

Big Data and Metaphors

An international, interdisciplinary team of researchers led by Associate Professor of Computer Science Shlomo Argamon is developing a software system capable of identifying and understanding metaphors in multiple languages from very large amounts of data gathered from the Internet and other open sources. Called ADAMA (Autonomous Dynamic Analysis of Metaphor and Analogy), the project could have immediate applications in intelligence analysis, business intelligence, sociological research, and communication studies. Intelligence Advanced Research Projects Activity (IARPA), a research arm of the Office of the Director of National Intelligence via the U.S. Army Research Laboratory, has awarded a contract for $1.4 million to IIT for the first year of metaphor research, with potentially four additional years to complete the project.
College of Science Plans an Entrance

Students First: Revitalization of North Campus for College of Science

IIT’s core classroom and laboratory buildings for science and engineering—the Life Sciences, Engineering 1, and Stuart buildings—have supported almost five decades of student and faculty exploration. As the new College of Science prepares to launch, planning is under way to revitalize these buildings. “In order to attract the best students and faculty, we must have world-class facilities,” said Dean Betts. “Anyone who visits the science buildings should be able to instantly recognize that excellent research and exceptional teaching happen here.”

The guiding principle for these efforts: students first. By putting the needs of students first, IIT will create a visible marker for the new IIT College of Science and create collaboration spaces that enhance faculty and student exploration. This will be an important component in our plan to grow the enrollments in science, which in turn will provide the tuition revenue to allow further improvements across the college.

Armour College of Engineering and the College of Science have been working together toward a vision that re-imagines the traditional teaching and laboratory environments to take advantage of 21st century technology and to emphasize interdisciplinary collaboration.

The revitalization plan will start with Life Sciences and calls for enhancement of the west entrance of the building—a key component to establishing a visible presence for science at IIT; the addition of modernized, open, 21st-century classrooms on the first floor; the addition of a new advanced physics and instrumentation laboratory; enhancement of the south lobby entrance and addition of exhibit space; and the addition of new collaborative research space on the first floor.

Future phases will include renovation of second and third floors of Life Sciences (biology teaching and research laboratories; chemistry research laboratories); basement renovations and the establishment of a Research Resource Center to house research instrumentation used by science faculty; and extensions to Stuart and E1 buildings.
CSL Names Distinguished Teaching Fellows

The College of Science and Letters has named its first cadre of Distinguished Teaching Fellows to further teaching and learning excellence in the college. They include Mattox Beckman, senior lecturer of computer science; Diep Nguyen, industry professor of chemistry and director of the analytical chemistry professional master’s program; Alan Glodowski, senior lecturer of physics and associate chair of the physics department; Greg Fasshauer, professor of applied mathematics and director of undergraduate studies; and Jon Hanrath, senior instructor of computer science.

The main goal of the fellowship, according to Matt Bauer, CSL associate dean for academic affairs and coordinator of the Distinguished Teaching Fellows, is to "strive for a community of teachers, where faculty members are comfortable sharing the successes and challenges of the classroom." He indicated that every teacher, even the most gifted, can benefit from sharing insights and teaching strategies with peers. This, in turn, will allow teachers to better serve their students. Additionally, Bauer mentioned, there are new opportunities for utilizing technology in and out of the classroom that the Fellows will explore.

In fall semester, the fellows organized and facilitated a new-faculty orientation and planned mid-semester course evaluations for lower-level CSL courses. Fellows demonstrate teaching excellence, progressive teaching methods, and success at working with fellow faculty. They must be willing and able to lead their peers in transforming teaching strategies to better serve students, explore new learning methodologies and technologies, assess how well students learn, and develop ways to mentor fellow teachers. Nominees are on a rotating appointment and are awarded a $2,000 stipend plus funding for conference attendance and materials for student assistance.
The College of Science and Letters welcomes S.Y. Chen, Ph.D., CHP, as the new director of the Professional Master of Health Physics program.

Chen, who comes to IIT from Argonne National Laboratory, has a rich history in the field of health physics. In his most recent position as senior environmental engineer and strategic area manager in the Environmental Science Division at Argonne, he developed an integrated risk assessment program to address federal risk-based policies. To do this, he led a program to develop several analytical codes that are commonly used in risk assessment, including the RISKIND code for transportation risk analysis and the RESRAD family of codes for environmental cleanup analysis.

