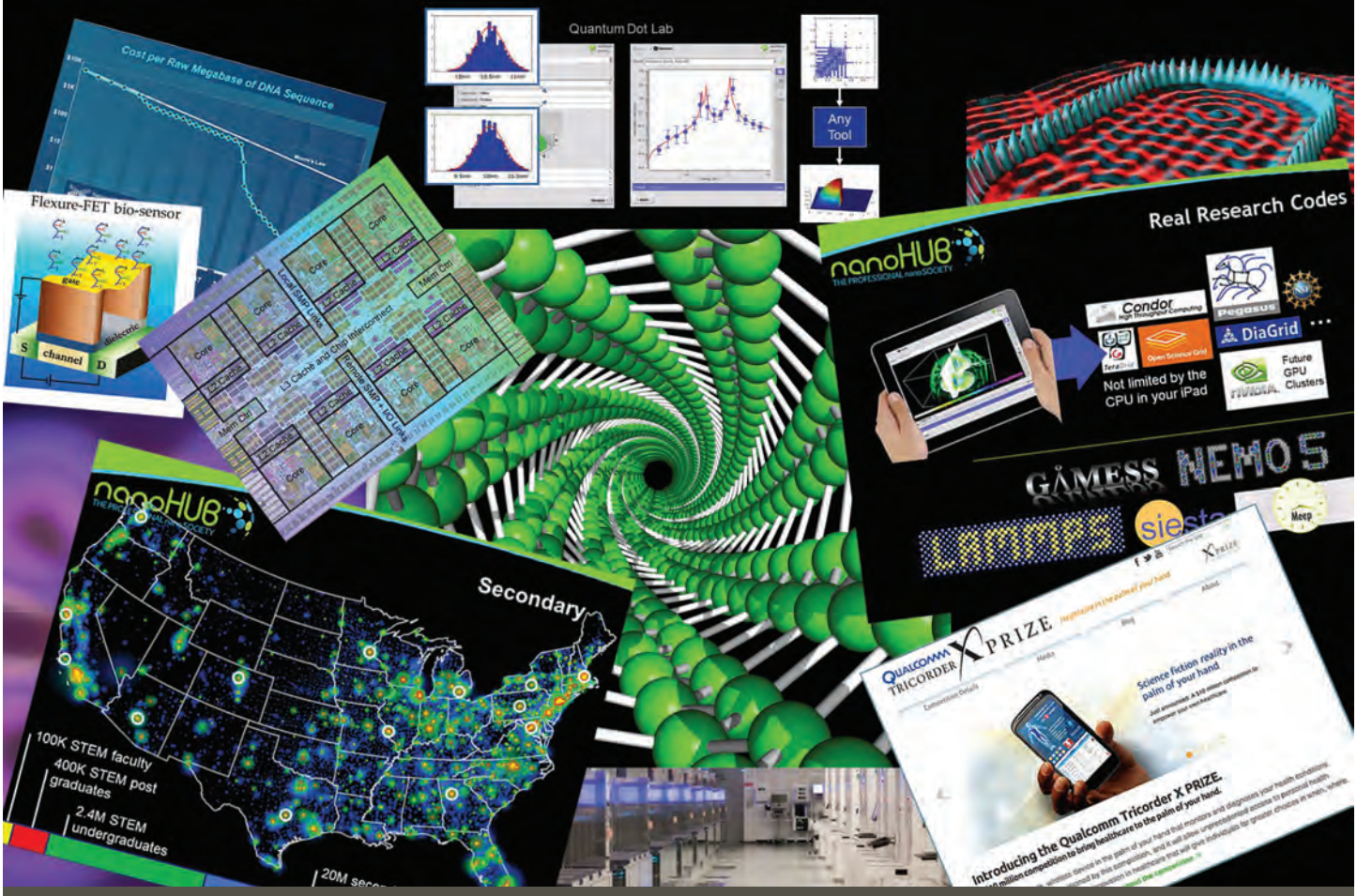
DIMENSIONS of DISCOVERY



Innovation

Welcome

"Chance favors the connected mind."

— Steven Johnson, *Where Good Ideas Come From: The Natural History of Innovation*

Inspiration and insight come from nearly everywhere, but often because we're connected to other people and ideas. In this issue dedicated to innovation in research, learn why local entrepreneurs are meeting for coffee every Friday morning, how an online community with 240,000 annual users is advancing nanotechnology, and who is finding inspiration from frequent fliers and rock stars. ■

Purdue Researchers Win $14.5 Million NSF Grant to Take nanoHUB.org to Next Level

Purdue University researchers have received a five-year $14.5 million National Science Foundation grant to expand their widely used nanoHUB online science and engineering gateway.

The Purdue-led Cyber Platform, a part of the Network for Computational Nanotechnology (NCN), will assist researchers across the globe by developing a virtual society that shares simulation software, data and other innovative content to provide engineers and scientists with the fundamental knowledge required to advance nanoscience into nanotechnology.

Gerhard Klimeck, electrical and computer engineering professor, is the principal investigator of Cyber Platform. Co-principal investigators are **Krishna Madhavan**, **Michael McLennan**, **Lynn Zentner** and **Michael Zentner**.

"Our long-term vision for the Cyber Platform is to use the nanoHUB as an online nano society that researchers, practitioners, educators and students depend on daily," Klimeck says. "At the same time, we are excited about how this tool has extended into professional practice as a computational resource for a multidisciplinary culture of innovation grounded in cloud services-enabled workflows."

Continues on the back page

PURDUE UNIVERSITY

Inside »

Weaver Receives Spirit of the Land-Grant Mission Award

Purdue University nutrition scientist and professor **Connie Weaver** will receive Purdue Extension's 2012 Spirit of the Land-Grant University Award for improving nutrition recommendations for children, adolescents and adults nationwide through her research in calcium absorption and bone health.

The award is presented yearly to a Purdue faculty member in the Colleges of Agriculture, Health and Human Sciences or Veterinary Medicine whose work exemplifies the university's land-grant mission of discovery, engagement and learning.

Much of Weaver's work with children and adolescents takes place at Camp Calcium, a six-week camp designed to measure calcium absorption and use in children and younger teenagers. The camp, held annually for the last 22 years, gives adolescents a chance to explore careers and take science and math classes in a college environment while researchers control their diets and measure the amount of calcium their bodies absorb.

"The award reflects excellence in research, teaching and engagement, and Connie demonstrates this excellence in a way that very few have," said **Karen Plaut**, director of agricultural research and associate dean of Purdue Agriculture. "Connie embodies the spirit of the whole award, particularly in the area of engagement. She truly has an attitude of 'let's take that research out and get it to the public.' She has greatly impacted the lives of children - and adults, too - through her work with Camp Calcium."

