

# DIMENSIONS *of* DISCOVERY



## »» A Decade of Discovery

### Welcome

**"Exploration is really the essence of the human spirit." — Frank Borman, Apollo 8 commander and engineer**

From the Aerospace Science Laboratory to Whistler Hall of Agricultural Research, Purdue researchers around the West Lafayette campus explore, probe and investigate, making discoveries that enhance the world around us. In this issue of *Dimensions*, we celebrate both their accomplishments and the infrastructure that help make their discoveries possible: the 10th anniversary of Purdue's interdisciplinary Discovery Park; the debut of a globally ranked computer cluster; and new books, grants and initiatives. ■

Ten years. Half a billion dollars in funding. Since its launch a decade ago, Discovery Park — now consisting of eight interdisciplinary core centers housed primarily in five facilities on the west edge of campus — has generated more than \$650 million in sponsored research and more than \$100 million in gifts from donors, foundations and other supporters. Today, the complex leads large-scale interdisciplinary efforts at Purdue.

"Discovery Park's collaborative environment has helped to create more integrated research at Purdue by providing spaces and programs where researchers from different disciplines around campus can come together," says Alan Rebar, executive director of Discovery Park and senior associate vice president for research at Purdue. He adds, "Discovery Park has changed how Purdue collaborates regionally, nationally and globally with industry, agencies, foundations and other universities in our endeavors to help make the world a better place."

For a timeline of Discovery Park's first decade of accomplishments, see pages 8-9. To read about a commemorative event featuring best-selling author Frans Johansson, see the event listings on page 15. ■

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## Five Researchers Become Fellows of AAAS

Five more Purdue faculty members have been named as fellows of the American Association for the Advancement of Science (AAAS). They are:



**Steven Adelman**, theoretical physical chemist and chemistry educator, who has developed the theoretical foundation for studying chemical reaction dynamics on solid surfaces and in liquid solutions,



**Muhammad Ashraf Alam**, professor of electrical and computer engineering, who has made distinguished contributions to the reliability of electronic devices, “carrier transport” in technology-relevant complex materials, and for lucid and broad communication of these ideas,



**Srinivasan Chandrasekar**, professor of industrial engineering and materials engineering, who has made outstanding contributions to the technology of manufacturing through the integration of fundamental material properties into mathematical descriptions of machining processes and machined products,



**Suresh Garimella**, associate vice president of engagement and the R. Eugene and Susie E. Goodson Distinguished Professor of Mechanical Engineering, who has made distinguished and pioneering contributions to the field of thermal transport and energy efficiency with significant sustained impact on industry, and



**Michael Ladisch**, distinguished professor of agricultural and biological engineering, biomedical engineering and director of Purdue’s Laboratory of Renewal Resources Engineering, who has contributed to the science of bioprocessing of renewal resources in biofuels and of bioseparations for rapid detection of food pathogens.

AAAS is an international non-profit organization dedicated to advancing science around the world by serving as an educator, leader, spokesperson and professional association. In addition to organizing membership activities, AAAS publishes the journal *Science*, as well as many scientific newsletters, books and reports, and spearheads programs that raise the bar of understanding for science worldwide.

Election as a Fellow of AAAS is an honor bestowed upon members by their peers. Fellows are recognized for meritorious efforts to advance science or its applications. ■



Purdue University photo: Andrew Hancock

## Outstanding New Environmental Scientist Award

**Ulrike Dydak**, a Purdue assistant professor of health sciences who specializes in medical imaging of neurodegenerative diseases, received more than \$2 million through an Outstanding New Environmental Scientist Award (ONES) from the National Institute of Environmental Health Sciences. The five-year grant will help fund noninvasive neuroimaging techniques using magnetic resonance imaging to study manganese toxicity and lead to a better understanding of the neural system and the mechanism of this condition, which has similarities to Parkinson's disease. ■



## » Grants and Grant Opportunities

### NEXTRANS Selected for Continued Funding

The NEXTRANS Center has been selected to receive \$3.5 million in new grant funding from the U. S. Department of Transportation (USDOT) for continued research, education and technology transfer. The center is among 22 university transportation centers (UTCs) being awarded a total of \$77 million this year to address critical transportation challenges.

DOT's Research and Innovative Technology Administration (RITA), which administers the UTC program, used a competitive selection process to select the centers, each of which must match its \$3.5 million grant with funds from non-federal sources. The 22 UTCs selected are all consortia, involving a total of 121 different universities.

"We are excited about the proposals these consortia put forward. They have the potential to advance basic and applied transportation research today and ensure a robust pipeline of professionals for the transportation workforce of tomorrow," says RITA Acting Administrator Greg Winfree. "It is absolutely crucial that we continue to invest in research, which has the added benefit of attracting and developing the high level of professionals needed for innovation and expertise in transportation."

UTCs, which are located throughout the United States, conduct research that directly supports the priorities of the U.S. Department of Transportation. "Transportation matters in everyone's daily life. These research centers will help us solve the transportation challenges we face today and those that we know lay ahead of us," says U.S. Transportation Secretary Ray LaHood.

The NEXTRANS Center, which is administered by Discovery Park, was established in 2007 based on a competitive award from RITA to conduct a multidisciplinary program of transportation research, education and technology transfer. A regional university transportation center representing federal region 5, NEXTRANS is a multi-university consortium of universities from Indiana, Illinois, Ohio, Michigan and Wisconsin. ■



### Skolkovo Foundation

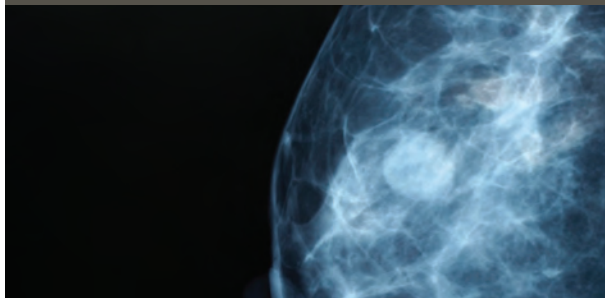
The Skolkovo Foundation, a non-profit organization that works with innovators, scientists and international corporations to spur a culture of innovation and technology entrepreneurship in Russia, has grant opportunities available.

Founded in 2010 and charged by Russian President Dmitry Medvedev with creating a new science and technology development center in the Moscow suburb of Skolkovo, the foundation has an innovation ecosystem comprised of the Skolkovo Institute of Science and Technology, corporate R&D centers, business incubators and accelerators, private seed and venture funds, and start-up companies, as well as residential space and social infrastructure.

