

# DIMENSIONS *of* DISCOVERY



## Nobel Laureate

»» **Turning Palladium into Gold: Ei-ichi Negishi Wins Nobel Prize in Chemistry**

### Welcome

"In the garden, autumn is, indeed, the crowning glory of the year, bringing us the fruition of months of thought and care and toil." — *Rose G. Kingsley, The Autumn Garden, 1905*

More than 100 autumns after Rose Kingsley penned this prose, her words ring true for the fall 2010 semester at Purdue. From international and national awards to inspired research, our investigators are reaping the bounty of their thought and toil. In this issue, read how a chemist's dream came true, why a communicator is rethinking public health campaigns and which biologist is looking for the weaknesses in *Legionella pneumophila*. Join us in celebrating the fruits of their efforts. □

A 5 a.m. phone call from Stockholm awakened Professor Ei-ichi Negishi to a dream come true: he had won the 2010 Nobel Prize in chemistry. Just hours later, the Herbert C. Brown Distinguished Professor of Chemistry beamed at a line of cameras in Dauch Alumni Center. "I would be lying if I said that it was a complete surprise to me," he enthused at the hastily arranged press conference. "I hoped to win, but never raised my hopes too high."

Negishi, along with co-laureates Richard Heck of the University of Delaware in Newark and Akira Suzuki of Hokkaido University in Sapporo, Japan, was recognized for the discovery of palladium as a catalyst in forming carbon bonds. Their tool, palladium-catalyzed cross coupling, has allowed chemists to create sophisticated chemicals such as carbon-based molecules as complex as those created by nature itself.

The chemist had estimated only a 1-in-100 chance of winning the prize he'd aspired to for 50 years. Nonetheless, Negishi has always had confidence in the value of his research — to synthesize any molecule in the best possible way and to improve synthetic organic chemistry.

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Immediately after Negishi's first press conference announcing his Nobel Prize win he returned to the classroom to teach his sophomore organic chemistry class.



Vincent Walter, Photographer



Andrew Hancock, Photographer



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### Metal as Matchmaker

Negishi's love for his subject is evident in the fact that he named his self-designed home in West Lafayette, "Palladium." A silver-white metallic element resembling platinum, palladium works as a kind of matchmaker, allowing organic compounds to bind with other compounds. Through catalytic reactions such as the Negishi reaction, the compounds can be synthesized widely, efficiently and selectively, dramatically reducing the cost of using palladium and other metals in synthesis.

"Catalysts are not lost as they spur a chemical reaction; they are recycled and can be used over and over again," explained Negishi, who developed a variant of the Heck reaction in 1977. "These transition metals are very expensive, but when they can be used millions to billions of times, it dramatically reduces the cost and makes the mass manufacturing of special, complex materials practical."

### Future Pursuits

Negishi, who will be honored with a gold medal and a cash prize at ceremonies in Sweden on December 10, said he has only completed 50 percent of the research he intends to finish before retirement. Along with future explorations, he will continue working at Purdue at half-time status, and consulting with international institutions.

With tears in his eyes, Negishi acknowledged his success to his mentor Herbert C. Brown, Nobel Prize winner in chemistry from Purdue. He also thanked his wife; colleagues; and Purdue University — which, he said, provided him with a fruitful working environment; his native country, Japan — where confidence in his abilities began; and the United States — a country that he said has been generous to him since he first arrived here as a Fulbright Scholar in 1960.

Negishi concluded the press conference with a message for a new generation of scholars: "Have lofty goals — not of winning the Nobel Prize, but of great discoveries and accomplishments in your field of study. And if you have achieved that, you are bound to get recognition. Keep pursuing; little acorns that grow into tall oaks." ■





### Foods and Nutrition Head Elected to Institute of Medicine

Connie Weaver, distinguished professor and head of the Department of Foods and Nutrition, has been elected to the Institute of Medicine, the health arm of the National Academy of Sciences.

"This appointment is a singular honor for one of the nation's top researchers in nutrition," says Purdue President France A. Córdova. "The Institute of Medicine is a premier organization representing the best in health fields, and it is often called upon to advise the government and nation on a variety of topics."

Weaver, an expert in mineral bioavailability, calcium metabolism and bone health, is deputy director of the National Institutes of Health-funded Indiana Clinical and Translational Science Institute. A former president of the American Society for Nutritional Sciences and an elected fellow of the American College of Nutrition and Institute of Food Sciences, she has published more 150 original research articles and 100 books, book chapters and reviews. Among her many honors, she was the 2010 recipient of the Tony and Mary Hulman Health Achievement Award.

In 2005 she was appointed to the U.S. Dietary Guidelines Advisory Committee, and she also has served on the National Academy of Sciences Food and Nutrition Board Panel to develop new requirement recommendations for calcium and related minerals. Now, as one of the 27 current and retired Purdue faculty members to belong to the National Academies, she will advise the Institute of Medicine on issues related to nutrition and disease.

"I am touched by this new appointment, and I look forward to being active and involved with the institute and the diverse individuals representing a spectrum of health issues," Weaver says. "We have a lot of work to do to promote nutritional health as our nation struggles with an obesity epidemic and our largest-ever aging adult population." ■

*Writer: Amy Patterson Neubert is health sciences/news writer for Purdue Marketing and Media.*



