IUPUI INDIANA UNIVERSITY–PURDUE UNIVERSITY INDIANAPOLIS

Research Enterprise

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FEATURE STORY

IUPUI Receives $494,220 Grant from the National Science Foundation to Create Research and Training Program for Indiana High School STEM Teachers

Area high school teachers participate in 2013 week-long IUPUI nanotechnology summer academy administered by INDI.

The National Science Foundation has awarded Indiana University-Purdue University Indianapolis (IUPUI) a grant of $494,220 to develop research and training program for high school STEM teachers within underrepresented and low income school districts in the metro area of Indianapolis.

The Integrated Nanosystems Development Institute's(INDI) project, "Research Experiences for Teacher Advancement in Nanotechnology (RETAIN)," will provide 30 teachers nanotechnology research experiences, as well as seminars and coursework. Teachers in the program will learn to integrate their RETAIN experiences into their classrooms through teaching modules designed to boost STEM interest and encourage high school students to pursue higher education and future careers in STEM fields.

Teachers will learn about topics and careers in nanotechnology and have opportunities for hands-on lab experience. They also will design teaching modules that meet existing state and national science standards, and will receive support from a professional network of teachers, scientists and on-site RETAIN staff when they teach the modules. Teachers will receive professional development and college credit programming as well.

"We are thrilled to receive this grant from the National Science Foundation because ultimately it's an investment in Indiana's K-12 students," said David J. Russomanno,

The Office of the Vice Chancellor for Research (OVCR) publishes the RESEARCH ENTERPRISE to keep the academic community and the community at large informed about research activities, opportunities and development on the IUPUI campus.

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If you have a news item or recent noteworthy research-related achievement that you would like to share, please see the Research Enterprise Submission Guidelines.

Please be aware that not all news items will be deemed appropriate or timely for publication, but each item will be carefully considered.

Ph.D., Dean, Purdue School of Engineering and Technology at IUPUI. “Our high schools will produce graduates with interest and college-ready skills for success in nanotechnology-related degree programs as well as other STEM fields.”

One project goal is to train teachers in inquiry- and discovery-based science, from hypothesis development and experimental design to data collection and dissemination of results, while introducing STEM concepts, applications and career options. Another goal is to integrate RETAIN content into high school classrooms by translating research experiences into 15 (five per year) inquiry-based, nanotechnology teaching modules designed to boost excitement and student interest in STEM disciplines and careers. The project, which complements IUPUI’s undergraduate nanotechnology track, is under the leadership of INDI’s director Dr. Mangilal Agarwal and other principle investigators Drs. Maher E. Rizkalla, Likun Zhu, Jomo W. Mutegi, and Charles Feldhaus.

“Local demand for STEM-field graduates is as high as the national demand and RETAIN will provide a platform to impact teachers across STEM disciplines and the “wow-factor” needed to boost student interest” said Agarwal.

“Because of the multidisciplinary nature of nanotechnology, trained teachers will be equipped to integrate multiple STEM subjects into their curriculum,” explained Dr. Rizkalla. “They will be able to provide their students with subject-to subject connectivity comparable to real-world collaborative expectations.”

“This is an excellent example of how IUPUI resources such as INDI, in partnership with the Center for Research and Learning (CRL), the Urban Center for the Advancement of STEM Education (UCASE), and the STEM Education Research Institute (SERI) are creating innovative and coveted outreach programs,” said Dr. Kody Varahramyan, Vice Chancellor for Research. “This program will serve well our community through effective enhancement of STEM curricula and increase in high school graduates pursuing STEM fields.”

Five refined teaching modules and the program logistics will be featured on the Hoosier Association of Science Teachers, I-STEM Network and TeachEngineering web sites. The project was designed as a portable model that can be implemented at other institutions, and the teaching modules can be implemented on a national level.