Weaver has brought her knowledge to a variety of national boards and organizations, including the National Academy of Sciences Food and Nutrition Board Panel, where she helped develop government standards for the amount of calcium that adolescents should consume to optimize bone strength and prevent osteoporosis. Her recommendations were used to develop the U.S. Department of Agriculture's My Plate dietary guidelines.

Connie Weaver

Photography: Tom Campbell

Conducting research with the purpose of informing the public of the results is a hallmark of Weaver's research and Extension program, said **Jim Mintert**, interim director of Purdue Extension.

"Dr. Weaver provides a great example of how a land-grant university faculty member can truly help improve the lives of people, not only in Indiana but throughout the world," he said. "The impact of her work will be felt for very many years to come as it's reflected in improved bone health and reductions in osteoporotic fractures as our population ages."

At Purdue, Weaver heads the Department of Nutrition Science in the College of Health and Human Sciences. She leads the new Women's Global Health Institute in Discovery Park and serves as deputy director of the Indiana Clinical and Translational Sciences Institute. She previously won the university's highest research honor, the Herbert Newby McCoy Award.

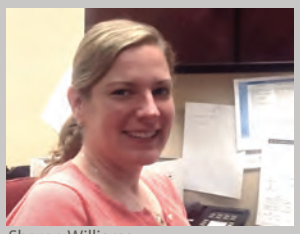
Weaver received a commemorative plaque, $10,000 to support her research and a $1,500 honorarium. ■

Writer: Jessica Merzdorf is a writer for the Agricultural Communication Service.

Anthropologist Studies Government, Policy from Inside the Beltway

After the presidential election in November, the media — and consequently the people of the United States — turned their attention to a possible fiscal cliff. But back in August, the dread of sequestration was already looming large in the minds of Washingtonians.

"I was a bit surprised when I got here in August," says **Sharon Williams**, an assistant professor of anthropology who had just begun her yearlong stint as a science and technology fellow with the American Association for the Advancement of Science (AAAS). "I was right here when conversations about sequestration were happening, and the impact this could have on biomedical research and the National Institutes of Health (NIH), and the direct impact on universities including Purdue. My colleagues at other universities were completely unaware of what was going on."


Sharon Williams

Williams quickly observed how weak the flow of information was between academia and the U.S. government. "As academics, we tend to be isolated, and that's a bit dangerous," she says. "Particularly when things like this are happening and it could be beneficial to our research."

Williams' temporary position is with the NIH's Office of Science Policy, which advises and supports the NIH director on science policy issues affecting the medical research community, the NIH and the public. Interacting with a number of the NIH's 27 institutes and centers, she edits reports to Congress, performs background research and provides budget information.

An anthropologist who also has a background in molecular genetics, Williams is naturally curious about behavior within systems. Along with better understanding how grants get funded and where research priorities are, she is also gaining a broader view of government.

"One of the things you're trained to do is look at patterns and why things work, not just in health and biology, but in the broader structure. D.C. is a great place to do that," she says. "In many ways it's like working in another country. I'm learning how things work, how information flows. It makes me think a lot about why things are done the way they are." ■

NSF Career Award

Oana Malis, assistant professor of physics, has received a five-year, $400,000 Faculty Early Career Development (CAREER) award from the National Science Foundation. Malis is seeking to demonstrate a non-polar nitride cascade laser to fill the need for ultra-fast compact light sources tunable by design in the entire underutilized near-infrared range.


Oana Malis

The program will enable a new class of versatile, ultra-fast devices that will facilitate compact, affordable consumer systems and could eventually surpass the commercial success of the blue nitride lasers. The program also will increase exposure of seventh to twelfth graders from economically disadvantaged backgrounds in Central Indiana to the scientific content and method of photonics. ■

VACCINE Honored by Transportation Security Administration

Purdue University's VACCINE (Visual Analytics for Command, Control and Interoperability Environments) has received an award from the Transportation Security Administration (TSA).

Last December, Michael Young, TSA's federal security director of Northern Ohio, presented VACCINE Director **David Ebert** with the award, honoring the center's work to improve TSA operations by combining operational, staffing, financial, performance and safety data.


David Ebert

"The VACCINE Center personifies the mission of U.S. Department of Homeland Security, University Programs, Centers of Excellence through its demonstrated collaboration and research exchange between the Transportation Security Administration in Ohio, in addition to its partnership with other Ohio state and local law enforcement and intelligence agencies," Young says. "The synergy between academia and operational components has developed solutions to real-world challenges while leveraging academic research to enhance data analysis and visualization trends to achieve greater efficiency and trend analysis for operational leadership." ■

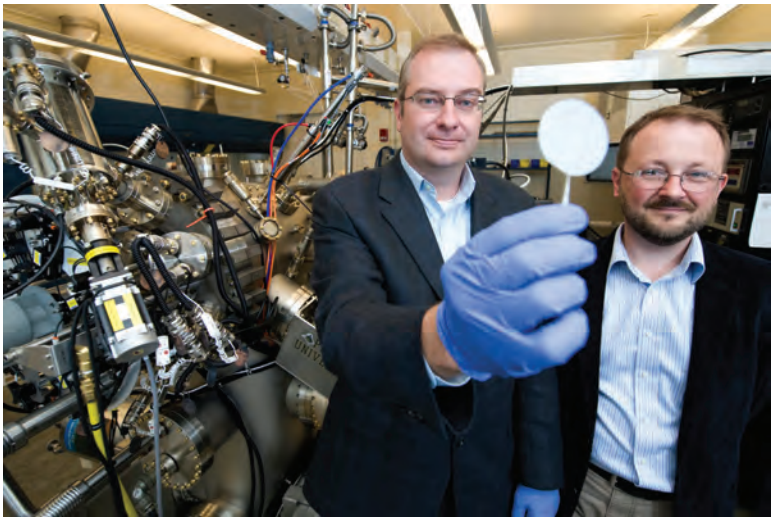
Keck Grant to Fund Exploration of Semiconductors

A race car can zip along a clean, empty track much faster than on one littered with debris and filled with slow-moving cars. The same is true of electrons in semiconductor crystals. But electron mobility — which is essential to the discovery of new physics and development of better electronics — has not increased in more than a decade, and scientists are trying to figure out why.

Michael Manfra and his colleagues believe that the purity of the semiconductor gallium arsenide could be one of the reasons, and to investigate, they're embarking on a new project with support from the Keck Foundation.