### Otto Doering Named Director of PCCRC

Longtime Purdue agricultural economics professor Otto Doering has been

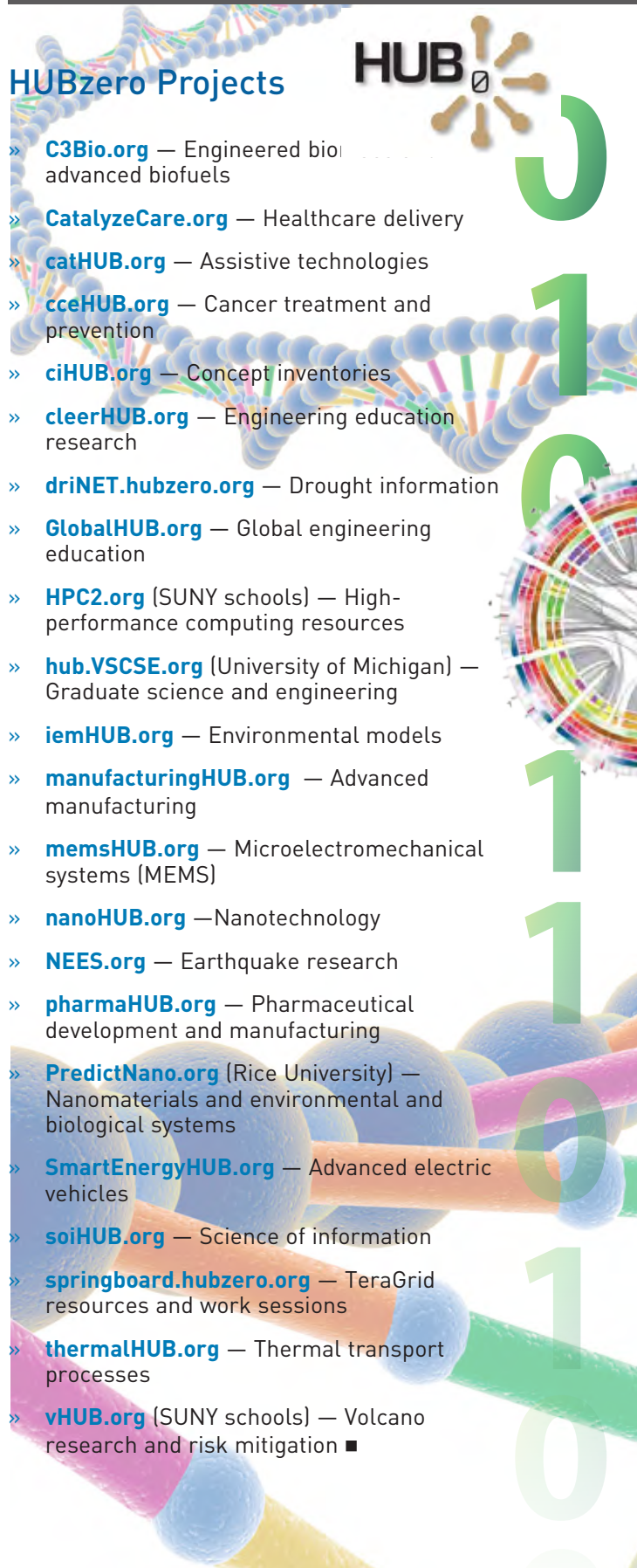
named director of the Purdue Climate Change Research Center, the University's interdisciplinary effort focusing on research and education in global climate change.

Former director of Purdue's Energy Policy Research and Information Program and the first director of Indiana's State Utility Forecasting Group, Doering shared the 2007 Nobel Peace Prize with other members of the Intergovernmental Panel on Climate Change. His appointment was effective in September, one year after beginning as interim director.

"Director Doering will provide excellent leadership and guidance for the Purdue Climate Change Research Center, fostering global collaborations with the Energy Center and the Center for the Environment to enhance the Global Sustainability Initiative," says Alan H. Rebar, director of Discovery Park and senior associate vice president of research at Purdue.

Doering is a public policy specialist on economic issues affecting agriculture, natural resources and energy. He has served in advisory positions with the U.S. Department of Agriculture, is a member of the Environmental Protection Agency's Science Advisory Board and chairs the federal agency's Integrated Nitrogen Committee. He is a member of the National Academy of Science's Water Science and Technology Board and serves on committees working to restore and protect water quality in the Mississippi River. His publications include a book on the 1996 Farm Act and a book on the effects of climate change and variability on agricultural production systems. ■

## HUBzero Projects

- 
- » **C3Bio.org** — Engineered bio advanced biofuels
  - » **CatalyzeCare.org** — Healthcare delivery
  - » **catHUB.org** — Assistive technologies
  - » **cceHUB.org** — Cancer treatment and prevention
  - » **ciHUB.org** — Concept inventories
  - » **cleerHUB.org** — Engineering education research
  - » **driNET.hubzero.org** — Drought information
  - » **GlobalHUB.org** — Global engineering education
  - » **HPC2.org** (SUNY schools) — High-performance computing resources
  - » **hub.VSCSE.org** (University of Michigan) — Graduate science and engineering
  - » **iemHUB.org** — Environmental models
  - » **manufacturingHUB.org** — Advanced manufacturing
  - » **memsHUB.org** — Microelectromechanical systems (MEMS)
  - » **nanoHUB.org** — Nanotechnology
  - » **NEES.org** — Earthquake research
  - » **pharmaHUB.org** — Pharmaceutical development and manufacturing
  - » **PredictNano.org** (Rice University) — Nanomaterials and environmental and biological systems
  - » **SmartEnergyHUB.org** — Advanced electric vehicles
  - » **soiHUB.org** — Science of information
  - » **springboard.hubzero.org** — TeraGrid resources and work sessions
  - » **thermalHUB.org** — Thermal transport processes
  - » **vHUB.org** (SUNY schools) — Volcano research and risk mitigation ■

## HUBzero puts Research Tools, Collaboration in a Web Browser, Powers Grant Proposals

Noha Gaber was seeking a good way to facilitate collaboration in the environmental modeling field when she came across Purdue-based nanoHUB.org, a thriving international resource for nanotechnology research and education.

HUBzero, the technology powering nanoHUB.org for its 153,000 users, seemed like a possible solution. It could obviously be used to build a Web-based repository of models and related documentation for projecting the spread and impact of pollutants. It also had features, such as wiki space, enabling environmental researchers to share ideas and information.