Within the Skolkovo project are five clusters for innovative projects: information, biomedical, energy efficiency, nuclear and space technologies. More details are available at [www.sk.ru/en/GetInvolved/Innovator.aspx](http://www.sk.ru/en/GetInvolved/Innovator.aspx).

If you are interested in pursuing an opportunity with the foundation, before beginning your proposal development, please contact Michael Reckowsky ([mreckowsky@purdue.edu](mailto:mreckowsky@purdue.edu) or 494-1852), Cookie Bryant-Gawthrop ([ibg@purdue.edu](mailto:ibg@purdue.edu) or 494-7458), or Peter Dunn ([pedunn@purdue.edu](mailto:pedunn@purdue.edu) or 494-3996). Any of these individuals can assist you in understanding potential export control issues related to sharing technical data, technology or software with the Skolkovo Foundation. ■





## Global Women's Health Research Center Debuts

Discovery Park has created a Global Women's Health Research Center (GWHRC) aimed at improving women's health through research and training.

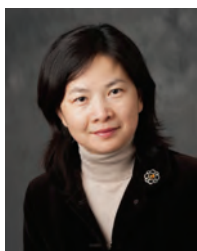
Directed by Connie Weaver, distinguished professor and head, Nutrition Science Department, the center aims to protect and improve women's health and well-being through prevention. Focusing on four core research areas — wellness, bone health, women's cancers and neurodegenerative diseases — researchers will develop diagnostic and treatment technologies.

As Weaver notes, "Purdue University has an infrastructure in place for studying disease prevention and development of biomedical technologies, as well as an established network for community engagement and global health research through the National Institutes of Health-funded Clinical and Translational Science Institute." Discovery Park — where the GWHRC will be headquartered — also houses the Bindley Bioscience Center and the Birck Nanotechnology Center, where researchers have access to advanced analytical technologies.

"At Purdue, we also have significant strengths in areas such as the development of diagnostic tools for breast cancer initiation and rapid screening methods for effective anti-bone loss interventions," adds Weaver, who also is a member of the Institute of Medicine of the National Academy of Sciences. "These ongoing research programs can be leveraged to build a comprehensive program that will positively affect women's health and well-being."

The GWHRC will be a home for projects such as the Interdepartmental Breast Cancer and Nutrition project and Cancer Prevention at Purdue. Close partners are the Indiana Clinical and Translational Science Institute and the Purdue University Center for Cancer Research. ■

## Discovery Park Hires Managing Director for Oncological Sciences and Global Women's Health Research Centers



**Li Yuan Mi** is the new managing director for the Oncological Sciences Center (OSC). She will split her time between the OSC and the Global Women's Health Research Center, a new Discovery Park center that will be headed by Connie Weaver, distinguished professor and head, Nutrition Science Department.

Mi comes to Purdue from Harvard-MIT, a joint health sciences and technology venture in Cambridge, Mass., where she served as a postdoctoral fellow funded by Johnson & Johnson. She has a Ph.D. in biomedical engineering from the City University of New York. Mi's office is in Burton D. Morgan Center for Entrepreneurship. ■

## OVPR Creates Research Quality Assurance Unit

The Office of the Vice President for Research has established the Research Quality Assurance Unit (RQAU) within the Research Integrity and Regulatory Affairs area. Designed to review and monitor Purdue's research administration and research regulatory compliance practices and provide leadership when conducting comprehensive reviews of the university's compliance activities, the RQAU will coordinate education and training of principal investigators, project staff, and departmental and business office staff regarding compliance with federal and state regulation and Purdue policies relating to research.

"The RQAU will not assume the duties of the operational regulatory or business areas, and all ongoing compliance and sponsored program support activities will continue in their existing reporting structures," says **Mike Szczepanski**, who leads the office. "Rather, the new unit's role will be to monitor these efforts and assess University-wide performance."

Szczepanski previously worked as the quality assurance monitor for Financial Management and held other positions in Sponsored Program Services (SPS) and Business Services Computing. His office is Young Hall 749. Contact him at 496-6653 or [mikes@purdue.edu](mailto:mikes@purdue.edu).

Working with him are **Tom Wright** and **Randy Bryant**. Wright brings knowledge from his previous position in SPS as the senior operations manager for Financial Compliance & Audit. Wright's office is Young Hall 744. Contact him at 494-1047 or [tbwright@purdue.edu](mailto:tbwright@purdue.edu).

Bryant comes to the OVPR from SPS, where he was the training coordinator. Previously he worked on the OnePurdue implementation. Bryant's office is Young Hall 747. Contact him at 494-8715 or [rbryant@purdue.edu](mailto:rbryant@purdue.edu).

The RQAU was formed in late 2011 and will be comprised of five to six staff with knowledge in financial, sponsored program management and research regulatory areas. "Over the past several years, the number, size and complexity of sponsored projects awarded to Purdue researchers (faculty) have increased many fold," says Szczepanski. "This presents increasing challenges to Purdue faculty, OVPR regula-

tory staff and Sponsored Programs Services staff in their responsibilities to assure compliance with applicable federal, state, and University policies and regulations."

For more information or to request assistance, contact Szczepanski at [mikes@purdue.edu](mailto:mikes@purdue.edu). ■

## Purdue Debuts One of Nation's Fastest Supercomputers

When it comes to predicting hazardous weather like tornadoes and blizzards, the more detailed the model, the better. No wonder then that Michael Baldwin, an assistant professor in Earth and Atmospheric Sciences, likes what he sees from Purdue's new Carter community cluster supercomputer.

"We need as much computing capability as we can get to make our forecasts as detailed as possible," Baldwin says of the supercomputer, which will be widely available to faculty members this spring. "Carter is running twice as fast as the supercomputer we were using and is using only half of the nodes. That will allow us to scale our models for better forecasts."

### Top ranked

Information Technology at Purdue (ITaP) partnered with Intel, HP and Mellanox to build Carter, which is ranked 54th on the current TOP500 list of the world's most powerful supercomputers. It's also among the half dozen most powerful machines at U.S. academic institutions and is the most powerful on a U.S. campus where the research computing facilities are not part of a federally funded laboratory.

"The Carter cluster is offering Purdue faculty access to the latest computing technology well before most of their colleagues at other institutions," says John Campbell, ITaP's associate vice president for research computing. "Carter also will provide the same reliable service as the other community clusters — and more computing power for each dollar invested by faculty partners."