Chen is a council member of the National Council on Radiation Protection and Measurements (NCRP) where he serves as the Scientific Vice President for Environmental Radiation and Waste Issues. He is also a member of the EPA Science Advisory Board/Radiation Advisory Committee and a long-standing member of both the Health Physics Society and the American Nuclear Society.

His vast amount of experience within the field of health physics, and his strong network of connections, will come in handy when working with a professional master’s program. IIT’s professional master’s programs are designed to prepare students for science and math careers in business, government, and non-profit organizations. Chen will be charged with maintaining high standards and rigorous curriculum, networking with industry people in order to expand the program’s existing advisory board, and helping place students in jobs after graduation. Elizabeth Friedman, director of professional master’s programs at IIT, said, “His experience on the national stage ensures the program will continue to meet the nation’s demands for highly trained graduates working in business, industry, medicine, or government in associated fields of radiation safety protection.”
With its launch in fall 2013, IIT College of Science will provide new academic pathways for students to follow, including new professional master’s degree (PSM) programs. Like traditional programs in the college, the professional master’s degree programs are both rigorous and relevant. But they are designed specifically for people who plan to work in non-academic environments.

Described as “a hybrid of science and business,” “the MBA of science,” and “the business of science,” IIT’s professional master’s degrees in science or math give students an alternative to the traditional Ph.D. track by combining science or math courses with business and communications courses. Such degrees respond to industry’s need for science and math-based employees who understand the needs of business.

The Society for Industrial and Applied Mathematics (SIAM) refers to professional master’s programs as “rigorous, interdisciplinary programs that give students advanced training in science and mathematics, while emphasizing professional skills that are highly valued by employers in a wide range of fields.”

CSL offers five of these innovative and effective degrees: professional master’s of biology, analytical chemistry, health physics, materials chemistry, and the new applied mathematics degree (available starting in fall 2013). An additional new program in data analytics is planned. All are designed to prepare students for science or mathematical careers in business, government, and non-profit agencies.

The PSM offers more science or math than a Master of Business Administration while incorporating more professional skills than a Master of Science. Graduates are able to seek interdisciplinary careers and excel in professional environments.

Working professionals are able to complete programs on a part-time basis while seeking career advancement. IIT offers online classes, adding the opportunity to study anytime or anywhere.

Advisory boards offer guidance on current industry demands and future trends, allowing the programs to adapt to the ever-changing needs of the industry. Additionally, professional master’s programs at IIT draw from advancements generated by the National Professional Science Master’s Association (NPSMA), a group of program directors, faculty, administrators, industry representatives, alumni, and students who support professional master’s degree initiatives.

A recent survey conducted by the Council of Graduate Schools (CGS) found that 90 percent of professional master’s graduates are working in a job that is in, or closely related to, their field of study and nearly 80 percent are highly satisfied with their post-graduation employment prospects. In fact, in the article “Employment Levels Remain High for Professional Science Master’s Degree Holders,” CGS President Debra W. Stewart said, “The high proportion of graduates working in their intended fields is a sign that employers recognize the value of science and mathematics training honed in applied professional settings.”

Matt Sbertolli, a high school chemistry teacher currently enrolled in IIT’s materials chemistry program, said, “I chose IIT because…they offer Internet courses which are the only way I can earn a degree while teaching full-time. The staff has definitely not disappointed, and while the work can be rigorous, I’m confident it will be worth it.”

For more information, please visit iit.edu/csl/programs/professional_masters/
Late Breaking: Neutrino Results from Daya Bay Named One of Top 10 Science Breakthroughs of 2012

The neutrino result published in March 2012 by the members of the Daya Bay experiment in China was named one of the top 10 scientific breakthroughs of the year by the AAAS journal Science. IIT’s own Christopher White, chair and professor of physics, is part of the international Daya Bay team.

In addition, Russell Betts, dean of the College of Science and Letters and professor of physics, does research work at CERN, site of the year’s top scientific breakthrough: the discovery of the Higgs-Boson. Science said of the Daya Bay breakthrough:

Born in certain nuclear interactions, neutrinos come in three types or flavors that change into one another in so-called neutrino oscillations. The rates and extents to which the flavors mix depend on six parameters: the three differences between the neutrinos’ masses, and three “mixing angles.” In March, the 250 researchers with the Daya Bay Reactor Neutrino Experiment in China reported that last unknown parameter, the mixing angle known as $\theta_{13}$ (pronounced “theta one three”), equals 8.8°, give or take 0.8°.