ANNOUNCEMENTS

2013 IUPUI Research Report Released

The Office of the Vice Chancellor for Research recently released the 2013 IUPUI Research Report. This report highlights IUPUI’s robust and diverse research and creativity enterprises. It is organized around key strategic initiatives, including the Translating Research into PracticeInitiative, the Signature Centers Initiative, the Indiana Clinical and Translational Sciences Institute, theIUPUI Arts and Humanities Institute, the STEM Education Research Institute, and the IUPUI ImagingResearch Initiative. The report also contains sections on innovative programs exposing undergraduatestudents to research and entrepreneurship experiences, and on research commercialization and economicdevelopment initiatives, including through industry and community partnerships. The report emphasizes how much research and creative activity matters at IUPUI and the resulting impact to the region and beyond.

The full report can be accessed electronically here. A limited number of hard copies

are available upon request. Please send requests to Etta Ward at emward@iupui.edu.

2015 Vilcek Prizes for Creative Promise in Biomedical Science

The Vilcek Foundation is seeking applicants for the 2015 Vilcek Prizes for Creative Promise in Biomedical Science. Applications are sought from young, foreign-born researchers age 38 and under from now through June 10, 2014. Three winners will each be awarded a $50,000 unrestricted cash prize.

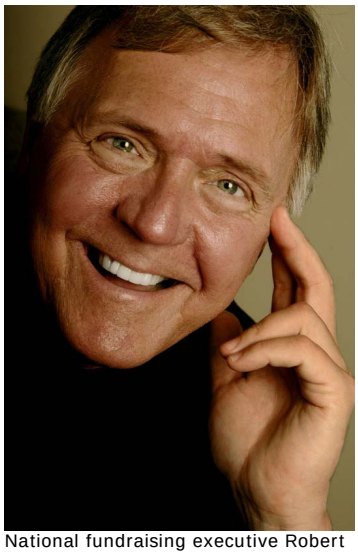
The Vilcek Prizes for Creative Promise were established in 2009 as a complement to the Vilcek Prizes, to encourage and support young immigrants who have already demonstrated exceptional achievements and who often face significant challenges early in their careers. The Creative Promise Vilcek Prizes are awarded annually in biomedical science and in a changing category of the arts, this year recognizing accomplishments in the field of fashion.

Learn more at http://www.vilcek.org/prizes/creative-promise/index.html#sthash.7vdV74Uz.dpuf. Questions can be directed to Phuong Pham at (212) 472-2500 or at creativepromise@vilcek.org.

INSTITUTE SPOTLIGHT

New Applied Research Institute Will Help Nonprofits Improve Fundraising

Nonprofits will be better able to improve their fundraising by integrating the latest research into their efforts thanks to gifts from national fundraising executive Robert F. Hartsook, founder and chairman of the Hartsook Companies, Inc., to the Indiana University Lilly Family School of Philanthropy, school officials announced today.



National fundraising executive Robert Hartsook honored by Indiana University Lilly Family School of Philanthropy

Hartsook and the school are creating the Hartsook Institute for Applied Fundraising Research to advance research by assessing the results of new fundraising ideas, translating research into practice, and applying research in real-life situations. Its goal is to move fundraising research along the continuum from initial research to its application in the field by fundraising professionals, similar to the manner in which medical research moves from baseline research to prototype to clinical testing.

This scientific approach is focused on refining fundraising research and demonstrating its ability to strengthen and increase nonprofits' fundraising. The new institute will combine previous and new gifts from Hartsook to increase its impact on fundraising.

"Bob's ongoing generosity, commitment and counsel to the IU Lilly Family School of Philanthropy has helped the school advance fundraising research and education not only at IUPUI but around the world," said Charles R. Bantz, chancellor of Indiana University-Purdue University Indianapolis and executive vice president of Indiana University. "We thank him for his support and his dedication to growing philanthropy. We are pleased to honor him for his commitment to the school and the

field of fundraising."

The Hartsook Institute initially will include:

- The Robert F. Hartsook Chair in Fundraising, who also will serve as director of the Institute.
- The Hartsook Founding Dean's Fellow.
- The Franztreb Fundraising Lecture Series.
- The Million Dollar List.