ITaP, with help from faculty researchers such as Baldwin, is completing the final testing and benchmarking of the system in preparation for full production. Experience so far shows Carter can increase application performance up to 70 percent compared to current generation processors. The cluster should allow for larger, quicker and more detailed simulations on topics ranging from climate change to stem cells in cancer research.

### Eco-friendly

The new Carter cluster is part of Purdue's award-winning Community Cluster Program, a cooperative in which faculty members pool research funds to purchase computing resources in partnership with ITaP and its Rosen Center for Advanced Computing.

The cluster features the not-yet-released Xeon E-5 Sandy Bridge Intel processors and HP ProLiant servers, 648 HP compute nodes with two 8-core Intel processors (16 cores per node), 32 GB of memory and a 500 GB system disk. All nodes have 56 Gbps Infiniband connections and a 5-year warranty.

The technology is also environmentally friendly. Carter placed 38th on the latest Green500 list of the world's 500 most energy-efficient supercomputers, as rated by their performance per watt of power consumed.

Carter is energy efficient because the Intel microprocessors inside it provide more computing muscle with fewer processors than prior systems, making the new supercomputer less power hungry and easier to cool. The Sandy Bridge chips also include special power saving features.

Faculty members interested in capacity in the Carter cluster should contact [rcac-cluster-purchase@purdue.edu](mailto:rcac-cluster-purchase@purdue.edu). ■

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



Ed Lee serves as project leader for Purdue's Carter Supercomputer, the nation's fastest supercomputer dedicated to campus use. Carter was built through a partnership among Purdue, HP, Intel and Mellanox using upcoming technologies.

Purdue University photo/Andrew Hancock

## Alumnus Carter : elped ? ake a : ousehold @ame

In two words and five musical notes, Dennis Carter helped make Intel microprocessors, like those in the new Carter cluster supercomputer named for him, a familiar and trusted brand.

Carter, who received his master's degree in electrical engineering from Purdue in 1974, is credited with the famous "Intel Inside" marketing campaign, which developed awareness of the microprocessor as the key ingredient in a personal computer. It also put Intel's logo on the outside of a majority of the world's PCs and made its five-note jingle one of the most recognizable tunes on television.



Dennis Carter

As the PC era dawned in the 1980s, Carter, who also was an instructor of electrical engineering technology at Purdue, saw a need for Intel to begin talking to a broad audience beyond design engineers, its traditional focus. He developed an innovative cooperative advertising program to promote Intel's microprocessors as the "computer inside the computer." He also worked with Intel President Andy Grove to create the iconic Pentium microprocessor brand name. ■



### Center on Religion and Chinese Society

The Center on Religion and Chinese Society (CRCS) at Purdue University was created in 2003 and officially established in 2008 to advance the social scientific study of religion in Chinese societies and among the Chinese in diasporas. Initiatives include:

- » Chinese conference: Each summer, CRCS sponsors an International Conference for the Social Scientific Study of Religion in such venues as Beijing, Shanghai, Kunming, Wuxi and Fuzhou.
- » Summer institutes: Since 2004, the Summer Institute on the Social Scientific Study of Religion has promoted research on religion in China while also enhancing academic and cultural exchanges between China and other countries. More than 400 scholars have graduated so far.
- » CSSP: The Chinese Spirituality and Society Program (CSSP), supported by the John Templeton Foundation and held at Purdue University, includes research projects, workshops and summer institutes for teaching the sociology of religion in Chinese universities.
- » Visiting Scholars: The CRCS hosts fellows for 3 to 12 months at Purdue University, where they audit courses, engage with local faith communities, exchange ideas with scholars, perform research and write papers.
- » Chinese SSSR: This online discussion group is a forum for scholars and students discussing Chinese religions from social scientific perspectives. To join, send an email to [CRCS@purdue.edu](mailto:CRCS@purdue.edu). ■



Fenggang Yang

### Religious Trends in China Fueled by Government Restrictions

The upcoming change in China's central leadership means an emphasis on the country's economic, policy and political power, but a Purdue University sociologist says people should watch the country's religious trends just as closely.

"The power struggle leading up to next fall's mandatory change of the 18th Congress of the Communist Party will define China in the following decade," says Fenggang Yang, a professor of sociology and director of Purdue's Center on Religion and Chinese Society. "The forces competing to define China will ultimately influence religious practice one way or another.

Yang, the author of "Religion in China: Survival and Revival Under Communist Rule," says that a political and economic analysis can be applied to help understand religious change in China. "The Communists want to suppress religion and have imposed strict regulations, but the restrictions have surprisingly created three colored markets: black, red and gray," Yang says.

The red market is composed of the five religions — Buddhism, Catholicism, Taoism (also Daoism), Islam and Protestantism under patriotic associations — approved by the government.

"The government has banned certain religions, but these religions have simply gone underground — created a black market so to speak — and the gray market is composed of legally ambiguous groups and activities," Yang says. "When religious needs cannot be met in the open, red market, and the risks are too high in the illegal, black market, many people would seek what they need in the gray market. Ironically, the more restrictive and suppressive the country's religious regulations, the larger the gray market grows."

The gray market can emerge when one of China's five approved religions engages in an illegal activity, such as distributing pamphlets outside a church or temple, or when people hold spiritual beliefs that originate from non-religious sources.

Yang, who grew up in China and only remembers being exposed to a few ghost stories and Taoist funeral rites, was one of the first to study sociology of religion in the country.

"As I traveled in China and saw different religious phenomena, I thought about how you would explain religion's survival in the past and revival today when China is under Communist rule," he says.



His new book, which was published by Oxford University Press this fall, looks at religion under communism from the 1950s to 2010. ■

*Writer: Amy Patterson Neubert is a communications/marketing specialist for Purdue Marketing and Media.*

Yuanming Coo's "Couplets," 2008, was part of a 2010 Purdue Galleries exhibition on Christianity in China.

## Political Science Professor Explains Puzzling Patterns of Women's Rights Around the World

It's easy to believe that getting more women elected to office or having a strong feminist movement would similarly promote sex equality in every facet of law and policy, from maternity leave to sexual harassment. But it's not that simple, says S. Laurel Weldon, a professor of political science.

Director of the new Center for Research on Diversity and Inclusion, which launched in January, Weldon says history shows that different areas of women's rights follow distinct logics.

For instance, she says, "being a former communist country meant that many areas of family law were reformed at one particular time. But you won't find that same pattern in those countries in the area of violence against women, where communism actually retarded the development of women's movements in many of those countries and inhibited the development of policies on violence against women. Since feminist movements are the key catalyst behind government action on violence against women — meaning things like sexual assault, domestic violence and sexual harassment — you see very different outcomes in that area."