But there was more. HUBzero could even make the models operable online, right in a Web browser window, and allow researchers to collaborate virtually in developing and using models.

“It’s not just providing a library of models, but providing direct access to these tools,” says Gaber, executive director of the U.S. Environmental Protection Agency’s Council for Regulatory Environmental Modeling.

The new iemHUB.org for integrated environmental modeling is nearly two dozen — and growing — feature-rich Web portals built around research and education themes using HUBzero. Developed at Purdue to power nanoHUB.org, HUBzero’s underlying technology was so attractive that ITaP decided to tailor it for broad application in science, engineering and almost any other field.

Take the cancer care engineering hub cceHUB.org. One of the early hubs following nanoHUB, it has proven to be the linchpin in building an online data tracking, access and statistical modeling community aimed at advancing cancer prevention and care.

“We were looking for a solution for sample tracking and data storage that would not cost \$5 million, and it was a true logistical challenge needing a comprehensive cyberinfrastructure support system,” says Julie Nagel, managing director of the Oncological Sciences Center in Purdue’s Discovery Park. “The hub is the core of the CCE project and has brought the project forward so much faster than we could have if we had started from scratch.”

HUBzero is sort of a Swiss Army Knife for deploying and accessing computational research codes, and visualizing and analyzing results, all through a Web browser interface. It makes posting tools about as easy as posting a YouTube video. Built-in social networking features akin to Facebook create communities of researchers and educa-





Pictured left to right, seated: Michael McLennan, George Adams; standing, Mark Lundstrom and Gerhard Klimeck, who spearheaded the creation of nanoHUB.org.

## Cyberinfrastructure at Purdue 2010

Members of the Purdue community looking to advance research and research collaborations, win grant funding or enhance students' classroom experience should find something in the technological resources to be highlighted at Purdue CI Days 2010 on December 8-9. See page 14 for more information. ■

tors in almost any field or subject matter and facilitate communication and collaboration, distribution of research results, training and education.

"Contributors can structure their material and upload it without an inordinate amount of handholding; that's really a key because you want people to contribute," says chemical engineering Professor Gintaras "Rex" Reklaitis. He's the principal investigator for pharmaHUB.org, a National Science Foundation-supported Virtual Engineering Organization for advancing the science and engineering of pharmaceutical product development and manufacturing.

It's possible to cobble some of this functionality together with commercial Web software, but HUBzero integrates everything in one package, notes Michael McLennan, senior research scientist and hub technology architect at Purdue. Add the research tool-enabling features and research-oriented functions like tracking the use of tools (useful for quantifying outreach) and citation tracking, and you have something quite different and powerful.

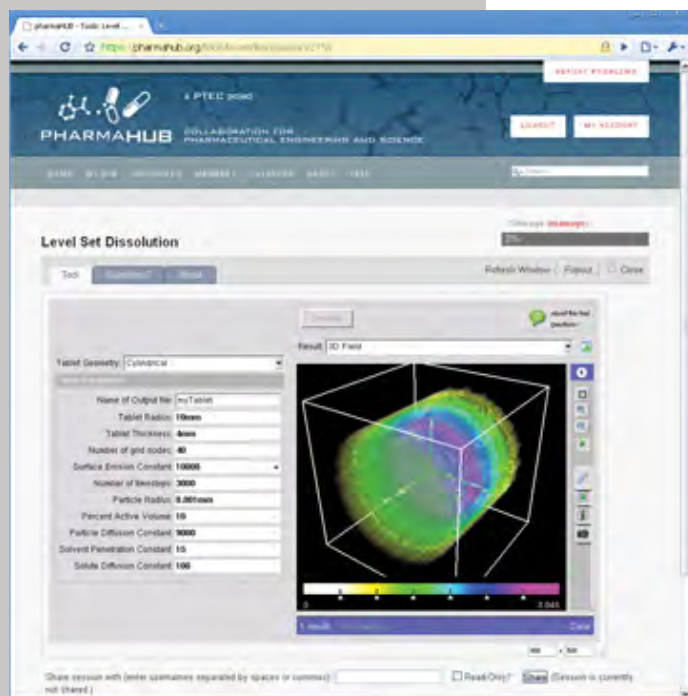
HUBzero can be a prime tool for satisfying cyberinfrastructure requirements, such as data management and access of granting agencies like the NSF. HUBzero's emphasis on interdisciplinary collaboration only makes it more attractive in funding proposals. "Many of the big projects on campus, \$20 million or more, are supported by hubs," McLennan says.

HUBzero is now supported by a consortium including Purdue, Indiana University, Clemson University and University of Wisconsin-Madison. Researchers at Rice University, the State University of New York, the University of Connecticut and the University of Notre Dame use hubs. ITaP offers a hub-building and hub-hosting service, and the consortium also supports an open source version, allowing people to build and host their own.

Altogether, sites powered by HUBzero deliver hundreds of tools and other resources to nearly half a million users each year.

"The largest site is nanoHUB.org because it has been around longest, but all the hubs seem to be growing, and many are amassing thousands of users," says McLennan. ■

*Writer: Greg Kline is a science and technology writer for Information Technology at Purdue (ITaP).*



## »» Francisco, Cooks, Shahidi and Brouder Honored

### 3 Purdue Professors Elected to AAAS

Three Purdue professors were inducted into the American Academy of Arts & Sciences, one of the nation's oldest and most prestigious honorary societies, during a ceremony October 9 at the academy's headquarters in Cambridge, Mass.



The faculty members, pictured above from left, are Joseph Francisco, the William E. Moore Distinguished Professor of Earth and Atmospheric Sciences and Chemistry; R. Graham Cooks, the Henry Bohn Hass Distinguished Professor of Chemistry; and Freydoon Shahidi, Distinguished Professor of Mathematics.