"Bringing Bob's gifts to the school together as complementary elements within the Hartsook Institute for Applied Fundraising Research will provide a foundation for its important mission," said Gene Tempel, founding dean of the Lilly Family School of Philanthropy. "We appreciate Bob's tremendous, long-standing support, which will help us take fundraising research and education to a new level."

The Lilly Family School of Philanthropy presented Hartsook with a key to the School on April 29 at a ceremony in Indianapolis. He is one of the first leaders to be accorded the special honor.

"I am honored to receive this recognition from the Lilly Family School of Philanthropy, which is the unparalleled leader in philanthropy education and research in the U.S. and around the world," Hartsook said. "Creating the Hartsook Institute for Applied Fundraising Research here at the school will underscore the vital role research plays in fundraising and will effectively translate and test research, developing proven practices to expand philanthropy."

Hartsook has made many generous gifts to the Lilly Family School of Philanthropy during the past 15 years:

- With his friend and mentor Arthur C. Frantzreb, who was chairman emeritus of Hartsook Companies, a fundraising pioneer and early advisor to the school, he donated the original Million Dollar List in 1999. Conceived and maintained for 33 years by Frantzreb, the list of publicly-reported gifts of $1 million or more is now an inspiration for fundraisers and donors as well as a widely-cited national resource with its own website and searchable database.
- To honor Frantzreb, Hartsook launched the Frantzreb Fundraising Lecture Series, which explores key topics in fundraising, providing a valuable professional development opportunity for fundraisers.
- Hartsook served on the board of the school's predecessor, the Center on Philanthropy at Indiana University.
- The Hartsook Founding Dean's Fellow Fund supports a graduate student who has the opportunity to work directly with the founding dean.
- Hartsook created the Robert F. Hartsook Chair in Fundraising, the world's first endowed chair in fundraising. The first holder of the chair, Adrian Sargeant, has made numerous contributions to research about fundraising and how to apply research results to improve fundraising practices in the U.S. and internationally.

A nationally-recognized fundraiser, Hartsook has made a significant impact on the field. Over the past 25 years, Hartsook Companies has conducted more than 5,000 fundraising efforts and campaigns for clients representing a wide range of organizations and causes.

Hartsook founded the Hartsook Growing Philanthropy Award and the Hartsook Institutes for Fundraising, which he describes as "a multi-campus network dedicated to a knowledge, research and competency-based curriculum designed to improve the quality of fundraising professionals." The Hartsook Institutes pioneered "Days of Service" in 10 cities, impacting nearly 500 nonprofits' fundraising challenges, including one following the Joplin, Mo., tornado.

Hartsook is the author of numerous books and countless articles on successful fundraising. Emporia State University honored him with its Distinguished Alumni

Award, and he received the IUPUI Spirit of Philanthropy Award from the Lilly Family School of Philanthropy. He holds a Bachelor of Arts in economics, a Master's degree in counseling, a law degree, and a doctorate in education.

FACULTY SPOTLIGHT

Engineering Bone Healing


Melissa Kacena, Ph.D.

As an undergraduate research assistant at the University of Colorado-Boulder, Dr. Melissa Kacena conducted research using satellite data and bacteria. She followed this during graduate school by designing spaceflight hardware for biologic application - growing bacteria in spaceflight. As a master's student, Dr. Kacena mentored fellow graduate students and undergraduates. Having earned all three of her degrees there in aerospace engineering, Dr. Kacena now is Associate Professor of Orthopaedic Surgery, Anatomy and Cell Biology at the School of Medicine, and of Biomedical Engineering at the School of Engineering and Technology.

"My lab's focus is osteoimmunology, the intersection between bone cell-blood cell interactions and how megakaryocytes regulate bone mass and bone healing," she explains. Having one patent pending, Kacena is PI of one NIH R01 grant, Co-PI of two NIH R01's, and Co-PI of a sizeable DOD grant. As an assistant professor, she was the only faculty member on campus with two R01's, a notable achievement. Her overall research goal is to improve the understanding of the interaction of the bone and hematopoietic systems, thereby potentially improving the treatment of metabolic bone disease and fracture healing.