Such early findings are the result of a major international study Weldon has undertaken in a project that covers 70 countries from every region of the world over four decades. The research team has conducted on-the-ground research in areas such as Nigeria, Argentina, Israel, China and India, gathering documents and conducting interviews with activists, politicians, legal experts, scholars, and non-governmental organizations.

Ultimately, she hopes her ongoing research will inform policy makers, advocates and others around the world working for change in women's rights.

"In the area of maternity leave in the United States, it helps us understand the obstacles better," she says. "If activists want to put a program together on how to get better, more expansive maternity leave adopted, they could look at our data and analysis and say, 'I really see where the obstacles are, I see how to negotiate this or make the right alliance.'"

The research also tells a more hopeful story, she says: "If you're stymied in one area of women's rights, if you're feeling like you can't get policies or laws adopted that advance women's rights in one area, there might be some other area where you can make it work. It doesn't follow that if you can't, say, get an abortion law reformed or you can't get family law reformed or you can't get good government action on violence against women or you can't get maternity leave, that you can't act in other areas." ■



Laurel Weldon

## Center for Research on Diversity and Inclusion

The College of Liberal Arts has created a new interdisciplinary center aimed at promoting and supporting research related to diversity and inclusion.

The Center for Research on Diversity and Inclusion will facilitate research on fundamental questions about the meaning of di-

versity and inclusion, and on the challenges of creating communities that are not simply diverse but that are actually inclusive. Such research will encompass a wide range of issues including but not limited to race; gender; ethnicity; sexual orientation; socio-economic status; nationality; age; religion and ability; and the social, political and cultural support for and impediments to equal treatment and inclusion.

"In the university's 'New Synergies' strategic plan, Purdue highlights the importance of a learning environment rich in diversity, equality and inclusion," says Irwin Weiser, the Justin S. Morrill Dean of the College of Liberal Arts.

"The new center will enhance already existing research interests on campus and encourage new research projects, and it also will create a platform to support faculty working on these topics to help them attract external funding."

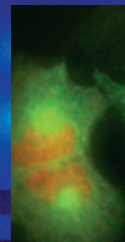
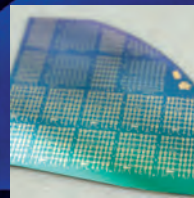
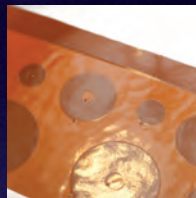
Laurel Weldon, director of the center, says that last year the college organized a diversity and inclusion lecture series.

"We are in the early planning stages, but as the center grows it will support faculty and student research as well as sponsor symposia, lectures, exhibits, conferences, readings and other events, she says. Depending on faculty interest, the center could build on existing expertise in global studies, immigration, women and science, diversity and leadership, African American studies, health and inequality, social policy and the many other interdisciplinary strengths that Purdue offers." ■





# The first ten years of research and discovery with delivery at Discovery Park



## Global Partnerships

**July** Lilly Endowment grants \$26 million to help establish Discovery Park

**September** The Network for Computational Nanotechnology (NCN) is established

**March** Discovery Park establishes Discovery Learning Center as a fifth core center

**May** Center for Advanced Manufacturing is added as a sixth core center

**January** Lilly Endowment grants \$25 million for further Discovery Park development

**July/August** Four core centers are added

- Center for the Environment
- Cyber Center
- Energy Center
- Oncological Sciences Center

**February** Park holds Discovery Series with Lilly B

**April** Ped mall is ded Discovery

**2001**

**2002**

**2003**

**2004**

**2005**

**2006**

**August** Four core centers are established

- Bindley Bioscience Center
- Birck Nanotechnology Center
- Burton D. Morgan Center for Entrepreneurship
- e-Enterprise Center

**November** Purdue launches Discovery Park

**October** Burton D. Morgan Center for Entrepreneurship is dedicated

**October** Bindley Bioscience Center and Birck Nanotechnology Center are dedicated

**November** a U.S. Depa Transportat V Regional Transportat is establish operations in 2007



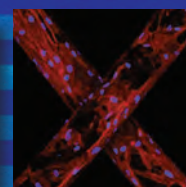
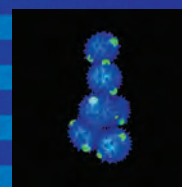
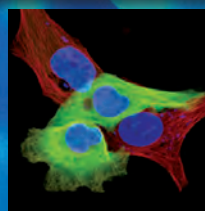
**Burton D. Morgan Center for Entrepreneurship**

## Innovations

## Start-ups



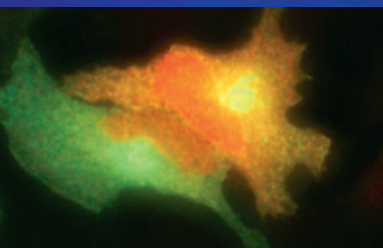
**Bindley Bioscience Center**



**Birck Nanotechnology Center**



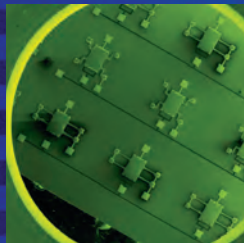




## Events

Discovery  
inaugural  
Lecture  
funding  
Endowment

estrian  
icated in  
Park



**May** Purdue dedicates the Gerald D. and Edna E. Mann Hall, the fourth building in Discovery Park

**March** Regenstrief Center for Healthcare Engineering becomes a core center of Discovery Park

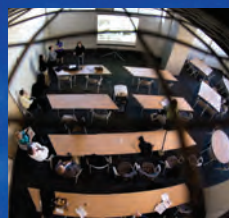
PRISM (Purdue University Center for Prediction of Reliability, Integrity and Survivability of Microsystems) is established as a large-scale research center of Discovery Park

**May** Indiana University and Purdue University establish the Indiana Clinical and Translational Sciences Institute with \$25 million from the National Institutes of Health

**May** C3Bio (Center for Direct Catalytic Conversion of Biomass to Bio-fuels) is created

**June** The Cyber Center, Rosen Center in ITaP and Computing Research Institute develop a Discovery Park research computing initiative: Advanced Computational Center for Engineering and Sciences (ACCESS)

**July** The Energy Center, the Center for the Environment and the Purdue Climate Change Research Center (est. 2004) form the Global Sustainability Initiative (GSI); the Purdue Water Community (est. 2009) is later added  
McGinley Plaza, a public gathering space, is dedicated