"The academy celebrates cutting-edge research and leadership in the sciences, social sciences, humanities and public affairs, and we are proud that three Purdue faculty members have been recognized for their unique contributions to the fields of chemistry and mathematics," says Purdue President France A. Córdova, who was elected as a member of the academy in 2008. "Professors Cooks, Francisco and Shahidi will further strengthen the academy's endeavors to address emerging social and intellectual issues through interdisciplinary research." ■



(Purdue Agricultural Communication photo/Tom Campbell)

### Agronomy Professor Honored for Stewardship

Agronomy professor Sylvie Brouder has received Purdue University's 2010 Spirit of the Land-Grant Mission Award.

The award recognizes the accomplishments of a faculty member in the College of Agriculture, College of Health and Human Sciences or School of Veterinary Medicine whose work integrates the University's land-grant mission of discovery, extension and learning.

Brouder, who received a commemorative trophy, \$10,000 for program support and a \$1,500 cash award, was honored for enhancing environmental stewardship and optimizing farm productivity. Her applied research has led to the development of nutrient management guides and technologies that improve greenhouse gas emissions and water quality by helping to balance the amount of carbon and nitrogen in soil, plants, water and air.

"These tools help students, professionals and the public make informed decisions that have a potential impact on food security and sustainability, climate change and bioenergy production," says Chuck Hibberd, associate dean of the College of Agriculture.

Brouder has developed an upper-level course on plant mineral nutrition and has received both industry and federal funding for graduate education. She has published 36 papers in refereed journal articles, 32 extension publications and 40 technical reports, and has been invited to speak at 54 national and international conferences. She also has been involved in 46 integrated grant and contracts accounting for more than \$5.8 million in funding.

"Dr. Brouder has gained a national and international reputation for her work in agroecology, and her ability to bring research through to application will allow her work to have long-term benefits for the environment and agricultural production in Indiana, the nation and the world," says Karen Plaut, associate dean and director of agricultural research programs. ■

*Writer: Keith Robinson is news and public affairs coordinator for Agricultural Communication Service.*

Pictured above: Agronomy professor Sylvie Brouder stands in miscanthus grass, which, at more than 10 feet high, blocks out the sun at Purdue's Agronomy Center for Research and Education. The grasses were planted in the spring.



## Targeting Health Messages, Fighting Pathogens

### \$1.5 Million Grant Toward Healthier Hearts for African-Americans in Indiana

"If we want to reach the at-risk American population, we need to target the sources of their information," says Mohan Dutta, professor of health communication. Dutta's current work in health communication mainly focuses on a culture-centered approach and on the role of digital media in reducing healthcare disparities. Now he has received a grant of \$1.5 million from the Agency for Healthcare Research and Quality (AHRQ) to reduce the incidence of heart disease in the high-risk African-American population in Indiana.

The new project will focus on heart disease, specifically modifying how the information is outlined in the Comparative Effectiveness Research Summary Guides published by the AHRQ. Dutta hopes the project will bring about a paradigm shift in public health programs. Typically, when academics develop and test health campaign messages, they miss critical feedback and reactions because they're not part of the target community.

By comparison, Dutta and his team will involve local African-American leaders in developing strategies to promote health information in the community. Collaborating with the Indiana Minority Health Coalition and its affiliates in Lake and Marion counties, the team will create a technology hub for all partners and patients to post information, collaborate, offer feedback and build technology-based community infrastructures. Using HUBzero, a Purdue-developed Web portal environment that enables online collaboration, solutions can originate from within the community and more likely resonate with the African-American community.

Joining Dutta in this endeavor will be William "Bart" Collins, clinical associate professor and director of healthcare communications at Purdue's Regenstrief Center; Titilayo A. Okoror, assistant professor of health and kinesiology; Gary L. Kreps, director of the Center for Health and Risk Communication at George Mason University; Stephen C. Hines, vice president for research at the Health Research and Educational Trust in Chicago; and Calvin E. Roberson Jr., vice president of planning and program development at the Indiana Minority Health Coalition. ■

*Writer: Amy Patterson Neubert is a health sciences/news writer for Purdue Marketing and Media.*



From left are Chelsey Dankenbring, graduate student; Wenhan Zhu, graduate student; Bob Stephenson, graduate student; Zhao-Qing Luo, associate professor; Yancheng Liu, graduate student; Yunhao Tan, graduate student; Li Xu, graduate student; and Ning Liu, graduate student.

### Zhao Qing Luo wins NIH-Independent Science Award

Zhao-Qing Luo, associate professor in the Department of Biological Sciences (Section of Development and Disease), has been awarded an NIH-Independent Scientist Award for 2010.

The National Institutes of Health provides career development awards every year to promising researchers who need additional experience in a productive scientific environment.

Luo's research interest is host-microbe interaction, an area which investigates how a pathogen colonizes a host and causes disease, and how the host fights back to contain the infection. His lab studies *Legionella pneumophila*, the causative agent of Legionnaires' disease.

Immune cells like macrophages normally digest any particle they engulf, but early work from the Luo lab has revealed that the bacteria use virulence proteins to modify the physiology of these cells so that they fail to recognize the pathogens. The NIH award will allow Luo and his students to expand their study of the mechanisms of action of these virulence proteins. Ultimately, Luo expects to find not only the weaknesses of the pathogen but also novel immune recognition mechanisms for new prevention and treatment strategies. ■



Mohan Dutta hopes to reduce heart disease among African-Americans in Indiana by involving community leaders in his campaign.