Through the $1 million project, titled "200 Million Mobility 2DEGs: Pushing Materials to the Extreme," the team is seeking to refine gallium arsenide to not only speed the flow of electrons in semiconductors but also potentially open the door to new physics not possible today. It's the second Keck grant to be awarded to Purdue in the last 12 months.

Manfra, the William F. and Patty J. Miller Associate Professor of Physics, associate professor of materials engineering and associate professor of electrical and computer engineering, will be in charge of developing new tools for growth of ultra-high purity gallium. **Gabor A. Csathy**, associate professor of physics, will develop novel high-throughput low-temperature measurement technology to optimize electrical characterization of the metal. **David Johnson**, associate professor of materials engineering, and **Kevin Trumble**, professor of materials engineering, will develop new tools for in-house refining of gallium. ■



Purdue professors Michael Manfra, left, and Gabor Csathy stand next to the high-mobility gallium-arsenide molecular beam epitaxy system at the Birck Nanotechnology Center. Manfra holds a gallium-arsenide wafer on which his research team grows ultrapure gallium arsenide semiconductor crystals to observe new electron ground states that could have applications in high-speed quantum computing. (Photography: Andrew Hancock)

Huber Named Director of Purdue Climate Change Research Center

A leading Purdue University researcher in tropical cyclones and global warming has been named director of the Purdue Climate Change Research Center, the university's interdisciplinary effort focusing on research and education in global climate change.

Matthew Huber

Matthew Huber, a professor of earth, atmospheric and planetary sciences who has been at Purdue since 2003, will succeed Otto Doering, who has served as interim director of the Discovery Park center since October 2010. Huber's appointment is effective immediately.

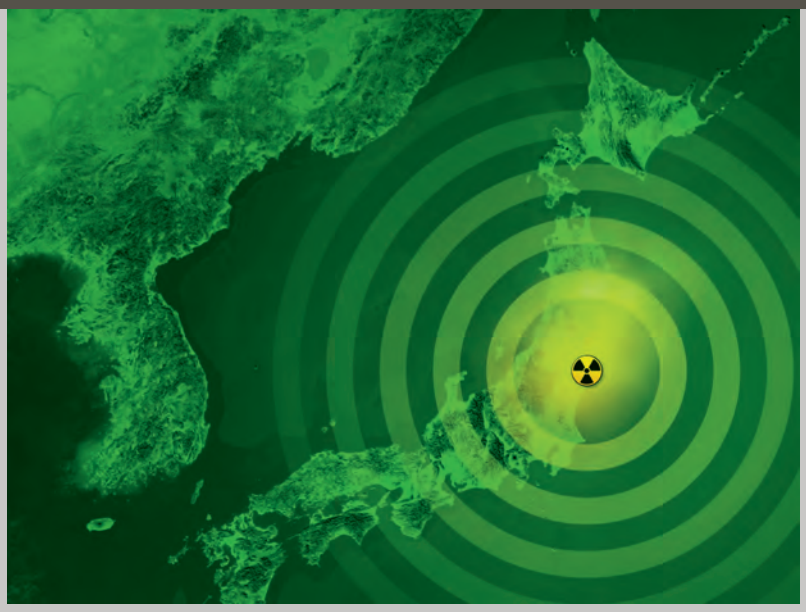
"Professor Huber is internationally known by the climate change community for his research, particularly on the issues of tropical cyclones and global warming," said **Alan H. Rebar**, director of Discovery Park and Purdue's senior associate vice president of research. "As a co-founder of the Purdue Climate Change Research Center, we believe Matt will be a great fit for what we hope to accomplish through the center and its role within Purdue's Global Sustainability Institute."

In leading the Climate Dynamics Research Laboratory at Purdue, Huber has focused his research on past climate change; future heat waves; mechanisms that govern climate; different forms that climates can take on Earth; and the relationship between climate change and life.

"The basic problem posed by climate change is well-defined, and the science of climate change is mature," said Huber, who has had more than 50 research papers published since joining the Purdue faculty a decade ago.

"From policymakers, economists and farmers to insurance companies and city planners, the goal for the Purdue Climate Change Research Center now is to reach out to potential stakeholders to inquire what kind of information and research they need, to develop a signature area at Purdue for helping people, and presenting information that offers solutions to the climate change problem." ■

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



National Science Foundation Issues First International Research and Education Program Grant to Purdue

One year after the tsunami that led to triple meltdowns at the Fukushimi Daiichi power plant in Japan March 2011, all 54 reactors in Japan had gone offline and public opposition to restarting them was strong. But with the high cost of oil and gas imports, Japan confronted a conundrum many nations now face: how do nations advance energy systems, from nuclear physics to wind power, using reliable materials that are damage-resistant under extreme environments while simultaneously developing a workforce capable of building, running and maintaining them?

This complex question serves as the premise of the first grant issued to Purdue by the National Science Foundation's Partnerships for International Research and Education (PIRE) program. Under the leadership of **Ahmed Hassanein**, Paul L. Wattelet Professor and chair of Nuclear Engineering at Purdue, the $3.9 million grant, titled "Nuclear Energy Systems and Materials under Extreme Conditions," will fund the development and refinement of advanced materials for nuclear and cutting-edge applications. The developed materials will allow energy systems to operate with increased reliability, safety and economy while increasing sustainability and limiting negative environmental impacts. The grant will focus on training and providing international research experiences to graduate and post-graduate students.

The project will be headquartered at Purdue's Center for Materials under Extreme Environment and brings together key partners and research facilities in Japan, Russia, Germany and Ireland while supporting domestic educational opportunities that connect Purdue University and University of Illinois with Tuskegee University. Purdue co-PIs include Professor **Audeen Fentiman** (Nuclear Engineering), Research Associate Professor **S. Harilal** (Nuclear Engineering) and Visiting Assistant Professor **Joyce Main** (Engineering Education). The grant also brings together the expertise of both the Global Policy Research Institute and Global Engineering. ■

Purdue Appoints New Leader for Center for Regional Development

Purdue has chosen **Lionel "Bo" J. Beaulieu** as its next director of the Purdue Center for Regional Development, beginning in April. In addition, Beaulieu will serve as a professor in the Department of Agricultural Economics.

Lionel Beaulieu

Beaulieu has been director of the Southern Rural Development Center at Mississippi State University since 1997, where he also is a professor in the Department of Agricultural Economics. Prior to that, he was a professor in the University of Florida's Department of Family, Youth and Community Services and assistant and acting chair of the Department of 4-H Youth Development. He earned master's and doctoral degrees from Purdue.

