

# DIMENSIONS of DISCOVERY



Photographer: John Underwood

## » Business Plan Competition Winners Benefit from Campus Coaches

### Welcome

**"Research is to see what everybody else has seen, and to think what nobody else has thought."**

— **Albert Szent-Gyorgyi,**  
Nobel laureate

Each year at Purdue, new ways of thinking lead to new ideas, technologies and discoveries. In this issue, explore how innovative ideas are turning into entrepreneurial ventures, how novel technologies are helping physicians stage a rare cancer, and how a new center aims to spark digital discoveries. ■

Coaching is not just about athletics. Some of the newest innovations coming out of Purdue offices and laboratories are gaining traction through support available from entrepreneurial coaches committed to redoubling the university's commercialization efforts.

Consider, for example, the big winners this year at Purdue's \$100,000 Burton D. Morgan Business Plan Competition. Bearing Analytics, which won \$30,000 as the top presenter in the Gold Division for graduate and undergraduate student teams from any discipline, and ExDie Cleaning Technologies, which claimed the \$20,000 first prize in the Black Division for undergraduates, both received assistance from the Purdue Foundry.

In fact, staff members in the Foundry — a hub designed to transform innovators into entrepreneurs — worked closely with two of the top Black Division finishers and four of the five in the Gold Division.

"What's exciting is that the basis for these business ideas is to provide real solutions to real problems," said Greg Deason, vice president and executive director of the Purdue Foundry. "Our goal through The Purdue Foundry, Discovery Park and the Burton D. Morgan Center for Entrepreneurship is to add value and provide the support for students, faculty and staff across campus for turning these ideas into real companies."

Led by Purdue electrical and computer engineering doctoral students Anurag Garg and Lokesh Gupta, Bearing Analytics is developing a patent-pending sensor that monitors the performance of bearings and alerts workers to premature bearing failure by measuring temperature and vibration changes.

*Continues on back cover*

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## Assessment Specialist Delves Deeper into Undergraduate Research Experiences

Like some of her study participants today, **Omolola Adedokun** knew long before she enrolled in a required undergraduate research experience (URE) at Obafemi Awolowo University in Nigeria that she would pursue an advanced degree. Still, the experience helped her hone critical skills she would need later.

“I worked on my own research; I learned what it meant to write chapters and to write and defend my opinions,” says Adedokun, who went on to earn a master’s degree in agricultural economics in Nigeria, then another master’s in sociology and a Ph.D. in education from Purdue.

Now, as assessment specialist in the Discovery Learning Research Center, Adedokun employs the skills rooted in her own undergraduate experiences to explore how UREs can build tomorrow’s STEM workforce.

Simply compiling a list of outcomes doesn’t tell the entire story, she says.

“There are quite a number of evaluations that show that students gain research skills, communication skills and interest in graduate education from their participation in UREs,” she says. “However, little is known about the processes through which these outcomes are achieved.”

Last year, however, Adedokun and her colleagues published a new kind of study on UREs.<sup>1</sup> Recognized in the September 2013 issue of *Science* as Editor’s Choice, the study employed structural equation modeling to explore the relationships among three different outcomes in an undergraduate research experience: research skills,

research self-efficacy and aspiration for research careers.

In analyzing post-participation surveys of 156 students in the Discovery Park Undergraduate Research Internship program — students who typically spent 4 to 10 hours per week in their faculty mentor’s laboratory and attended a seminar class on research conduct — Adedokun discovered a direct relationship between the students’ development of research skills and research self-efficacy, between research self-efficacy and aspirations and also between research skills and aspirations.

It’s easy to think of the STEM career pathway as long and narrow, taking students on a straight path from acquisition of skills to aspirations for graduate education and research careers in academia or industry. But thanks in part to this study and a previous one that Adedokun conducted on the influence of UREs on career aspirations, a picture of a more meandering path could be emerging. “Our study showed that mastery of research skills

enhances student’s self-confidence in conducting research., which in turn enhances their interest in going to graduate school or becoming career researchers,” she says.

Adedokun continues to explore this area of research. In the meantime, you can read her article for more information: <http://bit.ly/1g1SAFr>. ■

<sup>1</sup> Adedokun, O. A., Bessenbacher, A. B., Parker, L. C., Kirkham, L. L. and Burgess, W. D. (2013), Research skills and STEM undergraduate research students’ aspirations for research careers: Mediating effects of research self-efficacy. *J. Res. Sci. Teach.*, 50: 940–951. doi: 10.1002/tea.21102



Omolola Adedokun (Photograph by Vincent Walter)



## Six Faculty Receive Kinley Trust Awards



Six Purdue faculty members have received Clifford Kinley Trust awards for 2014 to pursue social sciences research. They are:

- » **Kathleen Abrahamson**, College of Health and Human Sciences, “Is Safe Care Satisfying? The Connection between Hospital Safety Culture and Patient Satisfaction,” \$19,977
- » **Daniel Aldrich**, College of Liberal Arts, “Community Response to the 3/11 Earthquake, Tsunami, and Nuclear Crises,” \$20,000
- » **Jonathan Bauchet**, College of Health and Human Sciences, “Do Behavioral Biases Influence Loan Repayment Performance and Household Welfare? An Experiment with Poor Households in India,” \$20,000
- » **Kelsie Forbush**, College of Health and Human Sciences, “Predictors of Short-Term Stability and Change in Eating Disorder Psychopathology and Comorbidity,” \$19,680
- » **Carly Roberts**, College of Education, “Using Literacy Strategies to Facilitate Access to Science Text for Students with Intellectual Disabilities,” \$19,994
- » **Oliver Wendt**, College of Health and Human Sciences, “Comparative Efficacy of Low-technology Versus High-technology Communication Intervention for Children with Severe, Nonverbal Autism,” \$19,999

The Clifford Kinley Trust was established in 1978 to fund research relating to human welfare and was activated in 1991 upon Mrs. Kinley’s death. Exclusive to the West Lafayette campus and limited to faculty principal investigators, the endowment funds research that uses a social science perspective to explore methods for improving the human condition.