# »» Changes to Application Deadlines; Data Management Plans; &

→|| SPONSORED PROGRAM SERVICES

## NIH, AHRQ and NIOSH to Implement Change to their Application Deadlines Effective January 25, 2011

NIH, AHRQ and NIOSH currently require a Grants.gov submission prior to the published deadline. After the Grants.gov submission is complete, the application is transferred from Grants.gov to the agency's respective system. If the agency system detects an error in the application, the applicant is provided two days to correct those errors. Effective January 25, 2011, these agencies will no longer allow any corrections after the published deadline.

In order that Sponsored Program Services may continue to confirm that the application was accepted error-free in the agencies' systems, there is a need to establish an internal proposal deadline policy.

Effective January 1, 2011, SPS will require principal investigators (PIs) to deliver all final documents for NIH, AHRQ and NIOSH proposals to SPS at least 24 hours prior to the sponsor's official published submission deadline.

The early deadline will allow SPS to process and submit applications in advance so that any eRA-identified errors and warnings can be corrected before the published deadline. That will help ensure proposals arrive on time and are clean — considered error-free according to both Grants.gov and agency validation rules.

Draft documents will be required at an earlier time (as identified by the pre-award specialist or the policies established by the dean of your college) to allow for completion of the routing and approval process.

*SPS cannot guarantee that proposals received after the internal deadline will be accepted by the funding agency. ■*

→|| SPONSORED PROGRAM SERVICES

## Scientists Seeking NSF Funding Must Submit Data Management Plans

Beginning January 18, 2011, the National Science Foundation (NSF) will require a Data Management Plan (DMP) be included with all proposals and uploaded onto the Fastlane Web site.

A two-page supplementary Data Management Plan describing how the proposal will meet the NSF DMP requirement will be submitted under Special Information and Supplementary Documentation and is not considered part of the 15-page Project Description limitation; however, the plan will be reviewed as an integral part of the proposal falling under Intellectual Merit or Broader Impacts or both. Information on data management requirements specific to the Directorate, Office, Program, or other NSF unit can be found on the NSF Web site.

Visit the NSF Web site at [www.nsf.gov/bfa/dias/policy/dmp.jsp](http://www.nsf.gov/bfa/dias/policy/dmp.jsp) for details on the NSF data management requirement. ■

The screenshot shows the NSF website with the following callout boxes:

- Data Sharing Policy**: Points to the "NSF Data Sharing Policy" section.
- Data Management Plan Requirements**: Points to the "NSF Data Management Plan Requirements" section.
- Requirements by Directorate, Office, Division, Program, or other NSF Unit**: Points to the "Requirements by Directorate, Office, Division, Program, or other NSF Unit" section.
- FAQ Data Management and Sharing**: Points to the "Data Management & Sharing Frequently Asked Questions (FAQs)" section.

Writer: Amanda Hamaker is assistant director of pre-award services in Sponsored Program Services.





→|| RESEARCH INTEGRITY AND REGULATORY AFFAIRS

### New Cover Sheet for Material Transfer Agreements

Investigators sharing materials with external organizations often require material transfer agreements (MTAs). Standard MTAs address, at a minimum, issues related to intellectual property rights and use of the material. The contracting division of Sponsored Program Services (SPS) reviews MTAs for ingoing and outgoing materials. In addition, MTAs for research materials of human, animal or rDNA/biohazardous origin undergo standard regulatory review by the Office of Research Integrity and Regulatory Affairs (ORIRA) to affirm that appropriate regulatory committee approvals (Institutional Biosafety Committee, Institutional Review Boards, and Purdue Animal Care and Use Committee) are in place and current. MTAs also are reviewed by the Purdue Research Foundation's Office of Technology Commercialization (OTC). OTC reviews the outgoing research materials to ensure no licenses prevent the transfer and review the terms of incoming MTAs to ensure that the intellectual property provisions are understood and don't negatively impact the Purdue investigator's research.

A new enhancement aimed to facilitate collection of regulatory and other information has been initiated. All investigators in need of MTAs will fill out a brief information form, which includes short questions related to the material and a section for the investigator to provide additional information helpful for the contracting process. The intent is to provide SPS contracting, OTC and the ORIRA regulatory staff with an understanding of the origin and use of the material and any existing license arrangements. The proposed changes are intended to shorten turnaround time for review of MTAs.

The new form will be supplied to faculty upon initiation of an MTA by SPS contracting staff and also available online at [www.purdue.edu/sps/contractmgmt/General\\_Info/agrtemplates.html](http://www.purdue.edu/sps/contractmgmt/General_Info/agrtemplates.html). Investigators are invited to offer feedback about the form or process to [millsaps@purdue.edu](mailto:millsaps@purdue.edu) or [ibg@purdue.edu](mailto:ibg@purdue.edu). ■

*Writers: Ianthe Bryant Gawthrop is director for research regulatory compliance in the Office of the Vice President for Research. Mary Millsaps is assistant director for industrials/foundations in Sponsored Program Services.*



### Russian Universities to Tap American Expertise in Technological Transfer

On September 30, 2010, a new era began in U.S.-Russia relations with the launch of EURECA (Enhancing University Research and Entrepreneurial Capacity) program. The project, which is backed by a consortium of foundations both from the United States and Russia, will bring together several of Russia's national research universities to work with teams from four American research universities, including Purdue.

Two Russian universities, Lobachevsky State University of Nizhny Novgorod (NNSU) and St. Petersburg Institute of Information Technology, Mechanics and Optics (ITMO), have been designated through a competitive bidding process as EURECA hubs. Over the next two years, teams from American universities will train their counterparts on the two campuses in techniques such as evaluating the commercial potential of inventions and expertise of their business schools and local business and leveraging finance executives.

According to Russian President Dmitry Medvedev, "Russia should not focus its economy on natural resources, no matter how tremendous they are, but rather should develop innovative technologies to diversify and modernize her economy." A focal point of Russia's effort is to restructure its universities to become centers of innovation and commercialization through this program.