The result itself is remarkable, as it’s not every year that physicists measure a new fundamental parameter. The real excitement, however, stems from the result’s broader implications. The measurement proves that all three mixing angles are greater than zero. That fact, in turn, implies that the oscillations of antineutrinos might differ from those of neutrinos, something that would not be possible had $\theta_{13}$ equaled zero.

That’s a big deal. Such a difference would be an example of an asymmetry between matter and antimatter known as CP violation. Physicists have already observed CP violation among particles called quarks, but they know that it isn’t pronounced enough to explain why particles of normal matter vastly outnumber particles of antimatter in the universe.

Physicists think that if there is CP violation among neutrinos, then it may be more analogous to the effect that created the matter-antimatter imbalance in the universe.

The article can be found here: goo.gl/uo7Gy
You can see a video about the Daya Bay results here: goo.gl/WmZnZ
To learn more, see:
  iit.edu/csl/phy/announcements/daya_bay_neutrino.shtml

Background image: photomultiplier tubes of Daya Bay antineutrino detectors [Lawrence Berkeley Nat’l Lab: Roy Kaltschmidt, photographer]
David Work and Matthew Shapiro

Work, a Presidential Scholar who transferred to IIT from the City Colleges of Chicago, describes his course load as “crossing disciplinary boundaries.” While he is technically a political science major, his interests and courses span from social science to architecture to engineering. He said, “My main interest is urban planning and architecture viewed through a social context, so Professor Shapiro’s suggestion that I apply a spin-off idea [of his research] for the CSL research stipend was a lucky, natural fit for me.”

The spin-off that Work is referring to comes from a project that Shapiro, assistant professor of political science, and Libby Hemphill, assistant professor of communication and information studies, are conducting in the Communication and Social Media (CaSM) Lab at IIT on politicians’ use of social media. In helping with this project, Work discovered that a practical and efficient way to approach data collection would be to input the demographic data directly into a Geographic Information System (GIS) tool for spatially-based processing, and this became the core idea for his research project. It’s important to note that there are currently no Chicago-specific datasets of this type.

Work made a longitudinal comparison of demographic shifts in Chicago’s geography between the 2000 and 2010 U.S. Censuses. The purpose was to identify the extent of gerrymandering—intentional shifts in the boundaries of a political district that are advantageous to a political candidate—in Chicago’s wards.

Work and Shapiro tapped two theories of gerrymandering, “cracking” and “packing,” and used (continued)
a GIS tool to quantitatively measure shifting boundaries. They found that gerrymandering is particularly pronounced in a handful of Chicago’s wards and that, when exploring demographic effects across all 50 wards, the consequences are severe for the African American population. Work and Shapiro are continuing their research to test for the effects of other variables such as age, education, and local election returns. They also intend to delve deeper into the most problematic wards and use GIS data for assessments at the city-block level.

**Nicholas Clancy and Fred Hickernell**

In beginning his research for the CSL Undergraduate Summer Research Stipend, Clancy was optimistic that it would help him decide a career path in his field of applied mathematics. He knew that an undergraduate degree in applied mathematics was flexible, but he had yet to find any possible future careers that really fascinated him. His summer research would provide an opportunity for him to explore the possibility of pursuing research as a career.

With the help of Hickernell, professor and chair of applied mathematics, Clancy was given the goal of understanding under what conditions certain widely used automatic numerical integration and function approximation routines failed to perform as expected. This research task was related to Hickernell’s ongoing research in numerical computation, in which he works with multiple other professors, as well as Ph.D. and M.S. students. “Nick was able to step into an environment where he would have other students and professors to talk to as he works on his problem,” said Hickernell.

Clancy also worked with a partner, fellow applied mathematics student Caleb Hamilton. Together they wrote programs in MATLAB that recorded how routines gathered information to approximate integrals, and they used this information to create a new fooling function for which the routine gave a totally incorrect answer. The result of this, Hickernell said, is the discovery of some “fooling functions… that totally befuddle the commercial numerical algorithms available from the MathWorks and the Numerical Algorithms Group. These provide insight into how automatic numerical algorithms can be improved.”

Currently, Hickernell, Clancy, and Hamilton are preparing a joint paper on their research for journal submission. Clancy is still contemplating exactly what he will do after graduation, but he feels that his summer research extensively prepared him for graduate school, should he choose to go that route.