The selection committee generally recommends funding individual projects with a maximum budget of \$20,000. Successful proposals stand alone as independent projects (not a dependent component of a larger program), are grounded in theory and have a clear relationship to the literature. ■

## Prof Elected to AIMBE College of Fellows

**Ji-Xin Cheng**, a professor in Purdue University’s Weldon School of Biomedical Engineering and Department of Chemistry, has been elected to the American Institute for Medical and Biological Engineering (AIMBE) College of Fellows.

The AIMBE College of Fellows represents the top 2 percent of medical and biological engineers nationwide. Cheng was inducted into the College of Fellows at AIMBE’s 2014 Annual Event this spring in Washington, D.C., at the National Academy of Sciences. ■



Photograph by Vincent Walter

## Engineering Professors Receive CAREER Awards

Two more Purdue faculty members have received CAREER awards from the National Science Foundation this year.



**Carl Laird**, associate professor of chemical engineering, has been honored for his proposal “Parallel Nonlinear Programming Techniques for Optimization in Rapid Therapeutics Manufacturing.”

**David Cappelleri**, assistant professor of mechanical engineering, has been honored for his proposal “Novel Wireless, Micro-Force Sensing Mobile Microrobots for Mechanobiology and Automated Biomanipulation.”



The Faculty Early Career Development (CAREER) Program supports junior faculty members who exemplify the role of teacher-scholars through outstanding research, excellent education and the integration of education and research within the context of the mission of their organizations. The NSF expects activities to build a firm foundation for a lifetime of leadership in integrating education and research. ■



## OVPR, Libraries Debut e-Pubs Site for Common Proposal Text

The Office of the Vice President for Research, in partnership with Purdue Libraries, has debuted a new e-Pubs site (<http://docs.lib.purdue.edu/ovpr/>) to help address faculty needs for common boilerplate text in proposals submitted to external funding agencies.

The site will be useful not only for the often-required facilities, equipment and resources supplementary documents but also for portions of the proposal narrative that describe leveraged institutional resources.

Rather than writing original text on Purdue resources and infrastructure or scouring websites, faculty and staff can download fully vetted general campus descriptions — such as a Purdue institutional overview, Discovery Park summary or HUBzero description — as well as individual research core facility descriptions.

The keyword-searchable e-Pubs series provides a recommended citation on each document, so that faculty can copy text in its entirety or just pertinent portions and not be flagged for plagiarism. Documents are automatically stamped with the date last updated for version control and information accuracy.

New citable documents will be uploaded to the series on a continuing basis, and text will be updated yearly or as needed. When you visit the e-Pubs site, please feel free to email **Sally Bond** at [sbond@purdue.edu](mailto:sbond@purdue.edu) to suggest additional targets for the collection. ■

*Writer: Sally Bond is assistant director of Research Development Services in the Office of the Vice President for Research.*

## Broadcast Studio Upgrade Helps Bring Purdue Research to the World

When news broke that a data breach by Target had exposed credit and debit card information of as many as 110 million customers, national news operations naturally contacted Purdue for perspective from cybersecurity experts.

Researchers at Purdue's Center for Education and Research in Information Assurance and Security (CERIAS) are at the top of any list of recognized experts in the field. Moreover, with little more than a flip of the switch, Purdue researchers could appear on TV news broadcasts around the country or the globe.

Until recently, it wasn't that easy to promote the university's broad, deep research portfolio. But a partnership between the Office of the Vice President for Research and ITaP has upgraded Purdue's only broadcast studio and its link to national and international broadcast centers. The technology is likely good-to-go for the next decade.

"We're making it easy for the media to highlight Purdue," says **Ed Dunn**, manager of ITaP's Video and Multimedia Production Services unit, which operates the studio in the basement of Stewart Center. "If we make it hard on them, they're going to pass."

The project does three big things:

- » Upgrades the studio's cameras and controls to high definition, allowing a seamless feed to TV centers worldwide, both in the wide-screen format used now and the high-definition format to which they're all moving.
- » Augments Purdue's ancient (in technology terms) and balky satellite feed to broadcast outlets with a faster, more reliable, easier-to-configure Vyvx fiber optic connection. With minutes' notice, Vyvx can move live video over its fiber network from Purdue to broadcasters' master control centers for airing nationally or internationally. A single feed can be sent to multiple broadcasters around the world.
- » Adds routing hardware that also makes it easier and faster to move video around Purdue's campus for teaching, broadcasting events and other purposes.

**Jim Schenke**, broadcast media liaison for the Purdue News Service, who pushed for the upgrade, says the old system could be nerve-racking. "We had the experts, but we couldn't be sure we could deliver when the networks needed," Schenke says.

The new system already has been used to put Purdue research experts on ABC, CBS, CNN, MSNBC and FOX, among other outlets.

The strategic initiative also includes a pilot program radically reducing the cost to use the studio. For more information, contact Ed Dunn at 494-1043 or [dunn@purdue.edu](mailto:dunn@purdue.edu). For information about opportunities to highlight Purdue research in news broadcasts, contact Jim Schenke at (765) 237-7296 or [jschenke@purdue.edu](mailto:jschenke@purdue.edu). ■

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

## Purdue Technology Makes Online Database Creation as Easy as Uploading a Spreadsheet



Ann Christine Catlin

Purdue's HUBzero technology is contributing to infusion pump safety, spurring research on psychological and social support methods for children with HIV, and changing treatment of thymic cancer, among other accomplishments, thanks to sophisticated data handling capabilities.