Housed in Mann Hall, the Purdue Center for Regional Development provides support for civic leaders as they build their economies through education and workforce development, innovation and entrepreneurship support, physical planning, and leadership development. PCRD develops advanced tools and provides training and technical assistance that enable Indiana's entrepreneurs, communities and regions to compete in the global economy. ■

Writer: Jeanne V. Norberg is director of public information with Purdue Marketing and Media.

PURR Provides a Campus Hub for Research Data Management

For eight years **Jeffrey Volenec** and colleagues collected data to better understand how potassium and phosphorus influence alfalfa growth. With the study over, the question became what to do with all that data.

"It's unlikely to be done anytime soon by anyone else, so we thought this type of data ought to be preserved," says Volenec, an agronomy professor who became one of the first users of the Purdue University Research Repository (PURR.)

Created to support researchers in meeting data management plan requirements for the National Science Foundation and other funding agencies, PURR is a platform for collaboration, publishing and archiving datasets.

Purdue faculty, graduate students and staff can create projects on the PURR website, invite others to join their projects, and receive a free allocation of storage and tools for helping them collaborate and manage research data. Among other things, that data can include software source code, output from sensors and instruments, interview transcripts, observation logs, spreadsheets, databases, scientific images and video.

"Scholars often publish findings in conference and journal papers, but without the supporting data, the research can't be reproduced and verified by others," says **Courtney Matthews**, digital data repository specialist at the Purdue Libraries. "PURR gives Purdue researchers a platform for managing and publishing their datasets in a way that meets funder requirements and enables reuse of data that gives credit to the researcher."

It also provides customizable text for grant proposals as well as tutorials and support for developing effective data management plans.

Since its launch, PURR has been included in more than 500 grant proposals from Purdue.

Datasets published and archived in PURR are assigned Digital Object Identifiers (DOIs) that uniquely identify them. **David Gleich** used PURR to publish a dataset involving social network analysis. "DOIs make it easy to track citations, usage and other metrics," says Gleich, professor of computer science. "It's always important to be able to demonstrate research impact."

Datasets are archived for a minimum of ten years, after which time they are managed as a collection of the University's libraries.

The Purdue Libraries, the Office of the Vice President for Research and Information Technology at Purdue (ITaP) jointly developed PURR. The service is based on Purdue's HUBzero™ platform. ■

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

PURR is a data sharing resource and isn't intended for posting or storing confidential, controlled or proprietary information. Users should refrain from posting sensitive data such as identifiable data from human subjects, export-controlled technical data, or information covered under a non-disclosure agreement. As the Purdue Privacy Policy warns, data posted online always has the potential to be breeched, whether maliciously or unintentionally, so university personnel need to consider their data's sensitivity before posting it. ■

Courtney Matthews

For more information about the Purdue University Research Repository (PURR), contact **Courtney Matthews**, digital data repository specialist at the Purdue Libraries, at 496-2770 or **purr@purdue.edu**, or visit **http://purr.purdue.edu**. ■

Innovation and Commercialization Center Aims to Expand, Accelerate Flow of Purdue IT Innovations to Market

An ecosystem is a connected community of living and nonliving things functioning in concert, as you can see on a walk in the woods.

The place to see a burgeoning ecosystem for moving Purdue ideas to market and growing businesses and jobs in the process is West Lafayette's Morton Community Center on Friday mornings. That's where Purdue faculty, staff and student entrepreneurs get together for coffee and pastries along with Lafayette area businesspeople as part of the IT arm of Purdue's Innovation and Commercialization Center (ICC).

The meetings were initiated by **Gerry McCartney**, vice president for information technology and inaugural director of ICC-IT.

"I get to hear about cool ideas, problems other startups are having and how they solved them and just talk with other folks trying to build something," says **Mikel Berger**, Purdue graduate and founder of DelMar Information Technologies, a Purdue Research Park-based company. "Professionally, it helps my company because we partner with others to build new software businesses."

Along with Friday morning coffees at the Morton Center, ICC-IT also links new entrepreneurs with mentors in residence at Purdue or alumni mentors who are startup veterans.

"Networking with Purdue's alumni base will likely be beneficial for our business, and any improvements to the entrepreneurship ecosystem will have benefits for everyone involved," says **Jon Perl**. Another Friday regular, he started FoundOPS, a cloud-based business intelligence service for small businesses, with fraternity brother **Owen Shatken** in a spare room at the Alpha Epsilon Pi house. FoundOps has since moved into the Purdue Research Park.

ICC-IT also provides a development fund for early-stage activities, such as proof-of-concept or prototyping. The first grant was made in 2012 to a faculty and staff team creating new technology for electric guitars.

This spring, the center is debuting a student mini-grant program that offers $1,000 to $3,000 for students needing seed money for prototypes and market research. "Prototype development is a very important step in the innovation process because it is really where students take ideas and start to create early versions of real things," says **Melissa Dark**, W.C. Furnas Professor of Technology and ICC-IT's faculty director. ■

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

Other Entrepreneurial and Commercialization Resources

In addition to ICC-IT, Purdue offers a number of other resources to assist faculty and student entrepreneurs:

Burton D. Morgan Business Plan Competition invites student entrepreneurs to submit their products and services to win up to $100,000 for startup creation. Program is directed by **Richard Cosier**, the Avrum and Joyce Gray Director of the Burton D. Morgan Center for Entrepreneurship, and Purdue's Leeds Professor of Management. **www.bdmorganfdn.org/purdue**

Certificate in Entrepreneurship and Innovation Program is a series of five undergraduate courses for all majors. Program is administered through the Office of the Provost and directed by **Nathalie Duval-Couetill**, associate director of the Burton D. Morgan Center for Entrepreneurship. **www.purdue.edu/entr**

The Docking Station, located near the West Lafayette campus at 222 Northwestern Ave., provides entrepreneurs with a casual place to meet, work and network. The station is sponsored by Purdue Research Foundation, Burton D. Morgan Center for Entrepreneurship and Frontier Communications. Contact **Tim Peoples** at 588-3365 or **trpeoples@prf.org**.

The **Innovation and Commercialization Center-MD (ICC-MD)** has been designed to replace the non-profit formerly known as the Alfred Mann Institute for Biomedical Development at Purdue University, Inc. Under the oversight of the Purdue Research Foundation, ICC-MD will continue its original mission of commercializing Purdue life science technologies by providing early-stage seed funding and business-related guidance on promising discoveries.