**“I cannot say enough positive things about Clara—she’s a true star. Someone with her qualities would make a great scientist.”**

—Professor Dushay

**Clara Bajzek and Mitch Dushay**

Bajzek is a biology major in her fourth year of a biology co-terminal degree: After just one more year, she will have both a bachelor’s and master’s degree in biology, as this program allows students to earn both degrees in just five years. As a Camras scholar, she also has gotten the opportunity to be involved in service projects as well as activities around campus.

Since December 2011, Bajzek has been working with Dushay, assistant professor of biology. During this time, they have written and published two papers, both on coagulation in the fruit fly Drosophila. The most recent paper was based on research Bajzek did after being awarded the CSL Undergraduate Summer Research Stipend. Over the summer, Bajzek and Dushay developed a new assay for clotting in living Drosophila, verified it was a valid assay, and then used it to look at additional mutants and learn about the clot. The poster she created describing this research was awarded the best poster at the department’s Biology Day.

Dushay describes Bajzek as a remarkable student who has shown great understanding and initiative in the laboratory. “I cannot say enough positive things about Clara—she’s a true star,” he said. “Someone with her qualities would make a great scientist—it’s remarkable to have all of that as an undergraduate.”

Read about other student winners online at: iit.edu/csl/ugsr.shtml
**AMAT Undergraduate at Conference, NASA**

Anita Thomas (AMAT 4th year) gave a presentation at the Infinite Possibilities Conference at the University of Maryland Baltimore County in March. She presented her research, “Sampling Within the k-Means Algorithm to Cluster Large Datasets.”

This summer, Thomas interned at NASA’s Jet Propulsion Laboratory in Pasadena, Calif. She used quaternions and Mathematica or Matlab to match the meteoroid environment’s coordinate frame to that of spacecraft in order to improve analysis of the meteoroid threat to spacecraft.

**Solar Cubed: Solar Computer Lab-in-a-Box**

David Biedrzycki (CS 4th year), Kent Burlingame (CS 4th year), and Irina Papuc (Physics ’12) joined with Laura Hosman, assistant professor of political science, to present at this year’s TechWeek 2012 Conference & Expo in June in Chicago. The team spoke about SolarCubed, a turnkey, Solar-Computer-Lab-in-a-Box for schools in developing countries.

The standalone, simple-to-build solution contains all necessary components for a solar-powered computer lab, including six Intel Classmate laptops, solar panels, and innovative shipping box/computer lab table. The first product deployment, funded by Google, took place in Micronesia this August.

The project grew out of an IPRO to bring laptops to children in Haiti.

**IIT Society of Physics Students placed first and second in accuracy and distance in this year’s Pumpkin Launch, held in October. Duchossois Leadership Professor of Physics Carlo Segre was the adviser. The students were Anthony Ruth, Matt Otten, Rafael Soto, Jesus Garcia, Melanie Dooley, Javier Cardenas, Carly Ilg, Jon Volker, Michael Drews, and Luke Burns. Don Finan, IIT alum, was the engineering consultant.**
About the New Lewis College of Human Sciences

M. Ellen Mitchell, Ph.D.
Dean, College of Psychology
Interim Dean, Lewis College of Human Sciences

In fall 2013 the College of Psychology will join with the humanities and social sciences departments from CSL to become the new Lewis College of Human Sciences. The programs of this new college explore and explain the world—both real and virtual—during a time of rapidly changing technology, and our students and faculty work at the nexus of knowledge, methods for discovery, human thought, innovation, creativity, and action.

The Lewis College of Human Sciences name represents a broad umbrella under which important work focused on that which is uniquely human will continue and grow. In the new college we are excited by synergistic opportunities for cross disciplinary research and educational programs. We regard the Human Sciences as core to giving meaning and relevance to technological advances. Our students, collectively, are trained to be top problem solvers ready to tackle thorny human problems. We will be strengthening our programs by bringing our expertise together, applying the lens of each of the different disciplines and our commitment to understanding evidence to develop a deep appreciation of the complexity of our world and the necessity for innovative solutions that factor in the myriad differences of people across the globe. We are partnering with the Stuart School of Business to develop unique educational programs that go beyond the bounds of our disciplines. We count on all of you to spread the word to help us build our undergraduate enrollment.