The latest iteration of these capabilities, called DataStore, can automatically create feature-rich databases from uploaded spreadsheets. It was developed by the ITaP Research Computing (RCAC) group headed by **Ann Christine Catlin**.

"Everybody knows how to use spreadsheets," says Catlin, a senior research scientist for ITaP. "They make it easy to collect and upload research data. With a spreadsheet, it takes only a few minutes to create your own searchable, online database using DataStore."

### Staging a rare cancer

That kind of user-friendly interface has been enormously successful for the International Thymic Malignancy Interest Group (ITMIG), an organization dedicated to a rare form of cancer. Thymic malignancies are so uncommon, in fact, that one doctor — or even one hospital — never sees more than a few cases, making it difficult to identify effective treatment regimens.

Working with ITMIG representatives, **Sumudine Fernando** of Catlin's team developed a hub and accompanying spreadsheet so that hospitals around the world could upload retrospective patient data on thymic cancer.

When the project began, a worldwide case database had never been attempted. Team members hoped 1,000 cases could be collected in a year. To everyone's surprise, within just three months the database had boasted more than 8,000 cases from 110 hospitals in 21 countries. "It's a quantum leap forward," says Dr. Frank Detterbeck, founder and current chairman of ITMIG. "The engagement and collaboration of people spread around the globe has been simply astounding."

### Sophisticated data handling capability

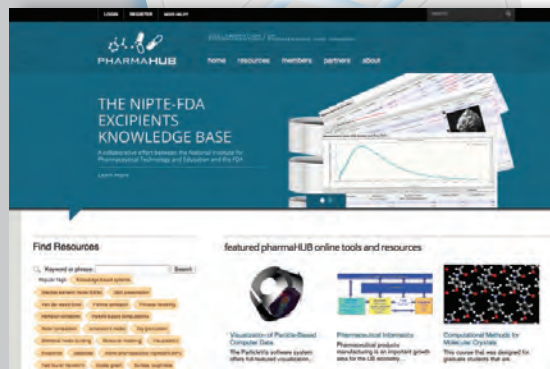
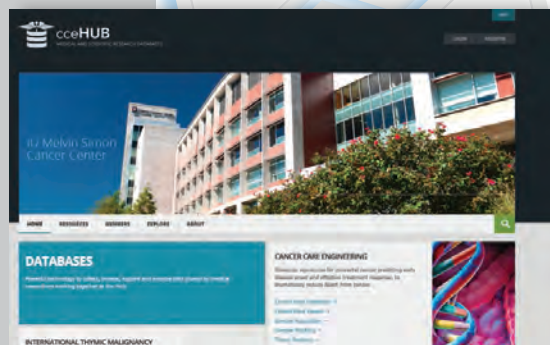
Since its inception, HUBzero has enabled user groups around the world to create powerful online platforms for research and educational collaborations. But it didn't start out with extensive data collection, management, sharing and analysis capabilities.

The transformation began when Catlin developed data technologies on the Purdue-based cceHUB to support the translation of colorectal cancer research into clinical practice. It wasn't long before other hub owners took note and wanted data support, too. That led to further development of hub-based database technologies and eventually DataStore, developed by **Sudheera Fernando** of Catlin's group.

DataStore's introduction comes at a time when data management plans are a standard requirement from the National Science Foundation, the National Institutes of Health and other funding agencies. Its launch also coincides with the emergence of the Big Data Era, with researchers and analysts gathering more and more data and trying to glean more and more knowledge from it.

"Our HUBzero databases make it possible to explore data in many sophisticated ways, so that researchers worldwide can learn new things," Catlin says. ■

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





## >> Program Announcements



### Ag Prof to Direct Plant Sciences Initiative

**Mitch Tuinstra**, the Wickersham Chair of Excellence in Agricultural Research, has been appointed scientific director of the plant sciences research and education initiative that is part of the university's Purdue Moves program.

The Plant Sciences Research and Education Pipeline (PREP) announced last September is among 10 targeted programs designed to develop more research and educational opportunities for students and broaden Purdue's global impact. It's intended to further enhance Purdue's position as a world leader in plant sciences to help feed a rapidly growing world population.

PREP will link discoveries in plant biology to commercially important crops, using automation to assess the performance of the crops under field conditions and moving the improved plants or plant products to commercialization. The initiative will also help recruit and train the next generation of talent moving into the plant sciences.

A major component of PREP is developing students to become the next generation of plant scientists who will be charged with helping to solve such problems as global food insecurity as a world population increases from 7 billion people now to 9 billion projected by 2050.

"Really, it's all about the students," Tuinstra says. "One of the major areas of emphasis is in creating opportunities for students to do science in innovative, cutting-edge ways so they can bring valuable ideas into commercialization to help meet this challenge." ■

*Writer: Keith Robinson is news and public affairs coordinator with the Department of Agricultural Communication.*



Mitch Tuinstra

Photograph by Vincent Walter



Candace Croney has been appointed director of the university's Center for Animal Welfare Science. (Purdue Agricultural Communication 2013 file photo/Tom Campbell)

### New Center for Animal Welfare Science to Examine Science, Ethics

From the long-term confinement of shelter animals to the caging of egg-laying hens, contemporary questions over animal treatment have become increasingly polarized.

But arguments on each side of the animal welfare debate are frequently based on assumptions and misinformation. That's where the research, education and outreach activities of the newly created Purdue University Center for Animal Welfare Science could help.