Purdue Entrepreneurial Leadership Academy assists faculty who want to commercialize their discoveries or lead large interdisciplinary initiatives. **Candiss Vibbert**, associate director for Discovery Park Engagement, manages the program. **www.purdue.edu/discoverypark/entrepreneurship/programs/leadershipacademy.php**

Purdue Realization and Entrepreneurship Postdoctoral and Doctoral Program provides financial support for doctoral students and postdoctoral researchers for commercialization of their research. Cosier manages the program. **http://www.purdue.edu/discoverypark/entrepreneurship/programs/prepp.php**

Purdue Research Park Entrepreneurship Academy provides early entrepreneurial experiences to Indiana high school students. Winning teams receive tuition vouchers to attend Purdue. **http://purdueresearchpark.com/academy** ■

Student Entrepreneurs and Innovations

Purdue students are leading a national tr
students actively participating in patent
355 students contributed to Purdue disc
sampling of Purdue inventors, who've ben
Morgan Center for Entrepreneurship and t

Anne Dye Zakrajsek used her mechanical engineering skills to redesign helmet padding for better protection again concussions. It's now being tested by the National Operating Committee on Standards for Athletic Equipment. (Photography: Andrew Hancock)

Will Black, **Robbie Hoye** and their colleagues have created a Ghost Pedal so musicians can wirelessly make "wah" effects on a guitar and still move around a stage. OTC is seeking a licensee. (Photography: Purdue Research Foundation)

Chris MacPherson and **Andrew Linfoot** have created a cheap, flavor-neutral, sugar- and calorie-free powder called Kyk "Kick" Energy, which can be mixed seamlessly into any beverage and some foods. They ship all over the globe. (Photography: Purdue Research Foundation)

Anton Iliuk is developing a more efficient way of looking at phosphorylation, a process that can cause or prevent the mechanisms of diseases such as cancer. Now, he and Professor **Andy Tao** have started Tymora Analytical Operations to commercialize the technology for research and pharmaceutical development. (Photography: The Exponent)

See the next page for a policy announcement on course-generated intellectual property created by students.

end among undergraduate and graduate ting their discoveries. In Fiscal Year 2012, overies, up from 218 in FY 2011. Here is a efited from such resources as the Burton D. he Office of Technology Commercialization.

David Nelson began inventing apps before the first iPhone was launched and developed the MorVid company with Professor **Carlos Morales** to market games. Pak Attack is their first big commercial title. (Photography: Andrew Hancock)

To help delay or prevent surgery among people with arthritis in the knee, **Shaili Sharma** has developed an injectable molecule to restore compressive strength and prevent degradation. (Photography: Greg Kline)

Sean Connell, **Rob Einterz** and **Jianming Li** have developed a compound that uses nanotechnology to help heal wounds and fight infections. They were honored by **Richard Cosier**, the Avrum and Joyce Gray Director for Burton D. Morgan Center for Entrepreneurship, as winners of the 2011 Purdue University Life Sciences Business Plan Competition. (Photography: Cindy Ream)

Everywhere that **Jeff Ackerman** went, it seemed that someone was struggling to carry a heavy load—moms with baby carriers, workers with tool boxes, travelers with luggage. So he and his business partners developed Rhotek, a handle with its own built-in compact suspension system that lightens loads and reduces wear and tear on muscles and joints. (Photography: The Exponent)

Entrepreneurship Center Names Associate Director

Elizabeth Hart-Wells from the Purdue Office of Technology Commercialization will serve as associate director of the Burton D. Morgan Center for Entrepreneurship and assistant vice president for research.


Elizabeth Hart-Wells

As associate director of BDMCE, she will provide advice and information on commercialization of Purdue's intellectual property, engage students in entrepreneurial activities, and enhance Purdue entrepreneurship in Indiana.

As assistant vice president for research, Hart-Wells will support faculty in corporate and foundation relations, sponsored program services and government relations as they relate to research administration. She will continue in her responsibilities as director and assistant vice president of OTC, where she oversees technology transfer activities through patent filing and protection.

Hart-Wells earned a doctorate in chemistry from Rice University and a bachelor's degree in chemistry from Indiana University. She served as a Congressional Fellow for the American Association for the Advancement of Science, a patent agent for Fulbright & Jaworski LLP and a research associate for the National Academy of Sciences. Before coming to Purdue in 2010, she was executive director of Commercial Ventures and Intellectual Property at the University of Maryland, Baltimore.

OTC Campus Office Moves

The Purdue Office of Technology Commercialization has relocated its campus office to the Burton D. Morgan Center for Entrepreneurship, Room 223. The new location is open 11 a.m. to 5 p.m., Monday and 9 a.m. to 5 p.m., Tuesday through Friday. A notary will be in the office each Tuesday to assist with signing of legal documents, free of charge, to support commercialization. ■

Purdue Clarifies Policy on Intellectual Property Involving Students

As Purdue University has increasingly focused on discovery with delivery, entrepreneurial activities have become more commonplace in the classroom. Not surprisingly, those activities have led to questions about the ownership of course-generated intellectual property that may have commercial value.

To help students and faculty better understand IP ownership as it relates to course assignments, President **Mitch Daniels** has approved a clarification of Purdue Policy I.A.1 Intellectual Property.

The clarification, titled "Ownership of University Course-Generated Intellectual Property Created by Students," clarifies that the university claims no ownership rights to course-generated intellectual property created by Purdue students, as long as:

- student innovators have used resources routinely made available by the college or department administering the course, and provided equally to all students in the course;
- the students are not paid by Purdue University, whether through internal funds or under a grant or contract with a third party; and
- there are no preexisting obligations for Purdue in connection with the course-generated intellectual property.

You can review the policy online at **www.purdue.edu/apps/elist39/download.cfm?filename=StudentIPOwnership020813.pdf**.

If you have specific questions regarding the university's interest in, or possible ownership claims in, course-generated intellectual property developed by Purdue students, please contact **Elizabeth Hart-Wells** at **eahart-wells@prf.org**. ■

NSF Implementation of the Research Performance Progress Report

On March 18, 2013, the National Science Foundation (NSF) will fully migrate project reporting from FastLane to Research.gov. Principal Investigators will utilize Research.gov to complete all NSF project reporting requirements, including submission of the Project Outcomes Report and submission of Annual and Final Project Reports. Enhanced functionality within Research.gov will also make it easier for users to determine which reports are due or overdue, and will provide access to all reports submitted to NSF.

Effective February 1, NSF has implemented a freeze on report submissions, and investigators are not able to utilize FastLane for the submission of reports. In order to assist the research community with this transition, all project reports currently scheduled to be overdue between January 31 and April 30 will be given an extended overdue date.