Arriving as a new faculty member, Dr. Kacena sought out programs, encouraging undergraduates to get involved. Her first such mentee was in the Life-Health Sciences Internship Program (LHSI). "LHSI," she states, "teaches students the fundamentals of research to see whether they like it, and then UROP [CRL's IUPUI Undergraduate Research Opportunities Program] encourages the students to take ownership." Having mentored numerous students, she reflects, "I think the reason I like mentoring is because I had good mentors, and I want to provide that to others and give back."

In Dr. Kacena's laboratory, undergraduates learn cell culture, genotyping, Western blot, real-time PCR, and bone phenotyping of mouse models. They test animals, perform micro-computed tomography and analyze scans, complete bone histology and histomorphometry, interpret data, and help to write manuscripts. In addition, Dr. Kacena also teaches them professional etiquette. She hopes her students will earn the ability to be an author on a paper. A current mentee is Andrew Engle, 2014 winner of the Bowling-Jones-Russo Memorial Undergraduate Research Award, whom she would like to present at a major conference such as the American Society for Bone and Mineral Research [ASBMR]. In 2010, she was nominated for On-campus Student Supervisor of the Year Award.

Of her students, Dr. Kacena concludes, "If they are motivated, excited, and interested, then I am motivated, excited, and interested in helping them! Research is a team effort, and, certainly, undergraduates have been key contributors to the success of the lab."

STUDENT SPOTLIGHT

Science, Service and Conviction!

Sitting (left to right): Yinghua Cheng, Nicholas Lesch, Andrew Engle, Monique Bethel Standing (left to right): Melissa Kacena, Tomas Meijome, Naomie Olivos

Biology major Andrew Engle became active in undergraduate research to enhance his credentials for medical school. He began his research career as a freshman with support from the Department of Biology in the laboratory of Dr. Anna Malkova, winner of CRL's 2009 mentoring award. As a sophomore he conducted research through the IUPUI Life-Health Sciences Internship Program in Dr. Melissa Kacena's laboratory where he worked on bone healing, X-rays and testing on mice. "I got to see the interchange between clinical and research," he reflects.

Of his current mentor, Melissa Kacena, Andrew notes, "She has her fingers in a lot of pies and is a basket of energy!" As a 2013 Undergraduate Research Opportunities Program (UROP) Summer Fellow, he continued investigating bone healing. "One nice thing about working under Dr. Kacena is that you get to be involved in so many things." For his medical education, he hopes to stay at IU and continue in her laboratory.

Now a UROP grantee, Andrew currently studies how thrombopoietin (TPO) interacts with megakaryocytes (MK's) for bone healing and how it compares to bone morphogenetic proteins (BMP's), which can help with segmental bone injuries; e.g., car crashes, bone cancer, gunshots or IED's. His work on Kacena's NIH R01 grant on TPO shows promising results.

Andrew has been on two medical mission trips to Panama where he worked at a week-long clinic helping hundreds of people. He volunteers at the IU Student Outreach Clinic on the East Side, of which he remarks, "[IUSOM] is trying to bridge the gap between those who are impoverished so that they don't have to go to the emergency room for minor issues. The science community here is very compassionate, and the medical students are really community-minded." Aspiring to become an ER physician in the U.S. Air Force, he also volunteers in the VA Hospital emergency room.

Andrew then points to David Livingstone and Albert Schweitzer, revealing his ultimate aspiration of becoming a medical missionary. IU deferred his admission and scholarship, enabling him to attend a year of Bible college and earn a lay-ministry degree. "A lot of people with my background are opposed to science," he observes. "I believe that we should love our neighbors as we love ourselves, and I can do this by helping to remove pain and discomfort through medicine, which also is the reason I like research." He declares exuberantly, "Science helps you to understand the numinous beauty of the universe!" Andrew concludes, "Medicine enables you to help people, and if my research can help veterans to heal from bad bone injuries in some small way, then I feel like I have the ability to make an impact and be involved."