Financing for the project — up to \$2.5 million a year for the initial two years — will come from the U.S.-Russian Foundation for Economic Advancement and the Rule of Law (USRF), which will administer the EURECA Program in order to manage applied research and eventual commercialization of the intellectual property created or developed within the Russian universities. To that end, the Russian government has committed approximately \$1 billion over the next five years.

The universities will explore common interests and identify critical areas of mutually beneficial collaboration on a variety of projects. Other American universities include the University of California, Los Angeles (UCLA), University of Maryland, and the University of Washington. ■



→|| RESEARCH DEVELOPMENT

## NIH Funding Agency Workshops

The Office of the Vice President for Research has expanded its offering of luncheon grantsmanship events with a series of five workshops on writing competitive NIH applications. These workshops, led by Perry Kirkham, project coordinator for research development, scheduled from 11:30 a.m. to 1:00 p.m. will include lunch. Register at [www.purdue.edu/Research/vpr](http://www.purdue.edu/Research/vpr). For more information, contact Perry Kirkham at 496-3645 or [pkirkham@purdue.edu](mailto:pkirkham@purdue.edu). ■

- » **What** **An Introduction to the NIH as a Funding Agency**
- » **When** November 18
- » **Where** Stewart Center 313
- » **Abstract** The first workshop will include a discussion of the overall NIH mission and how it differs from other federal agencies.

- » **What** **NIH Institutes and Centers: Missions and Funding Strategies**
- » **When** December 2
- » **Where** Stewart Center 313
- » **Abstract** The workshop will focus on the individual missions of the 27 NIH institutes and centers, as well as the offices of the director and Roadmap initiatives.

- » **What** **NIH Application Content, Templates and Submission Strategies**
- » **When** January 20, 2011
- » **Where** Stewart Center 318
- » **Abstract** The third workshop covers questions such as: How do you respond to the new application page limits? Are there particular advantages to different mechanisms such as R01 versus R21? What mechanisms should be considered at each stage of a researcher's career?

- » **What** **The NIH Review Process**
- » **When** February 24, 2011
- » **Where** Stewart Center 320
- » **Abstract** This workshop focuses on understanding the NIH review process, and how to use this knowledge to optimize your chances for success.

- » **What** **Analyzing and Utilizing NIH Award Data**
- » **When** April 19, 2011
- » **Where** Stewart Center 313
- » **Abstract** The final workshop covers strategies for analyzing and utilizing NIH award data and advisory council information to place your own career in a more competitive position for future funding. ■

### SPONSOR

- » National Science Foundation
- » Dept. of Health and Human Services
- » Dept. of Defense
- » Dept. of Energy
- » Dept. of Agriculture
- » National Aeronautics and Space Administration
- » Other Federal
- » Dept. of Education
- » Environmental Protection Agency
- » Dept. of Transportation
- » Agency for International Development

### Total Federal

- » Industrials and Foundations
- » State/Local Governments
- » Purdue Research Foundation/Purdue University
- » Foreign Governments

### Total Non-Federal

### Total Purdue System-wide

[www.purdue.edu](http://www.purdue.edu)



# Program Year-to-Date Activity

## Comprehensive monthly awards list includes search and sort capabilities

A search and sort Excel file of sponsored program awards received is available online at [www.purdue.edu/research/vpr](http://www.purdue.edu/research/vpr). Included in the awards are non-competitive awards, such as Purdue Research Foundation research grants, Purdue assistantships, gift and voluntary support activities, fellowships, ARP/USDA awards, and industrial awards.

## Awards by Sponsor

July 1, 2010 to September 30, 2010

	FY2011 (YTD 9/30/2010)		FY2010 (YTD 9/30/2009)		% Change	
	NO.	\$ AMOUNT	NO.	\$ AMOUNT	NO.	\$ AMOUNT
	142	52,082,080	205	58,526,100	-31%	-11%
	102	28,071,924	93	18,756,931	10%	50%
	84	9,400,699	59	6,928,362	42%	36%
	44	9,755,155	43	22,346,210	2%	-56%
	41	12,432,087	58	6,105,922	-29%	104%
	24	2,574,154	22	1,713,810	9%	50%
	50	5,309,548	34	2,907,220	47%	83%
	13	7,052,029	10	2,419,864	30%	191%
	9	363,067	4	479,543	125%	-24%
	7	217,689	12	3,801,908	-42%	-94%
	7	1,515,320	5	753,160	40%	101%
	523	\$128,773,752	545	\$124,739,029	-4%	3%
	418	16,648,853	356	17,796,101	17%	-6%
	52	5,066,573	48	7,009,595	8%	-28%
	363	6,224,637	216	3,002,240	68%	107%
	5	6,107,342	6	342,424	-17%	1684%
	838	\$34,047,405	626	\$28,150,361	34%	21%
e	1,361	\$162,821,157	1,171	\$152,889,391	16%	6%

Data provided by Sponsored Program Services

[www.purdue.edu/research/vpr](http://www.purdue.edu/research/vpr)

## »» McCoy Distinguished Lecture

## »» Science Journalism Laureates



### McCoy Distinguished Lecture

DAVID E SALT, PhD

DEPARTMENT OF HORTICULTURE AND LANDSCAPE ARCHITECTURE

### IONOMICS:

A NEW APPROACH IN BRIDGING THE GAPS  
BETWEEN GENOMES, ORGANISMS, AND  
THEIR GEOGRAPHICAL DISTRIBUTION

### David E. Salt, 2010 McCoy Award winner will lecture on Ionomics.



- » **When** 3:30 p.m., November 2
- » **Where** Fowler Hall

### Reception

- » **When** 4:30 p.m., November 2,
- » **Where** Stewart Center Art Gallery  
adjacent to Fowler Hall

The McCoy Distinguished Lecture was established to honor the Herbert Newby McCoy Award winner and to present to the Purdue community the nature of his or her research and its contribution to the field of science. □

### Public Town Hall Meeting — Science Journalism Laureates Program Communicating Complex Ideas

- » **When** 9:30 a.m., November 4
- » **Where** Lawson Computer Science Building Foyer
- » **Contact** Gabriella Weaver, 494-3055,  
[gweaver@purdue.edu](mailto:gweaver@purdue.edu)

November 4,  
leading science  
writers will  
visit Purdue  
University once  
again for the



three-day Science Journalism Laureates program. This is the fourth year for the program, which will include a public town hall on “Communicating Complex Ideas.”

