Northwestern Research Newsletter

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IMSERC Gives Education and Research a New Home

When the Northwestern chemistry department decided to create the Analytical Services Laboratory in the 1960s for instruments involved in small molecule and structural characterization experiments, designers transformed an old parking lot into a makeshift workspace.

"The Technological Institute was completely renovated in the 1990s," says Andrew Ott, director of the facility, which is now called the Integrated Molecular Structure Education and Research Center (IMSERC). "To my knowledge, this was the only section of Tech that was not a part of the renovation."

Renovating the facility would have caused it to be closed for at least a year, delaying research already in progress.

Ott explains that new contrast agents for early cancer detection cannot be made without first synthesizing and characterizing the compound. In addition, some of our greatest environmental problems cannot be solved without understanding how to convert and store solar energy. These are merely two examples of the types of solutions being worked on here at the University.

With such important work being done at IMSERC, the University administration decided to invest $25 million into upgrading the facility.

Under a new name, which reflects a new vision, the core facility is currently experiencing a rebirth, slated for completion in 2011. A two-story, 12,000 square foot laboratory on the north side of Tech between the B and C wings will house several state-of-the-art instruments, including eight nuclear mass spectrometers, eight mass spectrometers, and four x-ray diffractometers.

"Originally the goal of the facility was to provide equipment and a service to help pay the bills, now education and research are our core goals," Ott says. "We focus on problems based on scientific merit instead of based on income potential."

The new location will not only have twice the space as the current setting, but it will also have twice the staff. Ott has hired three additional new staff members, so more one-on-one interactions can be made with research groups to help them find solutions and more training can be provided for undergraduate students. "We want undergraduates to have full access to and full understanding of our state-of-the-art equipment," says Ott. "Hopefully it will make them more excited about science and chemistry and want to go on to graduate school."

The design for the new facility, which will begin construction this summer, is similar to that of the Ford Center and Silverman Hall with a focus on natural light, flexible open spaces, and an emphasis on cleanliness and safety.

IMSERC continued on the following page >>

Andrew Ott stands with Northwestern's newest High-Resolution Nuclear Magnetic Resonance spectrometer system, the Bruker 600 MHz Avance III NMR.
Photograph by Amanda Morris

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The lab is centered around utilities, ensuring there are the appropriate structures for gases to be properly routed and the correct type of ceiling to prevent contamination. There also will be a 25-person cyber-enabled classroom, so students and researchers have a quiet place to work after using the instruments to collect data.

"It needs to be a wonderful space because people spend long of hours in the lab," explains Ott. "If you don't like being here, then you're going to try to get out as fast as you can. You're not going to get that extra bit of data that might be the difference between making a discovery and leaving empty handed."

Although the new name and new location are major changes for the chemistry department's core facility, it will continue to undergo a constant reinvention as aging equipment is replaced and the face of science changes.

"Twenty years ago, you would hand a sample to a scientist in a white coat to work on it and give you the data. Today you can load the sample yourself, and we'll email you the results. The turn-around time and direct access to instrumentation is incredible," Ott says. "It's similar to the transformation of computer technology where it used to be something behind closed doors and now is an everyday tool that you can't imagine living without. It's a good time to be a student."

For more information about equipment, fees, and work being completed at IMSERC, please visit www.chem.northwestern.edu/imserc.

An architect's rendering of the new facilities to be built for IMSERC. *Image courtesy of Andrew Ott*

Rare Cryoelectron Microscope Being Built for Northwestern

William Russin stands with a microscope at the Baylor College of Medicine. This model is similar to the one being built for Northwestern. *Photograph courtesy of William Russin*

The National Institutes of Health (NIH) has awarded Northwestern a $1.9 million grant to purchase a 300 kV (kilovolt) cryoelectron microscope. The JEOL 3200FS field-emission electron microscrope will be one of less than a dozen of its kind in the United States.

The microscope, which is now being built in Japan, is designed to allow high-resolution examination of biological specimens at low temperatures. Researchers from Weinberg, McCormick, and Feinberg will take advantage of the instrument's features.

"The beauty of this microscope is that you can observe frozen samples with no further processing and with less damage from the electron beam," says William Russin, neurobiology and physiology, and principal investigator on the grant.

The microscope includes a wide range of features aimed at performing high-quality tomography, STEM (scanning transmission electron microscopy), dark field microscopy, EDS (energy-dispersive spectrometry), and EELS (electron energy-loss spectrometry).