"Members of the sciences and animal industries are often perceived as being uncaring or tone deaf on issues pertaining to animal well-being," says **Candace Croney**, an associate professor of animal sciences who leads the center. "Purdue's investment in this center is a timely and necessary step toward changing this perception."

Bringing together researchers and educators from the colleges of Agriculture and Veterinary Medicine and the Livestock Behavior Research Unit of the U.S. Department of Agriculture's Agricultural Research Service, the center will engage in cross-disciplinary and cross-college research, teaching and outreach teams to:

- » address contentious social issues in animal behavior and welfare,
- » promote and explore the broad effects of the human-animal bond, and
- » bridge the rural-urban divide on understanding animals and their evolving roles in society.

Research will focus on a variety of well-being issues in animal and poultry science, veterinary medicine, psychology, philosophy, genetics, public health and zoology.

Visit [www.ansc.purdue.edu/CAWS](http://www.ansc.purdue.edu/CAWS) for more information. ■

## New Discovery Park Research Center to Focus on Open Digital Innovation Efforts

A new Discovery Park center affiliated with the Burton D. Morgan Center for Entrepreneurship will focus on equipping future systems designers, managers and leaders with new guidelines and database tools to solve complex problems in areas such as health care, regional development, financial services and smart manufacturing.

The Research Center for Open Digital Innovation (RCODI) at Purdue, led by technology and innovation professor **Sabine Brunswicker**, will build on the university's strengths in computational systems and modeling, technology, engineering, the sciences and entrepreneurship to advance research and offer research-based interdisciplinary graduate education in innovation.

"The vision of the Research Center for Open Digital Innovation is to be the first scientific interdisciplinary innovation research hub in the area of open digital innovation, delivering scientific research for impacting our world," says **Alan Rebar**, senior associate vice president for research at Purdue and director of Discovery Park.

Digital technologies are shaping the revolution of innovation, Brunswicker says. Leveraging big data, sentiment analysis, crowdsourcing, open data, living laboratories and real-time experimentation, RCODI will focus on how technologies can change how innovations are realized and result in novel outcomes — products, services, process and business models.

The term "open innovation," which has been gaining momentum in recent years, builds on a concept from the 1960s when companies expanded their cooperative efforts in research and development, coupling external input with internal ideas for advancing their technology or innovative processes and services.

Where it gets tricky, Brunswicker says, is handling the risks and rewards that are sparked by an open and more transparent sharing of ideas between private companies and external collaborators.

"The central idea behind open innovation is that, in a world of widely distributed knowledge, companies cannot afford to rely entirely on their own research, but should instead buy or license processes or inventions and patents from other individuals or companies," she said.

The need for research in this area is high, Brunswicker says, noting the gap that exists in the current academic research landscape such as:

- » Lack of evidence and novel theories of emerging innovation and digitally enabled open innovation models.
- » Existing innovation initiatives at Purdue are about "practicing" and "teaching" traditional modes such as entrepreneurship.
- » Current initiatives in the field of open digital innovation are neither interdisciplinary, socio technical or data-driven. ■

*Writer: Phillip Fiorini is a senior writer/editor with Purdue Marketing and Media.*



# >> How to Write a Grant

Whether a large-scale center proposal or a successful grant writing process follows a clear path. (Thanks to Research Development Services)

**START  
HERE**

## *Compelling storyline*

What is the problem?  
What has already been  
done to address the problem?  
What gap remains?  
How will we address this gap?

## ANALYSIS & PLANNING

Review landmark documents referenced in solicitation  
Read solicitation thoroughly  
Identify PI  
**Develop a compelling storyline**  
Identify win differentiators...why Purdue?  
Contact Pre-Award for inclusion of a Pre-Award specialist in planning meetings

## *Outline*

Use sections required in solicitation  
Include storyline at beginning

## PROPOSAL OUTLINE

**Develop outline**  
Identify graphics needed  
Identify subawardee institutions  
Identify any cost share requirements  
Develop draft budget based on initial outline of work to be done  
Answer questions related to proposal compliance items

## *Management structure*

Discuss management before writing  
Provide templates for required  
personnel documents

## MANAGEMENT & PERSONNEL

**Identify basic management structure**  
Collect biosketches and other required documents  
Develop C&P  
Refine budget based on final personnel, etc.

## PROPOSAL FINALIZATION & SUBMISSION

Review final package  
Obtain academic approvals  
Complete FCOI disclosures  
Obtain institutional approval  
Send final submission to sponsor



a single investigator research proposal,  
or a roadmap of strategies and sequential tasks.  
(Services and Pre-Award for their input.)

## PROGRAM OFFICER INPUT

**Develop one-page concept paper**  
Discuss one-pager with agency contact  
Refine storyline  
Clarify and ask questions related to budget  
requirements and restrictions

### *Concept paper*

Storyline  
Goals  
Team expertise  
Overview of approach  
Impact of your success

## PARTNERSHIPS

Recruit collaborative partners  
**Recruit advisory board members**  
Collect letters of commitment  
Discuss cost share needs with potential contributors  
Work with Pre-Award to gather sub-documentation  
Review sub-SOW and budget for appropriateness to work

### *Recruitment*

Use one-pager as talking  
points for recruiting

## PROPOSAL WRITING & EDITING

**Assign writing based on outline**  
Assign supplemental documents such as  
data management plan  
Write section components  
PI or grant writer compiles and manages document  
Edit drafts with project team  
Ask colleagues to review near-final draft  
Revise after review feedback  
Write summary last  
Refine budget based on changes to work plan, etc.