The RPPR is a uniform progress report format intended for use by all federal agencies to create greater consistency in the administration of federal research awards. The RPPR has been mandated by the Office of Management and Budget and coordinated by the National Science Foundation: **www.nsf.gov/bfa/dias/policy/rppr/fedregfinal.pdf**

If you would like assistance with getting started in Research.gov, please contact **Nicholas Urcuioli** at 494-0443, or at **spsdhhs@purdu.edu**. For more information, see:

Research.gov Project Report Preview: **www.research.gov/common/attachment/Desktop/NSF_RGov_RPPR_ScreenshotsandInstructions_102412.pdf**

Research.gov Project Reporting Getting Started Guide: **http://researchadmin.iu.edu/GrantContract/docs/Project_Report_Getting_Started_Guide.pdf**

Implementation timeline by Federal Agency: **www.nsf.gov/bfa/dias/policy/rppr/.** ■

NIH Issues New Public Access Policy Reporting Requirements

The National Institutes of Health ensures that the public has access to published results of NIH-funded research through its Public Access Policy (**http://publicaccess.nih.gov**). To promote timely and accurate reporting of results, NIH has announced that it will begin to suspend the processing of non-competing continuation grant awards if publications arising from that award are not in compliance with the policy. That means that future installments of grant awards will not be issued until the requirement has been met.

The change, which will begin as early as April 2013, will become effective in tandem with the new requirement for Research Performance Progress Reports (RPPRs) for all Streamlined Non-competing Award Process (SNAP) and Fellowship awards this spring. NIH will simultaneously implement a procedural change, outlined below, for paper progress reports (PHS 2590).

Public Access Compliance with the RPPR

Through the new progress reporting mechanism, investigators will report publications using a My NCBI account linked to an eRACommons account. Section C.1 will pre-populate publications from NCBI, and the project director or principal investigator can check off associated publications.

If any citations are out of compliance with the public access policy, the grantee will receive an automated email requesting a response at least two weeks before the next budget start date. Grantees can update information via a Progress Report Additional Materials (PRAM) link.

Procedural Change for Paper Progress Reports (PHS 2590)

All grantees submitting paper PHS 2590 progress reports will need to include a publications list generated through My NCBI. The PDF, which will serve as Section 2.2.6, Section E., Publications, will indicate the compliance status of each reported paper. If any publication is not compliant with the public access policy, NIH staff will email the PD/PI and business official to inform them that the award will be delayed until the grantee can provide evidence of compliance or a satisfactory explanation.

Reminders Regarding Completeness and Accuracy of Progress Reports

- PD/PIs submitting an application, proposal or report to the NIH are required to include the PMC reference number (PMCID) or appropriate substitute when citing a paper that they authored or that arose from their NIH-funded research if the paper falls under the public access policy.
- Grantees should only report publications in the relevant section of the progress report (Section 2.2.6 Section E of the PHS 2590 and section C. 1 of the RPPR). NIH systems will not record publications listed in other sections as productivity arising from the award.
- Grantees must report all publications arising from their award during the reporting period regardless of their public access status.
- When submitting progress reports to NIH, grantees must certify the completeness and accuracy of their information.

If you have questions, contact **Megan Sweet**, senior account manager in Purdue's Post-Award Services, at 494-6367 or **spsdhhs@purdue.edu**. Sweet covers grants for NASA and the U.S. Department of Health and Human Services, which oversees NIH. ■

Research Performance Progress Report to Replace eSNAP

Effective April 2013, the National Institutes of Health will require that investigators use the Research Performance Progress (RPPR) functionality within the eRA Commons to submit all non-competing and fellowship award progress reports.

The RPPR is a uniform progress report format intended for use by all federal agencies to create greater consistency in the administration of federal research awards. The RPPR has been mandated by the Office of Management and Budget and coordinated by the National Science Foundation. The RPPR replaces the eSNAP previously required. (For background information, see **www.nsf.gov/bfa/dias/policy/rppr/fedregfinal.pdf**.)

The RPPR format contains eight components: cover page, accomplishments (the sole mandatory reporting component), products, participants and other collaborating organizations, impact, changes/problems, special reporting requirements for agency specific requirements, and budgetary information.

Each agency may implement the optional categories as needed. Training materials and additional resources are posted on the NIH RPPR webpage: **http://grants.nih.gov/grants/rppr.**

If you have questions, contact **Megan Sweet**, senior account manager in Purdue's Post-Award Services, at 494-6367 or **spsdhhs@purdue.edu**. Sweet covers grants for NASA and the U.S. Department of Health and Human Services, which oversees NIH. ■

Digital Measures

Faculty Features and Benefits of Digital Measures

Collect and organize data.

Record your activities and store artifacts of your work, including publications, research grants, awards and honors, and service efforts.

Track your general education goals, program goals and learning outcomes.

Map your curriculum to these concepts and document how you're covering and assessing them.

Enlist proxies to help you.

Ask student workers or departmental assistants to assist with entering information for you.

Log in easily.

Easily access Digital Measures using your Purdue career account.

Multiple data uses.

Access all of your data in an easy-to-use interface with the ability to generate reports and export your data to web pages to showcase your work. ■

Digital Measures to Track, Showcase Faculty Activities

Applying for grants, promoting intellectual contributions, evaluating teaching effectiveness — all of these require time-consuming data collection and tabulation. Thankfully, those activities should soon be easier for both faculty and administrators at Purdue University.

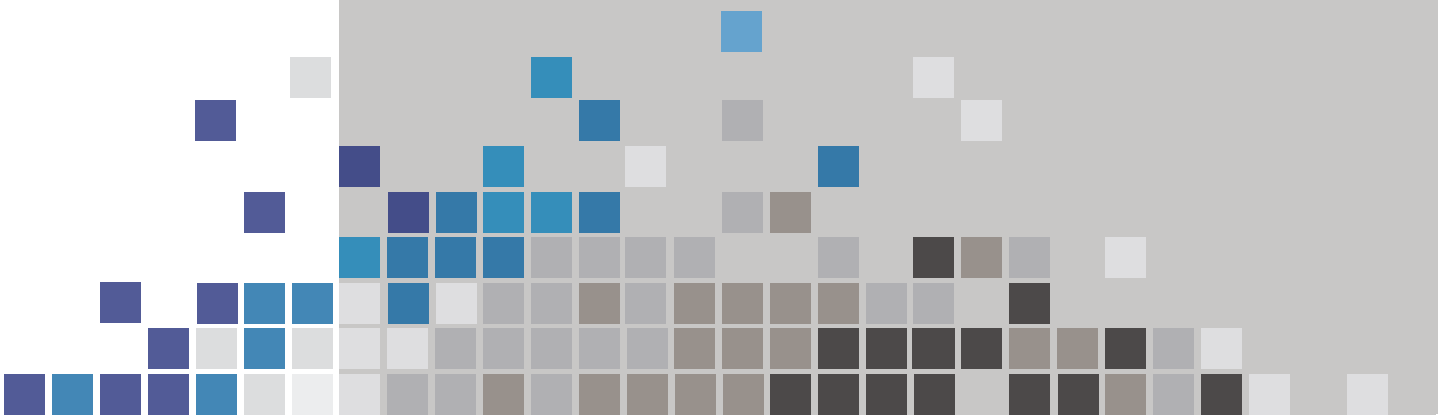
The Provost's Office has begun implementation of Digital Measures, an online information management system that allows faculty members to enter publications, positions, courses taught and other data, facilitating the sharing of that information around and beyond campus. Already, Digital Measures is used in more than 2,000 institutions within 25 countries.