TRANSLATIONAL RESEARCH IMPACT

Social Work Faculty Member to Help Caribbean Countries with

Youth, Gang Violence


Carolyn Gentle-Genitty, Ph.D.

Carolyn Gentle-Genitty, interim director of the Indiana University School of Social Work Bachelor of Social Work Program, will travel to five Caribbean countries to help develop new strategies to deal with youth and gang-related violence that have terrorized certain communities in those countries for years.

Selected by the Caribbean Community organization, considered the United Nations for the Caribbean, Dr. Gentle-Genitty will undertake an assessment of threats, risk, resilience and protective factors for school and community-based violence in Jamaica, Antigua, St. Kitts and Nevis, St. Lucia, and Trinidad and Tobago.

Dr. Gentle-Genitty, who researches social bonding, has earned a national reputation from her Perception of School Social Bonding instrument.

Youth and gang violence is not a new problem to these Caribbean countries, but a decision to re-think ways to deal with it is. Youths often make up 50 percent or more of the population, she said. There is a strong connection between crime and gang violence and youth development. Concerns about violence led to governmental funds being diverted from education and youth development to security and health-related efforts, such as hiring more police and building more jails and prisons.

“In the past, people would get on the radio and complain and say we need to do something,” Dr. Gentle-Genitty said. There would be a quick reaction, and authorities would put more police in schools and cut programs to evening and after-school programs because everyone was worried about safety, she said. That was done despite the fact that research shows that having protective factors like after-school programs and having outreach and engagement opportunities for young people actually help deter kids from becoming involved in gang violence.

As the violence continues, the Caribbean countries are looking to develop new strategies to deal with the issue, Dr. Gentle-Genitty said.

She will fly this month to the Caribbean and begin the first phase of her work: data collection in communities identified as high-risk areas for violence. Her goal during a two-day stay in each of the five countries is to identify common risk factors among at-risk communities by conducting surveys and interviews of students at a school and with community members and focus groups to see what they think the problem is, why young people are joining gangs and how it might be dealt with.

The next step is to develop new approaches to counter youth violence and hold teleconferences with each country to discuss which of Dr. Gentle-Genitty’s recommendations they want to pursue.

Then in September, she will return to the Caribbean and hold national meetings in each country about the findings of the surveys and the recommendations to implement new programs to reduce violence. She will work closely with governmental departments of education, youth and social development. Before she leaves, Dr. Gentle-Genitty expects to oversee the start of training of the people who will turn the recommendations into reality.

RECENT EXTERNAL FUNDING AWARDS

The Office of the Vice Chancellor for Research recognizes and congratulates all IUPUI

faculty and researchers for recent awards they have received and that help to advance the IUPUI research enterprise. The following table highlights those receiving $100,000 or more in external grants.