### *Outline*

Decide on page allotments  
per section before writing

**YOU'RE  
DONE!**

**Black text:** Research Development  
**Brown text:** Pre-Award

## CORES SPOTLIGHT

### Physical Vapor Deposition Strengthens Birck Nanotechnology Center

Physical vapor deposition is a strength of Birck Nanotechnology Center. Within the 25,000-square-foot cleanroom, researchers have access to a thermal evaporator, several e-beam evaporation systems and three sputtering systems that can deposit a wide variety of thin film conductors and insulators.

Specific equipment includes:

- » PVD e-Beam Evaporator
- » Lesker e-Beam Evaporator
- » Veeco 7760 Thermal Evaporator
- » Airco-Temescal FDC-1800 Electron-Beam Evaporator
- » Varian e-Beam Evaporator
- » Leybold e-Beam Evaporator
- » CHA e-Beam Evaporator
- » Perkin-Elmer 2400 Sputterer
- » PVD Sputtering Systems (2)

The cleanroom is located within the Scifres Nanofabrication Laboratory, a multi-user facility that serves researchers at Purdue, other academic institutions and industry. Users may elect to have Scifres engineering staff members process materials and/or devices for them, or the users may choose to come to Scifres and run the processes and equipment themselves.

*Editor's Note: The new Office of the Vice President for Research e-Pubs site (<http://docs.lib.purdue.edu/ovpr/>) provides citable text on Birck Nanotechnology Center resources for inclusion in proposals submitted to funding agencies. The e-Pubs General Facility Description series has a downloadable Birck Nanotechnology Center Technical Overview document, while the University Research Core Facility Descriptions series provides searchable descriptions of research cores within Birck. Faculty and staff may use the text either in*

*its entirety or in pertinent portions by including the recommended citation. ■*



Photograph by Vincent Walter



## Important Change to NIH Policy on Resubmissions

The National Institutes of Health (NIH) and the Agency for Healthcare Research and Quality (AHRQ) announce a change in policy on application submissions. Effective immediately, for application due dates after April 16, 2014, following an unsuccessful resubmission (A1) application, applicants may submit the same idea as a new (A0) application for the next appropriate due date. The NIH and AHRQ will not assess the similarity of the science in the new (A0) application to any previously reviewed submission when accepting an application for review. Although a new (A0) application does not allow an introduction or responses to the previous reviews, the NIH and AHRQ encourage applicants to refine and strengthen all application submissions.

NIH's policy for accepting overlapping applications remains in effect (see NOT-OD-09-100). The NIH will not accept duplicate or highly overlapping applications under review at the same time. This means that the NIH will not accept:

- » a new (A0) application that is submitted before issuance of the summary statement from the review of an overlapping resubmission (A1) application.
- » a resubmission (A1) application that is submitted before issuance of the summary statement from the review of the previous new (A0) application.
- » an application that has substantial overlap with another application pending appeal of initial peer review (see NOT-OD-11-101).

The NIH time limit for accepting resubmission (A1) applications remains in effect (see NOT-OD-12-128 and NOT-OD-10-140). The NIH will not accept a resubmission (A1) application that is submitted later than 37 months after submission of the new (A0) application that it follows.

Find the complete notice at: <http://grants.nih.gov/grants/guide/notice-files/NOT-OD-14-074.html>. ■

## A Reminder for Timing Regulatory Applications with Proposal Submissions

Please recall that evidence of regulatory approval is often a condition of obtaining funding on proposals. Many external funding agencies require evidence of approval from the Institutional Review Board (IRB) or Purdue Animal Care and Use Committee (PACUC) before releasing funds to Purdue.

Agencies differ in their methods of collection and requirements. Thus, it is best to seek assistance and submit an application as early as possible. As a general rule, most agencies suggest applying to the IRB or PACUC shortly after a proposal is submitted to a sponsor, but before a funding determination is made.

The following are some suggested best practices for regulatory items following proposal submission:

- » Take time to evaluate the use of research subjects and what level of risk could be presented to the participant.
- » Build time to complete or refresh required training modules for all personnel.
- » Submit a cover letter or e-mail with the regulatory protocol, noting important dates (start dates of funding, hard deadlines given by sponsors).
- » Remind any external collaborators to apply to their local regulatory committees.
- » Consider matching the title of your IRB or PACUC application to that of your research proposal. While not an explicit requirement, some sponsors prefer this one to one match.

If you need help mapping the regulatory processes associated with a submitted proposal or upcoming award, please contact the Research Regulatory Compliance staff within the Office of the Vice President for Research at [vprrregulatory@purdue.edu](mailto:vprrregulatory@purdue.edu). ■

*Writer: Ianthe Bryant-Gawthrop, is director of Research Regulatory Compliance in the Office of the Vice President for Research*

## National Institutes of Health Updates

The National Institutes of Health (NIH) has instituted several updates to research policies and practices.

### Public Access Policy

As of July 2013, the NIH began delaying the processing of continuation awards if publications arising from that award were not in compliance with the NIH public access policy. Investigators are required to use their MyNCBI accounts to enter all papers into their annual Research Performance Progress Report (RPPR).

You can associate your publications electronically within the RPPR by linking your MyNCBI account to your eRA Commons account. Sponsored Program Services will continue to work closely with faculty members to monitor the status of publications before and after RPPR submission. If you have any questions on the process for bringing your publications into compliance, please contact [spsdhhs@purdue.edu](mailto:spsdhhs@purdue.edu). For more information on applicability and compliance requirements, visit <http://publicaccess.nih.gov/FAQ.htm>.

### PMS SubAccounts

NIH has implemented a change in its payment process to grantees effective October 2013. At this time, we do not anticipate a significant impact on faculty. Sponsored Program Services is continually assessing the changes to our management of these awards and is working to keep any impact at a minimum. For more information on how this will affect the issuance of NIH awards, visit [http://grants.nih.gov/grants/foreign/Change\\_Pooled\\_Accts\\_Subaccts\\_Domestic\\_Awards\\_FY15.pdf](http://grants.nih.gov/grants/foreign/Change_Pooled_Accts_Subaccts_Domestic_Awards_FY15.pdf).