“We address and try to solve complex problems daily, and the art of explaining our work to the public is a critical step toward success,” says Professor Gabriella Weaver, co-organizer of the Science Journalism Laureates along with Professor Howard Sypher, head of the Department of Communication.

At the event, Purdue will honor three new science laureates joined by seven honored earlier.

- » Steve Levy, senior writer for *Wired Magazine* and recipient of several media awards, including the “Computer Press Association Award”
- » Shankar Vedantam, an author, correspondent and columnist for the *Washington Post* who also wrote for the *Philadelphia Inquirer*, Knight-Ridder’s *Washington bureau* and *Newsday*
- » Keith Devlin, executive director of Stanford University’s Human-Sciences and Technologies Advanced Research Institute and the Math Guy on National Public Radio’s “Weekend Edition Saturday”

Moirra Gunn, a Purdue alumnus and host of “Tech Nation” and “BioTech Nation,” which are heard on National Public Radio, will moderate the discussion, during which questions will be taken from the audience. The forum will be taped for later broadcast on “Tech Nation.” A public reception will follow.

The event’s sponsors are the colleges of Liberal Arts, Science, Health and Human Sciences, Consumer and Family Sciences, Engineering, Agriculture, Technology, and Education, as well as the School of Veterinary of Medicine, Continuing Education and Conferences, Discovery Learning Center, Purdue Libraries, the Department of Communication, Discovery Park, the Office of Engagement and the Office of the Provost. ■



# » Visiting Nobel Laureate Delivers Discovery Lecture Series

## Drug Development in the 21st Century: Are We Going to Cure All Diseases?

- » **When** 10:30 a.m., November 10, 2010
- » **Where** Stewart Center, Fowler Hall
- » **Speaker** Aaron Ciechanover, Nobel laureate and distinguished research professor, Technion-Israel Institute of Technology, Haifa, Israel

» **Abstract** Many important drugs such as penicillin, aspirin or digitalis, were discovered by serendipity — some by curious researchers who noted an accidental phenomenon, some by isolation of active ingredients from plants known for centuries to have a specific therapeutic effect. Other major drugs like statins were discovered using more advanced technologies such as targeted screening, and yet the discoverers were looking for a different effect. In all these cases, the mechanisms of drug action were largely unknown at the time of their discovery, and were discovered only later.

With the realization that not all patients with similar-looking diseases respond the same to treatment, we have begun to understand that their molecular basis is distinct. Accordingly, we are exiting an era of one-size-fits-all treatment to a new one of personalized medicine tailored to the patient's molecular/mutational profile. In this new era, where understanding of the mechanism will drive the development of the new drugs, researchers will develop cheap and fast technologies for sequencing and processing of individual genomes, identify and characterize new disease-specific molecular markers and drug targets, and design novel, mechanism-based drugs to modulate the targets' activities. Such a change will require science to move from its traditional, discipline-oriented approach to one in which interdisciplinarity will domineer.

## Why Our Proteins Have to Die So We Shall Live

- » **When** 9 a.m., November 11, 2010
- » **Where** Burton D. Morgan Center for Entrepreneurship, Room 121
- » **Speaker** Aaron Ciechanover, Nobel laureate and distinguished research professor, Technion-Israel Institute of Technology, Haifa, Israel

» **Abstract** Between the 1950s and 1980s, most studies in biomedicine focused on a central dogma — the translation of information coded by DNA to RNA and proteins. Protein degradation was a neglected area, considered to be a non-specific, dead-end process. While it was known that proteins do turn over, the high specificity of the process — in which distinct proteins are degraded only at certain time points, or when they are not needed any more, or following denaturation/misfolding when their normal and active counterparts are spared — was not appreciated.

The discovery of the complex cascade of the ubiquitin solved the enigma. It is clear now that degradation of cellular proteins is a highly complex, temporally controlled and tightly regulated process that plays major roles in a variety of basic cellular processes such as cell cycle and differentiation, communication of the cell with the extracellular environment and maintenance of the cellular quality control. With the multitude of substrates targeted and the myriad processes involved, it is not surprising that aberrations in the pathway have been implicated in the pathogenesis of many diseases, certain malignancies and neurodegeneration among them, and that the system has become a major platform for drug targeting. ■

Dr. Ciechanover's talks are being sponsored in part by the Honeywell-Nobel Laureate Lecture Series, the centerpiece of the Honeywell Nobel Initiative, which is designed to connect students around the world with Nobel Laureates in chemistry and physics. To view lectures, discussions, and student-led interviews from these events, visit [www.honeywellspace.com](http://www.honeywellspace.com).



## Cyberinfrastructure at Purdue 2010

» **When** 8:30 a.m.–4:30 p.m.,  
December 8 and 9

» **Where** Fowler Hall

Poster Display and Reception,  
5:30–7:00 p.m., December 8,  
Purdue Memorial Union,  
South Ballroom

Featured speakers include University of Illinois Professor Donna Cox, a scientific visualization expert at the National Center for Supercomputing Applications, and Arden Bement Jr., former director of the National Science Foundation and head of Purdue's Global Policy Research Institute.

Presentations from CI experts and faculty already using CI will discuss ways to:

- » Increase attractiveness of grant proposals
- » Build online communities for collaboration, teaching and research with access to real computational research tools from a Web browser
- » Mine research data ranging from genomes to Wikipedia
- » Harness students' social media habits as a teaching tool.