"The main purpose of the product is to collect, manage and report on faculty activity data and to showcase their accomplishments," says **Steve Hare**, senior academic data officer, who is responsible for the project. "It provides consistent areas to collect data, it's web-based and it's easy for faculty members to manage their own information." Individual faculty members can track and disseminate their own information for grants and reports, while administrators can analyze aggregate data for decision-making.

"For example, each year's annual review will be easier via this product," says Hare. "When faculty members are reviewed, they generally submit a variety of materials, publications, research grants, awards and teaching activities. Digital Measures allows them to collect it all in one place where it can be accessed and viewed by the appropriate individuals. We're very confident that with the support given by various deans, it will be used effectively here at Purdue."

Hare is overseeing a team of student workers who are migrating information into the database for targeted departments, currently within several of the colleges. Once complete, each record will include honors and awards, educational records, professional and academic positions, research activities, intellectual contributions, citations and the like. "Faculty will be asked fewer times for ad hoc reports on publications and other activities if they keep their material up-to-date online here," says Hare.

Work on Digital Measures began last fall. Hare expects a phased rollout with some departments coming online this summer. ■



Sponsored Program Year-to-Date Activity

Awards by Sponsor

July 1, 2012 to January 31, 2013

	FY2013 (YTD 1/31/2013)		FY2012 (YTD 1/31/2012)		% Change	
SPONSOR	NO.	$ AMOUNT	NO.	$ AMOUNT	NO.	$ AMOUNT
National Science Foundation	169	52,063,143	186	56,974,783	-9%	-9%
Dept. of Health and Human Services	125	18,641,543	153	21,256,269	-18%	-12%
Dept. of Defense	141	16,239,869	153	17,450,005	-8%	-7%
Dept. of Energy	68	13,995,729	77	5,081,649	-12%	175%
Dept. of Agriculture	92	16,909,084	102	18,750,111	-10%	-10%
National Aeronautics and Space Administration	62	5,781,897	45	4,616,289	38%	25%
Other Federal	43	5,205,385	56	6,447,233	-23%	-19%
Dept. of Education	18	2,763,565	19	3,998,225	-5%	-31%
Environmental Protection Agency	15	1,207,293	20	1,510,189	-25%	-20%
Dept. of Transportation	6	594,590	17	644,078	-65%	-8%
Agency for International Development	13	1,399,524	3	158,713	333%	782%
Total Federal	**752**	**$134,801,622**	**831**	**$136,887,493**	**-10%**	**-2%**
Industrials and Foundations	925	39,380,248	916	41,871,179	1%	-6%
State/Local Governments	76	12,614,589	101	9,581,128	-25%	32%
Purdue Research Foundation/ Purdue University	272	3,412,969	375	4,504,180	-27%	-24%
Foreign Governments	33	2,545,860	16	998,282	106%	155%
Total Non-Federal	**1,306**	**$57,953,666**	**1,408**	**$56,954,769**	**-7%**	**2%**
Total Purdue System-wide	**2,058**	**$192,755,288**	**2,239**	**$193,842,262**	**-8%**	**-1%**

Data provided by Sponsored Program Services. This data may also be viewed at **www.purdue.edu/business/sps/data/trendshome.html.**

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

Events

FEBRUARY

Discovery Learning Research Center's Annual Showcase and Symposium

- **When** February 26, 11:30 a.m-3 p.m.
- **Where** Hall for Discovery and Learning Research, Room 131
- **Contact** Laura Warner, **learningcenter@purdue.edu**, 494-4555
- **Website** **www.purdue.edu/discoverypark/learningcenter/SandS/MainPage.php**

The Showcase & Symposium highlights the mission of the DLRC and to illustrate how the center can partner with faculty members to enhance their STEM research and proposals.

MARCH

Research Modeling and Animation

- **When** Tuesday, March 5, 2-3 p.m.
- **Where** STEW B001, Envision Center for Data Perceptualization
- **Contact** Eric Palmer, **ewpalmer@purdue.edu**

Explore the methods and techniques employed to create detailed computer models and animations for rendered videos and real-time simulations produced at the Envision Center for Data Perceptualization, ITaP's data visualization center for research and teaching. An optional tour of the Envision Center and a demonstration of the center's projects and capabilities will be held from 1 to 2 p.m.

DISCOVERY LECTURE SERIES
PURDUE UNIVERSITY

Ballistic Missile Defense Update

- **When** March 5, 4 p.m.
- **Where** Stewart Center, Fowler Hall
- **Contact** Daniel DeLaurentis, **ddelaure@purdue.edu**

There will be a reception under the mural following the lecture.

Purdue Lectures in Ethics, Policy and Science: Ethics and Energy Policy

- **When** March 19, 5:30-7 p.m.
- **Where** Lawson Computer Science Building, Room 1142
- **Contact** **bioethics@purdue.edu**

Dale Jamieson, director and professor of environmental studies, New York University, will discuss "Reason in a Dark Time: Ethics and Politics in a Greenhouse World."

Overview of Services for Large Interdisciplinary Proposals

- **When** Tuesday, March 26, 11:30 a.m.-1:00 p.m.
- **When** Stewart Center, Room 322
- **Contact** Sue Grimes, **sgrimes@purdue.edu**, 494-5858
- **Website** **www.purdue.edu/research/vpr/rschdev/events.php**

This workshop will provide an overview of support and resources available to Purdue faculty when preparing large, interdisciplinary proposals. Topics include proposal coordination, teambuilding, site visits, facilities and administrative support. A panel of campus representatives will also share ways their areas can be leveraged for these large proposals. Check the website for registration information.