### Commons ID

Beginning October 1, 2014, all graduate students and undergraduate students working for one or more person months on an NIH project will be required to have a Commons ID. Please work with your business office to alert Sponsored Program Services when students are appointed to your projects. ■

*Writer: Megan Sweet is a research administration manager in Sponsored Program Services.*

### OMB Issues Final Uniform Guidance

The Federal Office of Management and Budget (OMB) issued final guidance entitled “Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards” (Uniform Guidance) on December 26, 2013. (See summary at <http://1.usa.gov/1jKNLky>.)

The Uniform Guidance replaces and combines eight existing OMB Circulars (A-21, A-50, A-87, A-89, A-102, A-110, A-122 and A-133) with the intent of streamlining the federal grant-making and monitoring process, easing administrative burden for grant applicants and recipients, and reducing the risk of waste, fraud and abuse.

The Uniform Guidance and resulting agency regulations will be effective for new federal awards and new funding for existing awards on December 26, 2014. Audit requirements will take effect the following fiscal year (July 1, 2015 for Purdue). OMB has assured that “Federal agencies will implement this guidance in unison, which will provide non-federal entities with a predictable, transparent, and government-wide consistent implementation schedule.”

Over the coming months, federal agencies will work to revise and publish their implementation plans to meet the requirements of the Uniform Guidance. Agency drafts of those implementation plans are due to OMB by June 2014.

Purdue University has assembled a team to review, analyze, and document changes that may affect policies, procedures and systems. We will be seeking input from faculty researchers during the process.

In addition, staff in Sponsored Program Services and the Office of the Vice President for Research will be monitoring agency information as implementation decisions are finalized and agency regulations are released. Look for updates in future issues of *Dimensions of Discovery* and on the SPS website. ■

*Writer: Amanda Hamaker is assistant director of Sponsored Program Services.*

### Grant to Support Interdisciplinary Collaborations Aimed at Tackling ‘Grand Challenges’

Purdue University Libraries and Press, the College of Liberal Arts, the Global Policy Research Institute, and Discovery Park have received a \$539,000 grant from the Andrew W. Mellon Foundation to support collaborations of humanists, social scientists and STEM faculty in addressing large-scale public policy problems. Faculty proposals are being sought as part of the project.

Water scarcity, food insecurity, energy dependence, global pandemics and climate change are examples of the “grand challenges” for which public policy makers look to researchers for solutions. Science and engineering can suggest technological solutions to some aspects of these problems, but real-world implementation fails without the insights of humanists and social scientists, says **Charles Watkinson**, director of Purdue University Press.

“This is an important award at a critical time,” says **Tim Sands**, executive vice president for academic affairs and provost. “The comprehensive university model only works going forward if the disciplines are woven together across the University. This is a great step toward that goal.”

The first goal of the two-year project is to encourage humanities and social sciences faculty to initiate and fully participate in research programs that address the “grand challenges” of the 21st century — large-scale, pressing, public policy problems that can be solved only through interdisciplinary research. A portion of the grant — \$300,000 — will be offered to fund up to six projects.

A call for proposals open to Purdue faculty is now available at [www.purdue.edu/research/gpri/research/mellon-grand.php](http://www.purdue.edu/research/gpri/research/mellon-grand.php). Proposals are due June 30.

The second goal will be to facilitate the scholarly communication process in a way that maximizes the political and social impact of research. The remaining funding provides for information management and publishing support for the grant awardees, and it builds on a growing program of public policy publishing at Purdue University Press.

More information is available by contacting **Amber Thompson**, senior policy associate with Purdue’s Global Policy Research Institute, at 496-6392 or [athompson@purdue.edu](mailto:athompson@purdue.edu). ■

*Writer: Charles Watkinson is director of Purdue University Press.*





# >> Sponsored Program Year-to-Date Activity

## Awards by Sponsor

July 2013 to March 2014

SPONSOR	FY2014 (Jul2013-Mar2014)		FY2013 (Jul2012-Mar2013)		% Change	
	NO.	\$ AMOUNT	NO.	\$ AMOUNT	NO.	\$ AMOUNT
National Science Foundation	179	62,298,020	198	59,907,001	-10%	4%
Dept. of Health and Human Services	168	25,363,800	153	22,878,027	10%	11%
Dept. of Defense	152	19,584,551	174	20,170,400	-13%	-3%
Dept. of Energy	79	13,433,450	82	15,550,357	-4%	-14%
Dept. of Agriculture	92	18,354,045	111	19,834,461	-17%	-7%
National Aeronautics and Space Administration	68	5,454,392	69	6,954,414	-1%	-22%
Other Federal	60	12,456,664	56	6,788,947	7%	83%
Dept. of Education	9	2,083,371	18	2,763,565	-50%	-25%
Environmental Protection Agency	15	1,034,581	15	1,207,293	0%	-14%
Dept. of Transportation	15	1,156,851	8	629,590	88%	84%
Agency for International Development	16	2,643,936	15	1,520,812	7%	74%
<b>Total Federal</b>	<b>853</b>	<b>\$163,863,660</b>	<b>899</b>	<b>\$158,204,866</b>	<b>-5%</b>	<b>4%</b>
Industrials and Foundations	1,228	65,238,271	1,216	56,268,787+	1%	16%
State/Local Governments	121	16,254,697	94	13,542,967	29%	20%
Purdue Research Foundation/ Purdue University	545	16,212,828	307	4,427,227	78%	266%
Foreign Governments	51	4,386,983	37	2,621,360	38%	67%
<b>Total Non-Federal</b>	<b>1,945</b>	<b>\$102,092,780</b>	<b>1,654</b>	<b>\$76,860,340</b>	<b>18%</b>	<b>33%</b>
<b>Total Purdue System-wide</b>	<b>2,798</b>	<b>\$265,956,440</b>	<b>2,553</b>	<b>\$235,065,206</b>	<b>10%</b>	<b>13%</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 right to view on your mobile device.