We will be working on new degree programs, increasing our undergraduate enrollment, increasing our visibility and fundraising, and relocating. There is so much talent among the faculty and staff within the new college—it is a very exciting opportunity.

We will be inviting you all to a formal launch of the college next fall and numerous other events so that you may experience first-hand all of the changes and meet everyone.

Acclaimed sociologist and Chicago native Eric Klinenberg discussed *Going Solo: The Extraordinary Rise and Surprising Appeal of Living Alone* in March [top left]. The lecture was sponsored by the Department of Social Sciences. Social Sciences also welcomed Gordon Wood, Brown University Alva O. Way Professor Emeritus of History, as the first speaker in the new Benjamin Franklin Project, in partnership with the Jack Miller Center and with the support of the Brinson Foundation [lower left and top right].

In September, Sarah Roberts [lower right], doctoral student at the University of Illinois at Urbana-Champaign, gave the inaugural lecture in a new series sponsored by the Department of Humanities. She gave the talk “Digital Humanity: Foregrounding Human Traces in Technological Systems (and Why We Should Care).” The new lecture series “Defining Boundaries and Goals in the Digital Humanities” is being organized by Assistant Professor of History Marie Hicks.
Carly Kocurek is as an assistant professor of digital humanities and media studies in the Lewis Department of Humanities. She received her Ph.D. in American Studies from the University of Texas at Austin. Kocurek is a cultural historian specializing in the study of new media technologies and video gaming. She is working on a book, *Coin-Operated Americans: Young Manhood and the Video Game Arcade, 1972-1983*.

Benjamin Lynerd is the first post-doctoral fellow for the Benjamin Franklin Project in the Department of Social Sciences. A political theorist, Lynerd completed his doctoral work at the University of Chicago and served as a visiting professor at the University of Illinois-Chicago. His current book project focuses on the civil religion of American evangelicals. In the spring he will pilot two new courses for IIT, a seminar on the Congress and a symposium on American political thought.

New Assistant Professor of Sociology Noah McClain received his Ph.D. from New York University with a dissertation focused on efforts to secure the New York subway in the past decade. His interests are in complex organizations, cities, everyday life, and human interaction with mundane technologies. Past studies have included the social consequences of infrastructural change in the New York Subway in which the introduction of new turnstiles and fare media led to transformations in the social redistribution of deviance, and advanced trends in mass incarceration for young, nonwhite men.

Rebecca Steffenson is the new associate chair of the Department of Social Sciences and a senior lecturer in political science. Steffenson has a Ph.D. from the University of Glasgow, Scotland, and an M.A. from University College Dublin, Ireland. Her research interests include the economic competitiveness of regional metropolitan areas, comparative public policy, and international trade and regulation. Most of her work focuses on European Union-United States market opening strategies, policy transfers across the Atlantic and, most recently, the role of university technology transfers and firm knowledge sourcing in the United States and the United Kingdom.

John F. Erickson (Ph.D. CS ’07) has been appointed as lecturer in the Department of Applied Mathematics. His research interests are broad, but include approximation theory and radial basis function methods. John has taught at several area high schools, universities, and colleges. He is interested in using technology to improve science, technology, engineering, and mathematics (STEM) education and in mentoring students with disadvantaged backgrounds.

Mariusz A. Nieweglowski, a visiting assistant professor in the Department of Applied Mathematics, received his Ph.D. from Warsaw University of Technology in 2008. His research interests include financial mathematics, stochastic processes, and probability theory. He is working on a book with Tomasz Bielecki, professor of applied mathematics, on modeling dependence between stochastic processes.

Xiyun (Richard) Guan joins the Department of Biological and Chemical Sciences as associate professor of chemistry from the University of Texas at Arlington. Guan received his Ph.D. in chemistry from the University of Kentucky in 2002. His expertise is bio-analytical and bio-physical chemistry. His research group is developing nanopore sensors for bio-terrorist/bio-defense chemicals, environmental pollutants, toxins, DNA, and protein molecules. Funding is from the Defense Advanced Research Projects Agency (DARPA), U.S. Department of Homeland Security, the National Institutes of Health, the National Science Foundation, and Electronic BioSciences Inc.