The 3200FS is expected to arrive in August on the Evanston campus and will be installed in Silverman Hall.

Adapted from an article by Megan Fellman and Melissa Kreitner that appeared on the Northwestern NewsCenter.

IPR Fellow Part of Gates Foundation College Initiative

Lindsay Chase-Lansdale
Photograph by Kim McElroy

Institute for Policy Research Fellow Lindsay Chase-Lansdale is one of the researchers working on a new $69 million college completion initiative led by the Bill & Melinda Gates Foundation.

The Gates Initiative seeks to double the number of low-income students who attend college and earn degrees, an increase of more than 250,000 graduates per year. Grants will be spread across 22 organizations and universities.

Chase-Lansdale will work on the Educare Postsecondary Education Project to identify and analyze existing supports and barriers to postsecondary educational attainment among young, low-income parents whose children are in Educare centers in Chicago, Denver, and Miami. In addition, the project will design a pilot intervention program that uses high-quality, early childhood education centers as a vehicle for supporting parents' continuing educational development.

An expert on the interface between research and social policy for children and families, Chase-Lansdale has been involved in several large-scale, longitudinal studies on risk and resilience among children and families facing economic hardship.

-- Adapted from an article on the IPR web site

Argonne Named a Best Place to Work

Argonne National Laboratory was ranked the 13th best place for postdocs to work by *The Scientist*. The magazine's seventh annual "Best Places to Work" survey recognizes institutions that have found creative ways to improve postdoc benefits.

With approximately 150 postdocs working at the lab, Argonne's ranking jumped seven spots – from 20 to 13 – in just one year.

One way Northwestern helps make Argonne more accessible for postdocs and researchers is by providing two cars that travel between Argonne and Evanston. The cars serve 60 commuters from nine different departments who organize themselves through a shared Google document that allows them to sign up to drive or ride. *(Click here for information about the carpool.)*

The cars are completely funded by the Office for Research, including gas, tolls, maintenance, and insurance.

To see the entire list of rankings for best places to work for postdocs, please visit http://www.the-scientist.com/bptw/.

ORD and ORIS Keep NU Updated About the Stimulus

When the American Reinvestment and Recovery Act of 2009 (ARRA) – or the Stimulus Package – was passed by Congress and President Obama in February, the Office of Research Development (ORD) and Office for Research Information Systems (ORIS) created a web site to help the Northwestern community understand how the plan affects our researchers.

Holly Falk-Krzesinski, director of ORD, says that although funding information from federal agencies has been constantly changing, ORD and ORIS make sure that new details are confirmed and then posted to the web site within 24 hours of release. In order to receive all new announcements in a timely manner, people are encouraged to subscribe to the listserv to stay up-to-date.

Researchers are also urged to keep in close contact with program officers at funding agencies to determine whether recently reviewed but unfunded proposals will be considered for ARRA funding and whether supplemental funding of currently funded proposals is a possibility.

For further information about the effect of the Stimulus Package on Northwestern, please visit the web site. To receive timely updates, please join the listserv.

Honors Corner

Frank Calegari, mathematics, and **Adilson E. Motter**, physics and astronomy, have been named **Alfred P. Sloan Research Fellows**.

David M. Engman, pathology and microbiology-immunology, has been elected to fellowship in the **American Academy of Microbiology**.

John Hagan, sociology, was awarded the **2009 Stockholm Prize in Criminology** for his analysis of genocide in Darfur and the Balkans.

Chad A. Mirkin, chemistry, is the featured author on the **ACS Publications** web site and recipient of the **2009 Pittsburgh Analytical Chemistry Award**.

Teri Odom, chemistry, will receive the **2009 Outstanding Young Investigator Award** from the Materials Research Society.

Richard Silverman, chemistry, has been awarded the **Perkin Medal** by the Society of Chemical Industry.

Robert Vassar, cell and molecular biology, received the American Academy of Neurology's **2009 Potamkin Prize** for Research in Pick's, Alzheimer's, and Related Diseases.

Research Emergency Response System Strengthened

The academic research community nationwide was saddened by the death of a UCLA research assistant from a laboratory fire that occurred in UCLA's Molecular Sciences Building on Dec. 29. Sheri Sangji was burned in a flash fire that occurred when she was using a plastic syringe to extract a small quantity of t-butyl lithium, a flammable compound that ignites instantly when exposed to air. The syringe broke apart in her hands and spewed flaming chemicals. Her clothing caught on fire, and she suffered second- and third-degree burns over 43 percent of her body. Sanji, who was 23, died 18 days later in a hospital burn unit.