## JUNE

### Dynamics of Climate Conference

- » **When** June 18-20
- » **Where** Purdue Memorial Union
- » **Contact** Cindy Fate, [cynthia@purdue.edu](mailto:cynthia@purdue.edu) or 494-5146
- » **Website** [www.purdue.edu/discoverypark/climate/climate-change](http://www.purdue.edu/discoverypark/climate/climate-change)

The Dynamics of Climate conference is designed to enhance teachers' understanding of global warming and climate change and prepare them to use the activities in the Dynamics of Climate professional development toolkit. The conference and toolkit take a climate system approach to understanding how the Earth's climate is changing. Conference sessions take participants through the implementation of the toolkit and other climate activities.

To register, go to [www.purdue.edu/discoverypark/climate/climate-change/registration.php](http://www.purdue.edu/discoverypark/climate/climate-change/registration.php) (registration closes 6/1/14).

### IBCN Symposium Abstract Deadline

- » **When** June 30
- » **Contact** Kris Swank, [kswank@purdue.edu](mailto:kswank@purdue.edu)
- » **Website** [www.purdue.edu/breastcancer](http://www.purdue.edu/breastcancer)

The symposium will take us on a journey across disciplines to study different levels of gene – environment interactions. Concretely, we will explore the epigenetic mechanisms of gene expression control, health policy and practices, socioeconomic and cultural contexts in which these environmental factors come into play. Abstracts are being accepted through June 30. Slots are available for oral presentations for scientists and research trainees. Abstracts are limited to 300 words.

## JULY

### Undergraduate Student Recognition Luncheon

- » **When** July 30, 10:30 a.m.-1:30 p.m.
- » **Where** Discovery Learning Research Center, Room 131
- » **Contact** Chris Ramsey, [learningcenter@purdue.edu](mailto:learningcenter@purdue.edu) or 494-4555
- » **Website** [www.purdue.edu/discoverypark/learningcenter/summerstudentevent.php](http://www.purdue.edu/discoverypark/learningcenter/summerstudentevent.php)

This event includes a poster session and celebrates the achievements of students in these programs: Cancer Prevention Internship Program (CPIP), Discovery Park Undergraduate Research Internship (DURI), Interns for Indiana (IfI) and Interns for Entrepreneurship (IfE). Registration is required.

## AUGUST

### Overview of Services of the OVPR and SPS

- » **When** August 19, 11:30 a.m. to 1:00 p.m.
- » **Where** Stewart Center, Room 314
- » **Contact** Sue Grimes, [sgrimes@purdue.edu](mailto:sgrimes@purdue.edu) or 494-5858
- » **Website** [www.purdue.edu/research/vpr/rschdev/events.php](http://www.purdue.edu/research/vpr/rschdev/events.php)

This workshop will provide an excellent opportunity for new faculty to learn more about Purdue's policies and processes related to the development, submission, and management of research proposals. Topics to be covered include electronic proposal submission and tracking, budget preparation and review, facilities and administration rate (F&A), industrial contracts, award management, project reporting and research compliance. The registration link will be posted on the OVPR website three weeks prior to event.

## SEPTEMBER

### NIH Overview: Institute/Center Mission and Strategies

- » **When** September 9, 11:30 a.m. - 1 p.m.
- » **Where** Stewart Center Room 310
- » **Contact** Perry Kirkham, [pkirkham@purdue.edu](mailto:pkirkham@purdue.edu)
- » **Website** [www.purdue.edu/research/vpr/rschdev/events.php](http://www.purdue.edu/research/vpr/rschdev/events.php)

This workshop will provide an overview and an update on the various institutions of the NIH. Knowledge and familiarity with NIH institutes can be a tremendous advantage during the writing, submission and post-review phases of your submission. The individual missions and plans, as well as possible funding mechanisms and positioning yourself for a successful NIH-funding career will be addressed. The registration link will be posted on the OVPR website three weeks prior to the event.



### HUBbub 2014: The HUBzero Conference

- » **When** September 29-30, 8:30 a.m. - 5:30 p.m.
- » **Where** Sheraton Indianapolis City Centre Hotel, 31 West Ohio St., Indianapolis, IN 46204
- » **Contact** Nikki Huang, [hubbub@hubzero.org](mailto:hubbub@hubzero.org) or 494-0524
- » **Website** <http://hubzero.org/hubbub>

This two-day symposium will have presentations and workshops showing how the unique HUBzero open source software solution has empowered a wide spectrum of projects in nanotechnology, healthcare research, and other areas of engineering and science. Register BEFORE August 1st to get 50% off the regular registration fee. Conference registration fee includes all sessions, opening reception on the evening of Sept. 28th, continental breakfast and lunch on Sept. 29th and 30th, and dinner on Sept. 29th. Submit your abstract by July 15 for a chance to speak at HUBbub.

### Future Opportunities in Nuclear Power

- » **When** September 30, 3-9 p.m. and October 1, 8 a.m.-5 p.m.
- » **Where** Stewart Center, Fowler Hall and Morgan Center, Room 121
- » **Contact** Pankaj Sharma, [sharma@purdue.edu](mailto:sharma@purdue.edu) or 496-7452
- » **Website** [www.purdue.edu/discoverypark/energy/index.php](http://www.purdue.edu/discoverypark/energy/index.php)

This event will discuss past, present, and future of nuclear power. The event will feature a Discovery Lecture Series speaker, a research poster session, and a research workshop with several panel discussions on advances in nuclear fuel/reactors/monitoring. Registration will open in July 2014.