**Hall for Discovery and Learning Research**

**April** Hall for Discovery and Learning Research is dedicated

Discovery Park announces construction of a Multidisciplinary Cancer Research Facility with funding from the National Institutes of Health

**May** Purdue Institute for Global Food Security is created as part of Global Sustainability Initiative

06

2007

2008

2009

2010

2011

NEXTRANS,  
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University  
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beginning



**August** The Center for Advanced Manufacturing transitions to the College of Engineering, and the functions of the e-Enterprise Center are absorbed by the OVPR



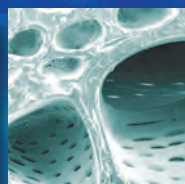
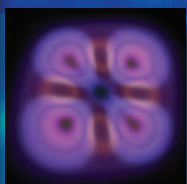
**McGinley Plaza**

**September** The George E. Brown, Jr. Network for Earthquake Engineering Simulation (NEES) moves its headquarters to Discovery Park

**November** Discovery Park establishes VACCINE (Visual Analytics for Command, Control and Interoperability Environments) to develop software for homeland security and emergency personnel



**Gerald D. & Edna E. Mann Hall**



Interdisciplinary  
Collaborations

**\$650 Million  
Total Sponsored  
Program Funding**





## Newly Published Books

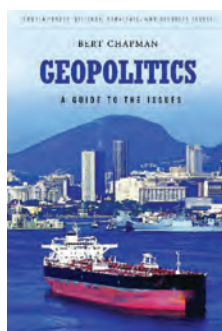


Rebecca A. Johnson,  
**Alan M. Beck** and  
Sandra McCune

*The Health Benefits of Dog Walking for Pets and People: Evidence and Case Studies (New Directions in the Human-Animal Bond)*

Obesity is at epidemic levels worldwide. A 2010 report by the U.S. Surgeon General estimates that two-thirds of American adults and almost one in three children are now over-

weight or obese. Similar statistics emphasize the staggering problem in other industrialized countries. The volume will be especially valuable as a sourcebook of evidence-based studies for public health professionals treating overweight humans and veterinarians treating obese dogs.

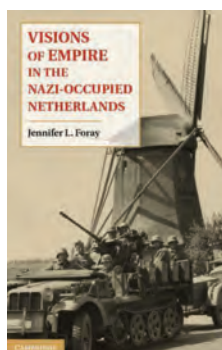


**Bert Chapman**

*Geopolitics: A Guide to the Issues*

Chapman's book provides an overview of how geography influences international relations and international politics including climate change, energy security, international economics and international security. He introduces key figures in the discipline of geopolitics such as Alfred Thayer Mahan

and Halford Mackinder, covers the geopolitical interests of individual countries, describes disciplinary divisions within geopolitics, details international geopolitical crisis areas and provides maps of some of these areas, emphasizes geopolitics information resources, and stresses the critical importance of geography in studying international politics and security.



**Jennifer Foray**

*Visions of Empire in the Nazi-Occupied Netherlands*

The book explores how the experiences of World War II shaped and transformed Dutch perceptions of their centuries-old empire. Focusing on the work of leading anti-Nazi resisters, Foray examines how the war forced a rethinking of colonial practices and relationships. As Dutch resisters planned for a postwar world bearing little resemblance

to that of 1940, they envisioned a wide range of possibilities for their empire and its territories, anticipating a newly harmonious relationship between the Netherlands and its most prized colony in the East Indies.

## Publishing Services Expand

Publishing services provided by libraries are expanding and professionalizing, suggests a new report released by SPARC, the Scholarly Publishing and Academic Resources Coalition, on behalf of a team of researchers from the libraries of Purdue University, Georgia Institute of Technology and the University of Utah. The report is the result of a year-long study of library publishing services made possible by a collaborative planning grant from the federal Institute of Museum and Library Services, with additional support from Berkeley Electronic Press and Microsoft Research. It is available at <http://wp.sparc.arl.org/lps/>.

Key findings of the project include:

- » Around half (55%) of all respondents to the survey indicated having or developing library publishing services. Interest in such services varied by institution size, with more than three-quarters of Association of Research Libraries (ARL) institutions being interested, compared to 30% of Oberlin Group institutions. Most libraries with existing programs anticipated increasing the program's scale or scope in the next year.
- » Around three-quarters of the programs publish between one and six journals, the majority of which are only distributed electronically and are less than three years old. About half of the programs publish conference proceedings, technical reports or monographs, most often electronically, but with some print-on-demand distribution.
- » The vast majority of library publishing programs (almost 90%) were launched in order to contribute to change in the scholarly publishing system, supplemented by a variety of other mission-related motivations. The prevalence of mission-driven rationale aligns with the funding sources reported for library publishing programs, including library budget reallocations (97%), temporary funding from the institution (67%) and grant support (57%). However, many respondents expect a greater percentage of future publishing program funding to come from service fees, product revenue, charge-backs, royalties and other program-generated income.
- » Almost two-thirds of the programs collaborate with one or more other campus units — including departmental faculty, university press, and campus computing — and two-thirds collaborate with individuals or organizations outside of the institution. Over half of the respondents expect collaborations to increase in the next year.



- » Around half of responding institutions centralize management of their publishing activities within one library unit. The number of staff allocated to publishing activities is modest — averaging 2.4 FTE for ARLs and 0.9 FTE for Oberlin Group institutions — with older programs typically being larger. Staff dedicated exclusively to publishing service programs are relatively rare, with responsibility for such services typically fragmented across multiple staff members.
- » The perceived relevance of publishing services to the library's mission, and the integration of such services into the library's budget, helps explain the relative lack of emphasis on sustainability planning. Few institutions (15%) have a documented sustainability plan for their publishing services, and only a fifth have evaluated the value or effectiveness of their publishing services.
- » The most prevalent journal publishing platforms reported were Open Journal Systems (57%), DSpace (36%), and Berkeley Electronic Press's Digital Commons (25%).
- » According to respondents, the three resources most needed for planning or operating a library-based publishing service are guides to business issues, information on publishing platforms and examples of policy and process documents.

The report includes a series of recommendations for future development of library publishing services based on the survey, workshops, case studies, and literature review. These are centered around developing best practices, collaborating to create community-based resources and formalizing skills and training.