UCLA safety inspectors had found more than a dozen deficiencies in that lab only two months earlier, but they hadn't been fixed by the time Sangji was burned. An independent consultant said that poor training, poor technique, lack of supervision, and improper methods led to what he said was a "totally preventable" accident at UCLA.

Northwestern's Office for Research and Office for Research Safety help the University provide a safe workplace for faculty, staff, students, and visitors. Any laboratory activities or processes that pose an immediate danger to life and health may be terminated immediately. In fact, the Vice President for Research can close the laboratory of any investigator found not to be in compliance with University safety policies and procedures until compliance is confirmed.

All labs, investigators, students, and staff who work in laboratories should be registered in ISIS, Northwestern's Integrated Safety Information System. "ISIS is a data management tool as well as a valuable educational resource for investigators and laboratory workers," says Todd Leasia, director of research safety. "ISIS integrates data collection and automates the creation, submission, and review of some of the forms required for research safety."

ISIS also is one of the data sources for a new emergency notification system being set up at Northwestern that will inform all researchers and laboratory personnel of any situation that might endanger their safety or jeopardize their research, such as a power outage. This new system is a subset of the Northwestern-wide emergency notification system that was put into place last year. In the new system, ISIS information plus Feinberg School of Medicine information is merged and run against HRIS notification information for anyone whose primary address is a research facility. The information is updated daily.

The new notification system will be put in place by the end of March, according to Merrill Silverman, director of parking and security systems - University Police. Before the system is finalized an e-mail request will be sent to those who appear in the combined database to update or verify their information in HRIS. A second test will also notify researchers by phone.

For more information about ORS and ISIS, please visit the ORS web site.

ORIS Announces New Help Desk

As members of the Office for Research scroll, click, and type the hours away, sometimes the workday grinds to a screeching halt. Whether it's being locked out of an account, having the to-do list disappear in Outlook, or experiencing the inability to print an urgent document, all of these small technical issues can add up to a frustrating day.

To tackle matters such as these and more, the Office for Research Information Systems (ORIS) has created a help desk specifically designed to provide support for technical OR applications and general IT infrastructure.

The ORIS team partnered with OR subject specialists to resolve user issues and manage a central database of requests and frequently asked questions.

Requests can be submitted through the ORIS web portal, email, or phone 1-8080.

Earth Hour 2009

Northwestern students, faculty, and staff are invited to participate in Earth Hour, an initiative acknowledging the effects of global climate change, beginning at 8:30 p.m. Saturday, March 28.

As a part of Earth Hour, individuals are encouraged to turn off their lights for one hour -- from 8:30 p.m. to 9:30 p.m., local time -- to acknowledge the threat posed by global climate change to the world and its economic well-being.

Northwestern is among more than a dozen leading colleges and universities participating in Earth Hour, and Chicago is one of the key cities taking part in the symbolic event.

Earth Hour is sponsored by the World Wildlife Fund, one of the largest conservation organizations in the world. In 2008, more than 50 million individuals participated from around the world, including businesses, individuals and government leaders from more than 400 cities.

Center and Faculty Notes...

A study led by **Karen Abram**, psychiatry and behavioral sciences, found that youths aged 13 to 22 struggled after time in juvenile detention centers and were impaired in their ability to function. *Full Story*

Vadim Backman, biomedical engineering, and his group have developed a way to examine cell biopsies and detect never-before-seen signs of early-stage pancreatic cancer. *Full Story*

Noshir Contractor, industrial engineering and management sciences, and his collaborators studied online communities and found that the players of virtual games mostly played with people from their general geographic area. *Full Story*

Richard Morimoto, biochemistry, molecular biology, and cell biology, led a team of researchers that discovered a new protein that keeps cells healthy across a long span of time. *Full Story*

New research directed by **Teepu Siddique**, neurology, has discovered a new gene whose mutations cause some inherited cases of ALS. *Full Story*

Richard Silverman, chemistry, and his team developed two compounds that have shown to be effective in pre-clinical trials in protecting against cerebral palsy. *Full Story*

An **interdisciplinary Northwestern research team** has provided biological evidence that musical training enhances an individual's ability to recognize emotion in sound. *Full Story*

Northwestern researchers led by **Teresa Woodruff**, obstetrics and gynecology, have launched myoncofertility.org, an interactive web site to educate patients about the potential effect of cancer and treatments on their fertility and options to preserve it. *Full Story*

A new program called **Healthy for You, Healthy for 2** will help pregnant women develop better nutrition for optimal weight gain for a healthier pregnancy. *Full Story*

Northwestern Research In the News, Feb. 18 - March 17

James Adams, emergency medicine, discussed snowblower-related injuries in U.S. News and World Report.