## OCTOBER

### 4th International Breast Cancer Prevention Symposium: Genes, the Environment and Breast Cancer Risk

- » **When** October 16-18, 8 a.m.- 5 p.m.
- » **Where** Stewart Center, Room 218 ABCD
- » **Contact** Kristine Swank, [kswank@purdue.edu](mailto:kswank@purdue.edu) or 494-4674
- » **Website** [www.purdue.edu/breastcancer](http://www.purdue.edu/breastcancer)

The goal of this symposium is to bring together global public health actors, advocates, and researchers on breast cancer prevention, to discuss the impact of environmental factors such as foods, stress, exercise on the genome. The symposium will take us on a journey across disciplines to study different levels of gene-environment interactions. Concretely, we will explore the epigenetic mechanisms of gene expression control, health policy and practices, socioeconomic and cultural contexts in which these environmental factors come into play. Register now at [www.purdue.edu/breastcancer/registration.html](http://www.purdue.edu/breastcancer/registration.html). For registration information contact Kathy Walters at [kw@purdue.edu](mailto:kw@purdue.edu) or 494-2758.



### Finding the Right Opportunities and Developing Grant Proposals

- » **When** October 16, 11:30 a.m. - 1:00 p.m.
- » **Where** Stewart Center, Room 310
- » **Contact** Sue Grimes, [sgrimes@purdue.edu](mailto:sgrimes@purdue.edu)

This workshop, hosted by OVPR's Research Development Services staff, will provide you with tools and resources to help make the proposal writing process easier. The registration link will be posted on the OVPR website three weeks prior to the event at [www.purdue.edu/research/vpr/rschdev/events.php](http://www.purdue.edu/research/vpr/rschdev/events.php).

### Transforming Institutions: 21st Century Undergraduate STEM Education

- » **When** October 23, 6 p.m. - October 24, 8 p.m. possible optional session on Saturday morning October 25
- » **Where** NCAA Hall of Champions, Indianapolis, IN
- » **Contact** Amy Childress, [itconference@purdue.edu](mailto:itconference@purdue.edu) or 494-1844
- » **Website** [www.purdue.edu/DLRCconference](http://www.purdue.edu/DLRCconference)

What kinds of supports do we need to truly transform undergraduate STEM education? What kinds of barriers exist? How can we reconfigure learning spaces, technology and infrastructure? How do we encourage and support faculty in their quest to innovate? And how do we assess and understand transformation as it's happening? Join the dialogue on educational transformation.

Abstract submissions due June 2. Early bird registration ends July 31. Regular registration runs August 1-October 3. Late registration is after October 3. ■

→|| 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 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; Geanie Umberger, gumberger@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
- » Research Regulatory Compliance; 494-7458; Ianthe Bryant-Gawthrop, ibg@purdue.edu
- » Research Quality Assurance; 496-6653; Michael Szczepanski, mikes@purdue.edu
- » Conflict of Interest; 496-1763; Voichita Dadarlat, voichi@purdue.edu
- » Export Controls; 494-1852; Michael Reckowsky, mreckowsky@purdue.edu
- » Protection of Research Subjects; 496-3824; Howard Zelaznik, hnzelaz@purdue.edu
- » 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)

**Co-editors** » Pam Burroff-Murr, [burroff@purdue.edu](mailto:burroff@purdue.edu); Angie Roberts, [akroberts@purdue.edu](mailto:akroberts@purdue.edu)

**Layout** » Linda A. Howell, [lahowell@purdue.edu](mailto:lahowell@purdue.edu)

**Proofing** » Cindy Larson, [cindylarson@purdue.edu](mailto:cindylarson@purdue.edu)

**Contributing Writers** » Sally Bond, Phillip Fiorini, Ianthe Bryant Gawthrop, Amanda Hamaker, Greg Kline, Angie Roberts, Keith Robinson, Megan Sweet, Charles Watkinson

**Photography** » Tom Campbell, John Underwood, Vincent Walter

**Read Dimensions of Discovery online at** » [www.purdue.edu/research/vpr/publications](http://www.purdue.edu/research/vpr/publications)

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*Continued from p. 1*

ExDie Cleaning Technologies, led by materials engineering students MaryBeth Pavlick, Wanying Li, Daw Gen Lim and Nolan Lantieri, is developing a safe, efficient and inexpensive method for removing the remaining material from aluminum extrusion dies.

Other finalists included teams developing cardiovascular diagnostic technology, software for networked embedded systems, cooling technology, premium charcoal briquettes, nuclear energy conversion technology, online ordering capabilities for small retailers, fund raising systems and online retail plastic-ware.

"The birth of the next-generation economy was apparent in all of these presentations," says Joseph Pekny, interim director of the Burton D. Morgan Center for Entrepreneurship.

Based in the Burton D. Morgan Center for Entrepreneurship and supported and managed by the Purdue Research Foundation, the Foundry supports faculty, staff and student innovators in such areas as:

- » Product ideation and market analysis on an innovation.
- » Development of a business plan.
- » Help with finding funding sources, including SBIR grant writing.
- » Counsel from legal advisers on corporate, intellectual property and immigration issues.
- » Advice from alumni and faculty entrepreneurial mentors.
- » Guidance from Purdue Entrepreneurs-in-Residence.

Visit [www.purduefoundry.com](http://www.purduefoundry.com) for more information. ■

*Writer: Phillip Fiorini is a senior writer/editor with Purdue Marketing and Media.*