Charles Krikorian holds a Ph.D. from Loyola University Chicago in microbiology with an emphasis in molecular biology, and a J.D. from DePaul University. Prior to joining IIT, Krikorian was an intellectual property attorney in private practice and vice president of intellectual property at two international pharmaceutical companies. At IIT, he will be a senior lecturer in biology and the director of biology master’s education, responsible for the direction, management and promotion of the Master of Science in Biology and the Professional Science Master’s in Biology. Both programs serve the vital function of preparing students for entry into the highly in demand STEM fields. The Professional Science Master’s in Biology is the only such program in biology in Illinois.

Boris Glavic, assistant professor of computer science, completed his Ph.D. at University of Zurich, Switzerland. Before coming to IIT he worked for two years as a postdoctoral fellow with Renée Miller, professor of computer science and the Bell University Labs Chair of Information Systems at the University of Toronto. Boris’s general area of research is database systems with a focus on data provenance, data integration, data stream management, and declarative scheduling.
Alumni

Applied Math Alumnus Jacob Matijevic Honored Posthumously for Work on Mars Rover Missions

Jacob “Jake” Matijevic (MATH ’69), a great space engineer, died August 20, 2012, in Los Angeles, Calif. He received his bachelor’s degree in mathematics from IIT and earned a Ph.D. in mathematics from the University of Chicago in 1973. After first teaching, he joined NASA’s Jet Propulsion Laboratory (JPL) in Pasadena, Calif., in 1981 as a control systems engineer. He led the engineering team that developed the robotic rover Sojourner (1996) and the twin Spirit and Opportunity rovers (2004). Most recently, Matijevic was the surface operations systems chief engineer for Mars Science Laboratory and the project’s Curiosity rover (2012).

Curiosity landed on Mars in August 2012, just two weeks before Matijevic’s passing. Curiosity discovered and analyzed an unusual rock found on the red planet with the rover’s arm-mounted Alpha Particle X-Ray Spectrometer (APXS). The rock has a composition not seen on the red planet before, but that resembles some volcanic rocks found on Earth.

In honor of Matijevic’s contribution to the rover missions, JPL named the rock found by Curiosity “Jake Matijevic.” Also, a hill that the Opportunity rover is investigating was named “Matijevic Hill.”

Ron Hochsprung (CS ’72) and his wife Lynda Bowlin donated $100,000 to establish the Hochsprung Scholarship in Computer Science ($75,000) and the Computer Science Students’ Fund ($25,000). In addition to earning his bachelor’s degree at IIT, Hochsprung was also systems manager for the IIT Computer Center and taught computer science as an instructor.

Andrea Berry (CS ’84) received the 2012 Women in Technology Leadership Award from TVNewsCheck at a ceremony in April in Las Vegas. She is senior vice president of media services at Fox Network Engineering and Operations.

Computer science alumnus Ondrej Hrebicek (CS ’03) co-founded and is chief technology officer of Syncplicity, which recently was acquired by EMC Corporation. Syncplicity provides enterprise customers with cloud-based sync and share capabilities through its Virtual Private Cloud. Acquiring Syncplicity will further enable EMC to provide ways to give users access to clouds while maintaining governance of security.

Sherrie Littlejohn (M.S. CS ’82) has joined the IIT Board of Trustees. Littlejohn is executive vice president and head of enterprise architecture at Wells Fargo in San Francisco. With nearly 30 years of experience in the telecommunications industry, she has led efforts in voice, data, applications, systems, instrumentation, network and overall information technology development. She is president of Wells Fargo’s Black/African American Connection (team member network) and is a speaker, host, and moderator for Wells Fargo diversity initiatives.

Peter B. Littlewood joined the CSL Board of Overseers. Littlewood is associate laboratory director for physical sciences and engineering at Argonne National Laboratory and professor of physics in the JamesFranck Institute at the University of Chicago. Previously, he was at Cambridge University, United Kingdom, and before that with Bell Laboratories. He holds six patents, has published more than 200 articles and is a fellow of the Royal Society of London, the Institute of Physics, the TWAS, Trinity College Cambridge, and the American Physical Society.
CSL Alums Honored in 2012
IIT Alumni Awards

Four CSL alumni were among those honored in the 2012 IIT Alumni Awards:

- **Professional Achievement Award**
  **Marvin E. Ament**, MD (BIOL ’59), is one of the founding members of the field of pediatric gastroenterology. He was a distinguished professor and spent nearly four decades as chief of the Division of Pediatric Gastroenterology, Hepatology and Nutrition at University of California, Los Angeles Medical Center. He was a pioneer in the development of endoscopic equipment in procedures for infants and children as well as tests for gastroesophageal reflux disease.