Ravi Allada, neurobiology and physiology, and his use of fruit flies to study circadian rhythms was subject of an article in the Chicago Tribune.

Evelyn Asch, Institute for Policy Research, talked 'Mission and Money' in High Ed with Inside Higher Ed.

Richard Ashley, music studies, discussed how musicians have auditory systems that are finely tuned to emotions in United Press International.

Vadim Backman, biomedical engineering, talked about his new light-scattering technique to detect pancreatic cancer earlier in the Chicago Tribune and United Press International.

Noshir Contractor, industrial engineering and management sciences, and his study finding that online gamers play with local people was the subject of an article on MSNBC. And his study finding that virtual game players are more depressed was mentioned in the Los Angeles Times.

David Figlio, Institute for Policy Research, and his research comparing schools with and without tracking was mentioned in the Chicago Tribune.

Mercouri Kanatzidis, chemistry, who developed a class of new porous materials that are effective at purifying hydrogen, was subject of an article by United Press International.

John Kessler, neurology, discussed the repeal of restrictions on embryonic stem-cell funding in the Chicago Tribune, Chicago Sun-Times, and The New York Times.

Nina Kraus, neurobiology and physiology, discussed how music can re-wire a brain on the ABC News.

The Chicago Tribune mentioned **McCormick students** designing underwater propulsion vehicles for the disabled.

Kathryn Montgomery, medical humanities and bioethics, discussed how doctors solve problems in The New York Times.

Ken Paller, psychology, discussed the brain's ability to make split-second decisions on ABC News.

Reginald Richardson, psychology and The Family Institute, discussed leaving kids home alone in the Chicago Tribune and his "Long-Distance Relationship Guide" was referenced in a Chicago Tribune and Los Angeles Times article.

Jennifer Richeson, psychology, published a study about how interracial interactions leave white people emotionally drained that was mentioned in The New York Times.

Linda Rubinowitz, The Family Institute, discussed couples in assisted living facilities in the Chicago Tribune.

Heidi Schellman, physics and astronomy, discussed the high-mass Higgs Boson in New Scientist.

Richard Silverman, chemistry, who developed two compounds that may prevent cerebral palsy, was subject of an article in U.S. News and World Report and United Press International.

Linda Van Horn, preventive medicine, discussed how daily alcohol consumption increases a women's risk of cancer in the Washington Post.

Sandy Westerheide, biochemistry, molecular biology, and cell biology, published a study showing that a little stress may keep cells useful that was subject of an article in Science News.

Teresa Woodruff, oncology and gynecology, and her guide to help doctors navigate their patients through fertility preseveration after cancer treatment was subject of an article by United Press International.

Laurie Zoloth, bioethics, wrote an op-ed about stem cells in the Chicago Tribune.

Minisymposium to Unite NU Stem-Cell Experts

There are still spaces available for the spring minisymposium on Stem Cell Biology and Regenerative Medicine. The goal of the event is to bring together Northwestern investigators who share the common interest of regenerative medicine and the basic biology of stem cells. Providing a showcase for cutting-edge research at the University, the symposium will also give a forum for establishing new research collaborations.

The minisymposium will take place Friday, April 24, from 12:30 to 6:30 p.m. on the third floor of Women's Prentice Hospital.

Confirmed speakers include John Kessler, Richard Burt, Doug Losordo, Raj Kishore, and John Crispino of the Feinberg School of Medicine; Mary Hendrix and Vasil Galat of Children's Memorial Research Center; Guillermo Ameer from McCormick; and Alec Wang from Weinberg.

To register for this free event, please visit the mini-symposium web site. For more information, contact Holly Falk-Krzesinski in the Office for Research Development.

Undergraduate Research Symposium Scheduled for April

The Chicago Area Undergraduate Research Symposium recognizes outstanding undergraduate research at Northwestern as well as DePaul University, Illinois Institute of Technology, University of Chicago, Loyola University, and University of Illinois at Chicago.

The symposium will take place Saturday, April 18, at the Robert H. Lurie Cancer Center. It is free and open to the public.