The report provides valuable context as Purdue Libraries plans for continued expansion of its own publishing services in 2012. ■

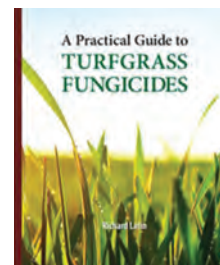
Writer: Charles Watkinson is director of Purdue University Press, a unit of Purdue Libraries. You may contact him at [cwatkinson@purdue.edu](mailto:cwatkinson@purdue.edu) or 494-8251.

## Newly Published Books

**Richard Latin**

### *A Practical Guide to Turfgrass Fungicides*

A comprehensive resource that addresses fungicides specifically used for turf disease control, the guide is the first book written in practical terms for turf managers and students that describes how and why fungicides work (and why sometimes they do not work). By providing a strong foundation on the nature of turf management tools, Latin enables them to make decisions from a more informed perspective while also providing background for effective communication of disease control issues with administrators, golf patrons and the public.



**Randy Roberts**

### *A Team for America: The Army-Navy Game That Rallied a Nation*

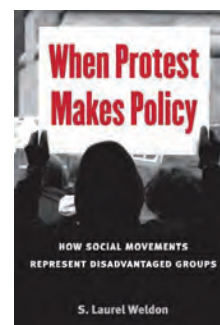
"There never has been a sports event, perhaps never an event of any kind, that received the attention of so many Americans in so many places around the world." So wrote a reporter on December 2, 1944, about the greatest Army-Navy football game in the long history of that storied rivalry. Roberts has interviewed surviving players and coaches for nearly a decade on one of the most memorable stories in all of American sports.



**Laurel Weldon**

### *When Protest Makes Policy: How Social Movements Represent Disadvantaged Groups (The CAWP Series in Gender and American Politics)*

What role do social movements play in a democracy? Weldon demonstrates that social movements provide a previously unrecognized form of democratic representation, offering significant potential for deepening democracy and overcoming social conflict. Through a series of case studies of movements conducted by women, women of color and workers in the United States and other member nations of the Organisation for Economic Co-operation and Development, Weldon examines processes of representation at the local, state and national levels.



**Fenggang Yang**

### *Religion in China: Survival and Revival under Communist Rule*

Religion in China survived the most radical suppression in human history — a total ban of any religion during and after the Cultural Revolution. Over the last three decades, however, religion has revived and thrived even as China remains under Communist rule. Christianity ranks among the fastest-growing religions in the country, and many Buddhist and Daoist temples have been restored. In *Religion in China*, Yang provides an overview and a theoretical interpretation of the religious change in China under Communism. ■



# Sponsored Program Year-to-Date Activity

## Awards by Sponsor

July 1, 2011 to December 31, 2011

SPONSOR	FY2012 (YTD 12/31/2011)		FY2011 (YTD 12/31/2010)		% Change	
	NO.	\$ AMOUNT	NO.	\$ AMOUNT	NO.	\$ AMOUNT
National Science Foundation	170	53,438,656	186	67,641,132	-9%	-21%
Dept. of Health and Human Services	142	20,833,033	145	35,374,965	-2%	-41%
Dept. of Defense	115	14,476,975	135	16,301,321	-15%	-11%
Dept. of Energy	64	7,596,848	65	20,119,729	-2%	-62%
Dept. of Agriculture	96	18,234,915	94	22,918,163	2%	-20%
National Aeronautics and Space Administration	41	4,512,403	28	2,737,773	46%	65%
Other Federal	50	6,025,289	78	8,020,118	-36%	-25%
Dept. of Education	19	3,998,225	18	8,658,408	6%	-54%
Environmental Protection Agency	18	1,387,725	13	1,144,231	38%	21%
Dept. of Transportation	17	644,078	9	2,320,489	89%	-72%
Agency for International Development	3	158,713	13	1,998,647	-77%	-92%
<b>Total Federal</b>	<b>735</b>	<b>\$131,306,860</b>	<b>784</b>	<b>\$187,234,977</b>	<b>-6%</b>	<b>-30%</b>
Industrials and Foundations	768	35,963,302	794	28,582,235	-3%	26%
State/Local Governments	82	7,657,163	95	15,529,197	-14%	-51%
Purdue Research Foundation/ Purdue University	339	4,378,710	396	6,686,453	-14%	-35%
Foreign Governments	12	917,804	8	6,211,800	50%	-85%
<b>Total Non-Federal</b>	<b>1,201</b>	<b>\$48,916,979</b>	<b>1,293</b>	<b>\$57,009,685</b>	<b>-7%</b>	<b>-14%</b>
<b>Total Purdue System-wide</b>	<b>1,936</b>	<b>\$180,223,839</b>	<b>2,077</b>	<b>\$244,244,662</b>	<b>-7%</b>	<b>-26%</b>

Data provided by Sponsored Program Services



A comprehensive monthly awards list, including search and sort capabilities, is available online. Please visit the OVPR website at [www.purdue.edu/research/vpr/](http://www.purdue.edu/research/vpr/) or scan the QR code at left to view on your mobile device.



## FEBRUARY

### How to Use NIH Data for Your Strategic Advantage

- » **When** February 16, 11:30 a.m.-1:00 p.m.
- » **Where** Stewart Center, Room 202
- » **Contact** Perry Kirkham, [pkirkham@purdue.edu](mailto:pkirkham@purdue.edu)
- » **Website** [www.purdue.edu/research/vpr/rschdev/calender\\_grantsmanship\\_events.php](http://www.purdue.edu/research/vpr/rschdev/calender_grantsmanship_events.php)

This session focuses on how analyzing NIH data of success rates, total dollars spent and applications received by an agency can help increase your chances for success with a proposal. Lunch is provided, so registration is required.

### Global Connections Lecture Series: The Arab Awakening: One Year On

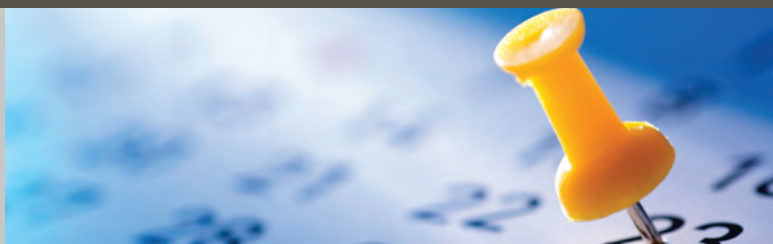
- » **When** February 20, 7:30 p.m.
- » **Where** Stewart Center, Fowler Hall
- » **Contact** Ruth Ann Weiderhaft, [weiderhaft@purdue.edu](mailto:weiderhaft@purdue.edu), 496-6392
- » **Website** [www.purdue.edu/research/gpri](http://www.purdue.edu/research/gpri)

Marwan Muasher is vice president for studies at the Carnegie Endowment, where he oversees the endowment's research in Washington and Beirut on the Middle East. Muasher formerly served as foreign minister and deputy prime minister of Jordan.