- **International Award of Merit**
  **Barbara A. Brown Bowman** (BIOL ’74) has served many roles in her career—including positions in research, academia, administration, scientific development, and journalism—and has been with the United States Centers for Disease Control and Prevention since 1992. Currently the associate director for science at the CDC’s National Center for Chronic Disease Control and Prevention since 1992. Currently the associate director for science at the CDC’s National Center for Chronic Disease Prevention and Health Promotion, she focuses her work on modifiable health-risk behaviors and the leading causes of death, which is central to our nation’s health and world health.

- **Alumni Service Award**
  **Joel D. Krauss** (MATH ’71) co-founded OmniTech Consulting Group and is the founder and principal of Market Strategy Group. He has more than 30 years of experience serving executives in business and financial services, manufacturing, communications, and high technology. He is a member of the IIT board of trustees, co-chair of the Campaign for IIT, and a member of the CSL board of overseers, alumni board, and development committee.

- **Collens Merit Award**
  **Paul F. Schutt Jr.** (PHYS ’55) formed several companies during his distinguished career in nuclear physics. He was named as a fellow of the American Nuclear Society and authored more than 20 articles in such publications as *Chemical Week*. As a high-level consultant to the U.S. government, Schutt has met most U.S. presidents since Richard Nixon. Schutt was chief executive officer and chairman of Nuclear Fuel Services, Inc., until 2009, when it was acquired by Babcock & Wilcox Company.

Esteemed physicist **Robert Bragg** (PHYS ’49, M.S. ’51, Ph.D. ’60) is presented an alumni award by Vanessa Nash Graham (BSME ’80) in Oakland, Calif. The award was announced at the inaugural dinner gala of the IIT African American Alumni Association during this year’s homecoming. Other honorees from the college included John Watson (BIOL ’64) and Cheryl Hyman (CS ’96). Bragg achieved national recognition in materials science and X-ray crystallography. He worked at Lockheed Missile and Space Company’s Palo Alto Research Laboratory from 1961 to 1981 on heat shields for spacecraft, among other things. While at Lockheed, he also became a professor of materials science and mineral engineering at the University of California, Berkeley, in 1969; had a concurrent appointment with the Lawrence Berkeley National Laboratory; and was a science adviser to the Department of Energy, National Science Foundation and other groups. He was a Fulbright Scholar in Nigeria in 1992-3. Among many honors, he was elected to the National Society of Black Physicists in 1995.
College of Science and Letters
10 W. 32nd Street
Engineering 1, Suite 220
Chicago, IL 60616-3713

ABOUT THE COVER
Design: John Ronan Architects. IIT’s core classroom and laboratory buildings for science and engineering—the Life Sciences, Engineering 1, and Stuart buildings—have supported almost five decades of student and faculty exploration. As the new College of Science prepares to launch, planning is under way to revitalize these buildings.

“In order to attract the best students and faculty, we must have world-class facilities,” said Dean Betts. “Anyone who visits the science buildings should be able to instantly recognize that excellent research and exceptional teaching happen here.”

The guiding principle for these efforts: students first. By putting the needs of students first, IIT will create a visible marker for the new IIT College of Science and create collaboration spaces that enhance faculty and student exploration.

The revitalization plan will start with Life Sciences, with new entrances, classrooms, collaborative work spaces, and more. See p. 12 to learn more.

UPCOMING EVENTS

Save the Date: March 7, 2013
IIT BIOLOGY LECTURE
Honoring Professor Emeritus Dale Webster
Featuring Professor Serge Vinogradov (Ph.D. BIOL ’60)
IIT Main Campus, MTCC Building

Vinogradov is professor of biochemistry and molecular biology at Wayne State University School of Medicine and a leading scholar in bacterial hemoglobins, a field of study founded by Dale Webster while he was at IIT. It has since become a widely studied area, in basic knowledge of hemoglobin structure, function, and evolution, and in robust use of bacterial hemoglobin in many important practical applications.

For more information, please contact Professor Tom Irving, 312-567-3489 or irving@iit.edu

Kilpatrick Lecture 2013—Save the Date, April 17
Pier Oddone, director of Fermi National Accelerator Laboratory, will receive an honorary degree at IIT’s spring 2013 commencement.

To view CSL newsletter archive, visit: iit.edu/csl/newsletter
To give to the college, please visit: iit.edu/csl/about/giving.shtml