The deadline for abstract submissions is March 27.

Last year there were 107 posters and 16 oral presentations from students of all years and from various majors. This year's numbers are expected to be similar.

Following the symposium will be an awards ceremony for the top posters and presentations. Dr. Shannon Hackett from The Field Museum of Natural History will deliver the keynote speech.

For more information, please email info@caurs.com.

Training Calendar, March 18 - April 14

Chicago

Radiological Emergency Management
Wednesday, March 18, 1 - 2 p.m.
Montgomery Ward Building

Tumor Cell Biology Seminar
Thursday, March 19, 1:15 - 2:15 p.m.
Thursday, March 26, 1:15 - 2:15 p.m.
Thursday, April 2, 1:15 - 2:15 p.m.
Thursday, April 9, 1:15 - 2:15 p.m.
Robert H. Lurie Medical Research Center

Hazardous Waste Management
Thursday, April 2, 2 - 3 p.m.
Montgomery Ward Building

Laboratory Safety and Personal Protective Equipment Training
Thursday, April 2, 10 - 11:30 a.m.
Montgomery Ward Building

Advanced Laser Operator Training
Wednesday, April 8, 1 - 2 p.m.
Montgomery Ward Building

Evanston

Radiological Emergency Management
Thursday, March 19, 1 - 2 p.m.
Technological Institute

Radiological Surveys by Laboratory Personnel
Wednesday, April 1, 1 - 2 p.m.
Thursday, April 2, 1 - 2 p.m.
Technological Institute

Hazardous Waste Managment
Tuesday, April 7, 2 - 3 p.m.
Technological Institute

Laboratory Safety and Protective Equipment Training
Thursday, April 9, 2 - 3:30 p.m.
Technological Institute

Advanced Laser Operator Training
Thursday, April 9, 1 - 2 p.m.
Technological Institute

For a complete schedule of events and details, please visit www.research.northwestern.edu/events

Deadline Approaching for NUCATS 2009 Pilot Grants

Valentine's Day may have been a month ago, but NUCATS is looking to play matchmaker for its Spring 2009 Pilot Grant competition. Full-time Northwestern faculty and full-time investigators based at Children's Memorial Hospital and the Rehabilitation Institute of Chicago are invited to apply with proposals that address significant unmet needs that have direct bearing on clinical problems.

Pilot award recipients will receive a one-time grant for the maximum of $50,000 to provide seed funding exclusively for novel, high-risk ideas that ideally foster new interdisciplinary and cross-University collaborations. That's where the matchmaking comes into play: applicants who need help finding a collaborator or identifying a source will be matched with one by members of the NUCATS staff. Candidates interested in finding a match should contact Dave Johnson or Jim Bray.

The deadline for applications is 5 p.m., April 10, and awardees will be notified at the first annual NUCATS Innovation Day on May 20.

For more information, application forms, and full instructions, please visit www.nucats.northwestern.edu/pilots/index.html.

Proposal and Award Reports through Jan. 2009

The total amount of award funding received this fiscal year through January 2009 is $123.1 million, according to the Office for Sponsored Research.

The dollar volume of awards to the Office of the Provost increased by almost 400-fold ($5.3 million), while awards to Weinberg grew by 37 percent ($3.9 million). Research Centers and Institutes and the School of Law awards also rose by 12 percent ($1.3 million) and 339% ($1.1 million) respectively. The dollar volume of awards to Feinberg decreased by 21 percent ($18.4 million), while those to McCormick were down by 9 percent ($1.5 million).

For more details and a complete breakdown of numbers, please visit the OSR web site to find the monthly reports. All visitors are required to log-in with a valid user NetID and password.

Core Facilities Open House

Core facilities from the Evanston campus will be on display at the First Annual Research Facilities Fair. Participants will view presentations, sign up for open houses, and learn more about the instruments available on campus.

Tuesday, March 24, 10 a.m. to noon
Pancoe Life Sciences Building
Second Floor Lobby

Open houses will follow from noon to 3 p.m.

For more information, please visit the Core Facilities web site.

Web Site Profiles International Programs

The Buffett Center, with the support of the Office of the Provost, is building a comprehensive profile of international programs at Northwestern: the Northwestern University Global Opportunities (NU GO) website. The project aims to increase awareness of existing international activities and encourage opportunities for future internationalization at Northwestern.

To generate a profile for an international program, please contact Meghan Beltmann.

For more information, please visit the Buffett Center web site.

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