### DLRC Showcase & Symposium

- » **When** February 21, 11:30 a.m.-3 p.m.
- » **Where** Hall for Discovery and Learning Research, Room 131
- » **Contact** Laura Warner, [lawarner@purdue.edu](mailto:lawarner@purdue.edu), 494-4555
- » **Website** [www.purdue.edu/discoverypark/learningcenter/DLRC-Sands-2012.php](http://www.purdue.edu/discoverypark/learningcenter/DLRC-Sands-2012.php)

An afternoon of information and conversation to describe how the Discovery and Learning Research Center can partner with you to enhance your STEM research and proposals.



### 25th Annual Burton D. Morgan Business Plan Competition

- » **When** February 21
- » **Where** Burton D. Morgan Center for Entrepreneurship
- » **Contact** [BDMCenter@purdue.edu](mailto:BDMCenter@purdue.edu)

Purdue students participating in the competition will define their ideas in commercial terms, with the top teams from undergraduate and graduate student divisions competing for \$100,000 in prize money.

## MARCH

### Grantsmanship Orientation Workshop #2

- » **When** March 26, 11 a.m.-1:30 p.m.
- » **Where** Burton D. Morgan, Room 121
- » **Contact** Sue Grimes, [sgrimes@purdue.edu](mailto:sgrimes@purdue.edu), 494-5858
- » **Website** [www.purdue.edu/research/vpr/rschdev/calender\\_grantsmanship\\_events.php](http://www.purdue.edu/research/vpr/rschdev/calender_grantsmanship_events.php)

The second workshop in the Grantsmanship Orientation series features the following topics: OPR and Discovery Park roles in large interdisciplinary proposals, Global Policy Research Institute (GPRI), industry research, and management of intellectual property. Lunch is provided, so registration is required.

### Purdue Lectures in Ethics, Policy and Science: Ethics, Policy and Medicine

- » **When** March 6, 4-5:15 p.m.
- » **Where** Burton D. Morgan Center for Entrepreneurship, Room 121
- » **Contact** [bioethics@purdue.edu](mailto:bioethics@purdue.edu)

Arthur Caplan, Emanuel and Robert Hart Professor of Bioethics, University of Pennsylvania Center for Bioethics, will discuss "Personalized Medicine vs. Spitomics — The Uncertain Future of Genetic Testing."

### Purdue Lectures in Ethics, Policy and Science: Implications of Synthetic Biology

- » **When** March 28, 5:30-7 p.m.
- » **Where** Pfendler Hall of Agriculture, Room 241
- » **Contact** [bioethics@purdue.edu](mailto:bioethics@purdue.edu)

Gregory Kaebnick, research scholar, director of the Editorial Department and editor of the Hastings Center Report and Bioethics Forum at the Hasting Center, will discuss "'Synthetic Life: A New Industrial Revolution?"

**APRIL**

## Purdue Lectures in Ethics, Policy and Science: The U.S. EPA and Climate Change Ethics

- » **When** April 12, 5:30-7 p.m.
- » **Where** Pfendler Hall of Agriculture, Room 241
- » **Contact** [bioethics@purdue.edu](mailto:bioethics@purdue.edu)

Lisa Heinzerling, professor of law, Georgetown University and outgoing assistant administrator, Office of Policy, Economics and Innovation at the U.S. Environmental Protection Agency, will discuss "Climate Change at EPA."

## Purdue Lectures in Ethics, Policy and Science: Global Public Health

- » **When** April 13, 5:30-7 p.m.
- » **Where** Lawson Computer Science Building, Room 1142
- » **Contact** [bioethics@purdue.edu](mailto:bioethics@purdue.edu)

Maria Merritt, assistant professor, Johns Hopkins Berman Institute of Bioethics, will discuss "Global Public Health Research: Questions about Researchers' Responsibilities to Benefit Participants."

## Policy Research for a Changing World, Global Policy Research Institute "Grand Challenge" Conference

- » **When** April 18, 8:30 a.m.
- » **Where** Rawls Hall, Room 3082
- » **Contact** Ruth Ann Weiderhaft, [weiderhaft@purdue.edu](mailto:weiderhaft@purdue.edu), 496-6392
- » **Website** [www.purdue.edu/research/gpri](http://www.purdue.edu/research/gpri)

This conference will focus on presentations by the GPRI-sponsored incentive awardees. Presenters will report on their technological findings, research impact, leveraged funding efforts and resultant awards. The conference will address four areas: food security, health, environment, and society and leadership.



## Purdue Lectures in Ethics, Policy and Science: Ethics and the Practice of Science

- » **When** April 18, 5:30-7 p.m.
- » **Where** Pfendler Hall of Agriculture, Room 241
- » **Contact** [bioethics@purdue.edu](mailto:bioethics@purdue.edu)

Frederick Grinnell, professor of cell biology in Integrative Biology and the Ethics in Science and Medicine Program at UT Southwestern, will discuss "Informed Consent and Risk: The Intersection Between Human Research and Genetics."

## First Annual C.N.R. Rao Global Science Policy Leadership Lecture

- » **When** April 18, 7 p.m.
- » **Where** Krannert Auditorium
- » **Contact** Ruth Ann Weiderhaft, [weiderhaft@purdue.edu](mailto:weiderhaft@purdue.edu), 496-6392
- » **Website** [www.purdue.edu/research/gpri](http://www.purdue.edu/research/gpri)

C.N.R. Rao is the Linus Pauling Research Professor and Honorary President of Jawaharlal Nehru Centre for Advanced Scientific Research in Bangalore, India. He received his Ph.D. from Purdue University working with Nobel scientist Herbert C. Brown. Rao is one of the world's foremost solid state and materials chemists.

## Linking Biodiversity and Sustainability across Natural and Managed Landscapes: Can Agriculture and Natural Communities be Complementary?

- » **When** April 23, 8 a.m.-5 p.m.
- » **Where** Burton D. Morgan Center for Entrepreneurship, Room 121
- » **Contact** Kerry Rabenold, [rabenold@purdue.edu](mailto:rabenold@purdue.edu), 494-8120; or Jill Wable, [jwable@purdue.edu](mailto:jwable@purdue.edu), 494-1610
- » **Website** [www.purdue.edu/dp/environment](http://www.purdue.edu/dp/environment)

The Center for the Environment will host this one-day symposium for scientists from Purdue and other institutions.