For more information and to register, visit [www.itap.purdue.edu/cidays](http://www.itap.purdue.edu/cidays) or e-mail [cidays@purdue.edu](mailto:cidays@purdue.edu). The registration deadline is November 29. ■

## Beyond "Climategate" to Explore Relationships among Scientists, Media and the Public

A growing number of scientists believe in global warming and humans' involvement in it, while an increasing number of Americans do not. To examine the emerging disparity, a panel of climate scientists, policy researchers and journalists will convene at Purdue University on November 3 for a public forum, "Beyond 'Climategate:' What Role for Science and the Media in the Making of Climate Policy?"

Featuring Judith Curry, chair of the School of Earth and Atmospheric Sciences at Georgia Institute of Technology; Roger Pielke Jr., professor of environmental studies and a fellow of the Cooperative Institute for Research in the Environmental Sciences; and Andrew Revkin, senior fellow at Pace University's Pace Academy for Applied Environmental Studies and a blogger for the *New York Times*, the event will explore the relationships between climate scientists, politics and the media as well as the challenges of writing about climate change.

» **When** 7:30 p.m., November 3

» **Where** Shively Club, Ross-Ade Stadium

» **Contact** Rose Filley, 496-3211 or [rfilley@purdue.edu](mailto:rfilley@purdue.edu)

### Prompted by a Controversy

The panel, sponsored by the Purdue Climate Change Research Center and the Global Policy Research Institute, was prompted in part by a 2009 incident dubbed by the media as "Climategate."

The controversy began when thousands of e-mails and other documents were released illegally from the University of East Anglia's Climatic Research Unit. Climate-change critics claimed the documents implicated some climate-change proponents in a conspiracy to delete raw data, manipulate data and withhold scientific information to strengthen the case for global warming.

While many mainstream journalists dismissed the incident as a manufactured scandal, and while investigations later cleared the researchers of wrongdoing, the incident shed light on a continuing debate within and among scientists, the public and the media.

### Growing Disparity

A 2010 paper authored by William R. L. Anderegg of Stanford University and others indicates that 97 to 98 percent of climate scientists now agree with the tenets of anthropogenic climate change. Conversely, an increasing number of Americans across all demographics are expressing doubt about human-induced global warming, with some believing that it's simply an elaborate hoax.

To address the disparity, the panelists will discuss:

- » Have scientists become too political in their advocacy of particular climate change mitigation and adaptation policies? Do the benefits of engaging in political advocacy outweigh the risks of losing their credibility as scientists?
- » What role has the media, including the blogosphere and the Internet, played in this growing contradiction? How has the media shaped the way that climate science is debated, disputed and created? Is there a better way for climate scientists to work with the media?
- » Moving forward, is there an idealized role for climate scientists in political and policy debates, and if so, what would it look like?

The event is free and open to the public. ■



## »» Spring Events



### The Future of Nanotechnology Research Fair

- » **When** 10 a.m. - noon, March 25, 2011
- » **Where** Birck Nanotechnology Center Atrium

### Nanotechnology New Ventures Competition

- » **When** 1-4 p.m., March 25, 2011
- » **Where** Burton D. Morgan Center for Entrepreneurship, Room 121
- » **Contact** Candiss B. Vibbert, Purdue University Discovery Park at [vibbert@purdue.edu](mailto:vibbert@purdue.edu) or 494-9404 or Karen C. Slaggert, University of Notre Dame, at [kslaggert@nd.edu](mailto:kslaggert@nd.edu) or 574-631-2714.
- » **Re** A joint initiative sponsored by Purdue University and the University of Notre Dame in conjunction with the State of Indiana's Midwest Institute of Nanoelectronics Discovery (MIND)

Purdue University and the University of Notre Dame are proud partners with the Indiana Economic Development Corporation in an initiative to promote nanotechnology discoveries and new ventures in Indiana. One component of this initiative is a Nanotechnology New Ventures Competition (NNVC), which aims to foster translational research and accelerate the commercialization of intellectual property in nanotechnology within Indiana. In doing so, the competition exemplifies the spirit of discovery-to-delivery by generating entrepreneurship opportunities and driving economic development of nanotechnology research. Participants will compete for cash prizes totaling \$57,000.

The Future of Nanotechnology Research Fair will be held as a complementary component of the NNVC. During the fair, contestants can pitch their research to NNVC judges, potential investors and distinguished guests.

These events, which will be held at Purdue's Discovery Park, will conclude with a reception and awards dinner.

### NanoDays

- » **When** April 15 and 16, 2011
- » **Where** Birck Nanotechnology Center
- » **Contact** Readers may contact the Birck Technology Center at 494-3509 or visit the NanoDays Web site at [www.purdue.edu/discoverypark/nanotechnology/nanodays/](http://www.purdue.edu/discoverypark/nanotechnology/nanodays/)

→|| PURDUE UNIVERSITY, OFFICE OF THE VICE PRESIDENT FOR RESEARCH

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- » General Information & Questions; 494-9806
- » Vice President for Research; 494-6209; Richard O. Buckius, [rbuckius@purdue.edu](mailto:rbuckius@purdue.edu)
- » Discovery Park; 496-6625; Alan Rebar, [rebar@purdue.edu](mailto:rebar@purdue.edu)
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### **Award Information**

- » Sponsored Program Services; 494-1055; [www.purdue.edu/sps](http://www.purdue.edu/sps)
- » Proposal Information, Transmittal to Agency; 494-6204; [proposal@purdue.edu](mailto:proposal@purdue.edu)

### **Technology Commercialization**

- » Patent & Copyright Information; 588-3475; Elizabeth Hart-Wells, [otcip@prf.org](mailto:otcip@prf.org)

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