APRIL

Real-time Simulation in Unity

- **When** Tuesday, April 16, 2-3 p.m.
- **Where** STEW B001, Envision Center for Data Perceptualization
- **Contact** Eric Palmer, **ewpalmer@purdue.edu**

Experience the fun and discover the challenges of generating real-time simulated environments with the Envision Center for Data Perceptualization's Unity software environment specialist Jacob Brown. An optional tour of the Envision Center, ITaP's data visualization facility for research and teaching, and a demonstration of its projects and capabilities will take place from 1-2 p.m.

NanoDays 2013

- **When** April 25-26, 9 a.m.-3 p.m. both days
- **Where** Birck Nanotechnology Center
- **Contact** Angie Sigo, **angie@purdue.edu,** 496-8327
- **Website** **www.nano.purdue.edu/nanodays**

This event for students in grade K-12 involves educational activities about nanoscale science and engineering.

Global Access to Clean Energy: Empowering 2 Billion Who Live on $2 Per Day — Engineering Meets Social Entrepreneurship

» **When** April 23, 7 p.m.

» **Where** Electrical Engineering, Room129

» **Contact** Pankaj Sharma, **sharma@purdue.edu**

Stephen Katsaros, Founder and CEO, Nokero International, Ltd., will discuss Nokero's efforts to provide affordable solar technology and his invention of a portable solar light bulb to replace the kerosene lanterns people must rely upon in powerless communities worldwide.

Health Communication and Family Dynamics: Beyond the Patient-Provider Relationship

» **When** Monday, April 29, 8 a.m.-5 p.m.

» **Where** Stewart Center, Room 206

» **Contact** Regenstrief Center for Healthcare Engineering, **rche@purdue.edu,** 494-1531

» **Website** **www.purdue.edu/discoverypark/rche/healthcomm2013**

The mini-conference will focus on how families communicate about health and health problems, and how families are involved in discussions with providers and decision-making about patient care. It aims to inform researchers, students, and healthcare providers about new research findings regarding the role of patients' spouses and families in their healthcare and chronic disease management. ■

Discovery Park Solar Research Seminar Series

» **When** Thursdays, 3:30 p.m.

» **Where** Birck Nanotechnology Center, Room 2001

» **Contact:** Pankaj Sharma, **sharma@purdue.edu**

Invited speakers for the series, which runs through mid-April, include:

» **When** **March 7**

Suresh Garimella, the R. Eugene and Susie E. Goodson Distinguished Professor and associate vice president for engagement at Purdue

» **When** **April 11**

B.J. Stanbery, founder and board chairman of Heliovolt

» **When** **April 18**

Ali Shakouri, the Mary Jo and Robert L. Kirk Director of Birck Nanotechnology Center and professor of electrical and computer engineering at Purdue; and Kaz Yazawa, research associate professor at Birck.

For abstract and bio with latest updates, please visit Energy Center event website at **www.purdue.edu/discoverypark/energy/index.php** closer to the presentation date.

2013 Regenstrief Center for Healthcare Engineering Research Speaker Series

» Lunch, 11:30 a.m.; presentation from noon to 1 p.m.

» **Where** Mann Hall, Room 203

» **Contact** Amira Zamin, **azamin@purdue.edu**

Acute Hospital Discharge Planning

» **When** February 22

Pratik Parikh, assistant professor of industrial and human factors engineering at Wright State University, and Nan Kong, assistant professor of biomedical engineering at Purdue, will discuss a joint project in acute hospital discharge planning.

Perceptions of Patient-Centeredness

» **When** March 7

Brandon Pope, assistant research scientist in industrial engineering, and Bart Collins, clinical associate professor of communication, will discuss their work focusing on patient and provider perceptions of patient-centeredness.

Nursing Workarounds Regarding Infusion Pumps

» **When** March 28

Benjamin Dunford, assistant professor of management, will discuss his research on nursing workarounds regarding IV infusion pumps.

Spousal and Family Influence in Care Transitions

» **When** April 11

Melissa Franks, assistant professor of human development & family sciences, will present her research on spousal and family influence in care transitions.

Registration for this speaker series is not required unless participants are bringing large groups. An abstract of each presentation will be available at the RCHE website closer to the presentation date. ■

DIMENSIONS of DISCOVERY

→|| OFFICE OF THE VICE PRESIDENT FOR RESEARCH

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

For Campus Delivery ONLY

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; 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
- » 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
- » Proposal Information, Transmittal to Agency; 494-6204; proposal@purdue.edu

Technology Commercialization
- » Patent & Copyright Information; 588-3475; Elizabeth Hart-Wells, otcip@prf.org

Co-editors » Pam Burroff-Murr, burroff@purdue.edu; Angie Roberts, akroberts@purdue.edu

Layout » Linda A. Howell, lahowell@purdue.edu

Proofing » Cindy Larson, cindylarson@purdue.edu

Contributing Writers » Phillip Fiorini, Greg Kline, Jessica Merzdorf, Jeanne Norberg, Angie Roberts

Photography » Tom Campbell, Andrew Hancock, Greg Kline, Cindy Ream, Vincent Walter

Design » Cathy Swick Design

Read Dimensions of Discovery online at » www.purdue.edu/research/vpr/publications

 Dimensions of Discovery is published four times a year by the Office of the Vice President for Research. Comments welcome. Send email to **burroff@purdue.edu**.

Purdue University is an equal opportunity affirmative action employer.

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** or Pam Burroff-Murr at **burroff@purdue.edu**.

Continued from page 1

Purdue launched NCN in 2002 with a five-year, $10.5 million grant to advance nanoscience toward nanotechnology via online simulations on nanoHUB.org. The NSF funding was distributed among six partner universities to seed the infrastructure creation and develop the nanoHUB content.

Today, more than 240,000 users in 172 countries participate in nanoHUB, an online meeting place for simulation, research, collaboration, teaching, learning and publishing. The nanoHUB provides a library of 267 simulation tools, free from the limitations of running software locally, used in the scientific computing cloud by more than 12,000 every year.

In addition to the $14.5 million for Cyber Platform, NSF has issued two other independent NSF grants, each at a level of $3.5 million to Purdue and the University of Illinois, Urbana Champaign. Those grants will advance nanoelectronics and nano-bioengineering while using nanoHUB to engage a global community.

"Thousands of times a day the leading researchers 'come' to Purdue through the globally unique tool of nanoHUB," Purdue President **Mitch Daniels** said. "The new NSF investment is an affirmation of the brilliance of nanoHUB's Purdue creators and of its worldwide scientific significance."

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

PURDUE UNIVERSITY