### Confronting Challenging Collective Action Problems

- » **When** April 16, 3:30 p.m.
- » **Where** Fowler Hall, Stewart Center
- » **Contact** Cindy Ream, [cream@purdue.edu](mailto:cream@purdue.edu), 494-0015
- » **Website** [www.purdue.edu/discoverypark/dls](http://www.purdue.edu/discoverypark/dls)

Elinor Ostrom is a Nobel laureate in economic sciences and a faculty member at Indiana University and Arizona State University.

### Medici Effect: Groundbreaking Innovation at the Intersection of Disciplines and Cultures

- » **When** April 20, 3:30 p.m.
- » **Where** Loeb Playhouse
- » **Contact** Cindy Ream, [cream@purdue.edu](mailto:cream@purdue.edu), 494-0015
- » **Website** [www.purdue.edu/discoverypark/dls](http://www.purdue.edu/discoverypark/dls)

Frans Johansson — best-selling author, and founder and former CEO of an enterprise software company — will discuss the Intersection: a place where ideas from different fields and cultures meet and collide, ultimately igniting an explosion of extraordinary new innovations.

### Conservation and Sustainability in a Human-Dominated World

- » **When** April 23, 7-8:30 p.m.
- » **Where** Stewart Center, Room 214 ABCD
- » **Contact** Cindy Ream, [cream@purdue.edu](mailto:cream@purdue.edu), 494-0015
- » **Website** [www.purdue.edu/discoverypark/dls](http://www.purdue.edu/discoverypark/dls)

This public lecture by John Robinson from the Wildlife Conservation Society is part of the symposium “Linking Biodiversity and Sustainability across Natural and Managed Landscapes: Can Agriculture and Natural Communities be Complementary?”

### A Race to the Future to Save the Wild Cheetah

- » **When** April 27, 12:30-1:20 p.m.
- » **Where** Lynn Hall, Room 1136
- » **Contact** Cindy Ream, [cream@purdue.edu](mailto:cream@purdue.edu), 494-0015
- » **Website** [www.purdue.edu/discoverypark/dls](http://www.purdue.edu/discoverypark/dls)

Laurie Marker, founder and executive director of the Cheetah Conservation Fund (CCF) since 1990, has pioneered new ideas in cheetah conservation and has formed cooperative alliances on behalf of the cheetah that had never before been possible. She is recognized around the world as one of the leading experts on cheetahs.

## MAY

### NSF CAREER Workshop

- » **When** May 3, 11:30 a.m.-1:00 p.m.
- » **Where** Stewart Center, Room 202
- » **Contact** Sue Grimes, [sgrimes@purdue.edu](mailto:sgrimes@purdue.edu), 494-5858
- » **Website** [www.purdue.edu/research/vpr/rschdev/calender\\_grantsmanship\\_events.php](http://www.purdue.edu/research/vpr/rschdev/calender_grantsmanship_events.php)

This workshop is for untenured faculty in all disciplines who are interested in developing a proposal for the NSF CAREER competition. Lunch is provided, so registration is required.

## JUNE

### IUTAM Summer School on Biomechanics of Tissue-Cell Interaction

- » **When** June 5-8
- » **Where** Purdue University
- » **Contact** Thomas Siegmund, [siegmund@purdue.edu](mailto:siegmund@purdue.edu), 494-9766

The goal of the summer school is to introduce participants to the state-of-the-art tissue in the biomechanics of bone, ligament, tendon and soft tissue, to interactions between mechanical loading and cellular response, and to the mechanics of interaction between extra-cellular matrices and cells, to the micro- and nano-scale deformation and failure processes of skeletal tissues, as well as to relevant biomedical image modalities.

### 8th International Purdue Symposium on Statistics: Diversity in the Statistical Sciences for the 21st Century

- » **When** June 20-24
- » **Where** Stewart Center
- » **Website** [www.stat.purdue.edu](http://www.stat.purdue.edu)

The International Purdue Symposium on Statistics is a venerable tradition, an event that has been held every five years at Purdue since the late 1960s, in an effort to further the development and promotion of the field of statistics. ■

→|| OFFICE OF THE VICE PRESIDENT FOR RESEARCH

Hovde Hall  
610 Purdue Mall  
West Lafayette, IN 47907-2040

## »» Research Services Directory

- » General Information & Questions; 494-9806
- » Vice President for Research; 494-6209; Richard O. Buckius, rbuckius@purdue.edu
- » Discovery Park; 496-6625; Alan Rebar, rebar@purdue.edu
- » Research Core Facilities; 496-1938; Jeff Bolin, jtb@purdue.edu
- » Cost Sharing; 494-0702; Mary Millsaps, millsaps@purdue.edu
- » Internal Competitions, 494-4231; Marietta Harrison, harrisom@purdue.edu
- » Industry Research and Technology Programs; 494-0743; John Schneider, jas@purdue.edu
- » Research Development: Workshops, Competitions; 494-5858, Sue Grimes, sgrimes@purdue.edu
- » Research Development: Proposal Coordination/Writing; 496-1985, Sally Bond, sbond@purdue.edu
- » Research Integrity; 494-3996; Peter Dunn, pedunn@purdue.edu
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- » Human Subjects; 494-5942; Kristine Hershberger, kh@purdue.edu
- » Animals; 494-7206; Lisa Snider, ldsnider@purdue.edu
- » Biohazards; 494-1496; Bob Golden, rwgolden@purdue.edu

### **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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**Distribution** » *Dimensions of Discovery's* mailing list includes faculty, research scientists and postdoctoral associates, as well as administrators and staff with responsibilities related to sponsored programs. If you would like to be on the mailing list, please email Linda Howell at [lahowell@purdue.edu](mailto:lahowell@purdue.edu) or Pam Burroff-Murr at [burroff@purdue.edu](mailto:burroff@purdue.edu).



## OVPR Releases Annual Report

As our world becomes increasingly interdependent, Purdue's transnational partnerships are helping us to cultivate new leaders, make groundbreaking discoveries and address society's greatest challenges. Some of their latest accomplishments are reflected in the OVPR's 2010-11 annual report, *Global Footprint*.

The report, which highlights a record \$420 million in research funding, is available online at [www.purdue.edu/research/vpr/publications](http://www.purdue.edu/research/vpr/publications). Comments are welcome.

If you'd like a hard copy of the report, contact Pam Burroff-Murr at [burroff@purdue.edu](mailto:burroff@purdue.edu). ■