Grants and Awards - April 2014

PI	Agency	Project Title	School	Department	Total
Kiovsky, Richard D	INDIANA STATE DEPARTMENT OF HEALTH	Indiana AHEC Network FY2014 State Operating Support	MEDICINE	AREA HEALTH EDUCATION CENTERS	$2,195,500
Fueger, Patrick T	NATIONAL INSTITUTE OF DIABETES, DIGESTIVE & KIDNEY	Preservation and restoration of functional beta cell mass	MEDICINE	PED-ENDOCRINOLOGY BASIC RES	$1,742,232
Chang, Ching-Pin	NATIONAL INSTITUTES OF HEALTH	LncRNA mechanism of heart failure	MEDICINE	CARDIOLOGY	$1,605,066
Dagher, Pierre C.	NATIONAL INSTITUTE OF DIABETES, DIGESTIVE & KIDNEY	Modifying kidney injury through p53 signaling	MEDICINE	NEPHROLOGY	$1,442,790
Burr, David B.	NATIONAL INSTITUTE OF GENERAL MEDICAL SCIENCES	Biomarkers of Beta Cell Stress and Death in Type 1 Diabetes	ACADEMIC AFFAIRS	VICE CHANCELLOR FOR RESEARCH	$1,243,986
Evans-Molina, Carmella	JUVENILE DIABETES RESEARCH FOUNDATION INTERNATIONA	Biomarkers of Beta Cell Stress and Death in Type 1 Diabetes	MEDICINE	ENDOCRINOLOGY	$749,396
Osili, Una O	THE CHICAGO COMMUNITY TRUST	Giving in Chicago	LILLY FAMILY SCHOOL OF PHILANTHROPY	PHILANTHROPY	$263,632
Duke, Jon David	JANSSEN RESEARCH & DEVELOPMENT LLC	The Natural History of Schizophrenia in a Geographically-defined population	MEDICINE	GENERAL INTERNAL MEDICINE	$118,206
Thurmond, Debbie C	JUVENILE DIABETES RESEARCH FOUNDATION INTERNATIONA	Restoration of functional ß cell mass via Doc2b enrichment	MEDICINE	PED-ENDOCRINOLOGY BASIC RES	$110,000
Einterz, Robert M	ABBVIE INC.	Academic Model Providing Access to Healthcare (AMPATH) Oncology FLTR 2014	MEDICINE	GENERAL INTERNAL MEDICINE	$100,000
Dunn, Kenneth W.	DIALYSIS CLINIC, INC. (DCI)	Effects of endotoxemia on renal and hepatic drug transport.	MEDICINE	NEPHROLOGY	$100,000
Petrache, Irina	UNIVERSITY HOSPITALS (CLEVELAND)	Therapeutic development against emphysema progression	MEDICINE	PULMONARY	$100,000

CURRENT EXTERNAL FUNDING OPPORTUNITIES

Funding opportunities in this section include selected current grant announcements from federal agencies for new initiatives and changes to existing programs. Announcements with limited scope are not listed here but are, instead, sent directly to IUPUI School Deans. For comprehensive coverage of funding opportunities please use the on-line search tools listed below.

DEPARTMENT OF DEFENSE

Peer Reviewed Medical Research Program (PRMRP), Technology/Therapeutic Development Award:

This award is product-driven and is intended to provide support for the translation of promising preclinical findings into products for clinical applications in at least one of the congressionally-directed FY14 PRMRP topic areas. Products in development should be responsive to the health care needs of all military service members, veterans, and beneficiaries. The product(s) to be developed may be pharmacologic agents (drugs or biologicals), devices, and/or clinical guidance. The Principal Investigator (PI) must provide a transition plan (including potential funding and resources) showing how the product will progress to clinical trials and/or delivery to the military or civilian market after the completion of the PRMRP award.

All applications for PRMRP funding must specifically address at least one of the Topic Areas as directed by Congress and must be directly relevant to the health care needs of military service members, veterans, and/or beneficiaries. If the proposed research does not specifically address at least one of the FY14 PRMRP Topic Areas, the Government reserves the right to administratively withdraw the application. The Government also reserves the right to reassign the application's Topic Area if submitted under an inappropriate Topic Area. The FY14 PRMRP Topic Areas are as follows: Acupuncture, Arthritis (other than post-traumatic osteoarthritis and rheumatoid arthritis), Chronic Migraine and Post-Traumatic Headaches, Congenital Heart Disease, DNA Vaccine Technology for Post-Exposure Prophylaxis, Dystonia, Epilepsy, Food Allergies, Fragile X Syndrome, Hereditary Angioedema, Illnesses Related to Radiation Exposure (excludes cancer), Inflammatory Bowel Disease, Interstitial Cystitis, Lupus, Malaria, Metabolic Disease, Neuroprosthetics, Pancreatitis, Polycystic Kidney Disease, Post-Traumatic Osteoarthritis, Psychotropic Medications, Respiratory Health (excludes lung cancer and mesothelioma), Rheumatoid Arthritis, Segmental Bone Defects, and Tinnitus.
Deadlines: pre-application: June 25, 2014; application: October 17, 2014.

Multifunctional Quantum Transduction of Photons, Electrons, and Phonons:

The objective of this topic is to develop a quantum technology that expands the capabilities afforded by optomechanical devices by adding active control of the mechanical degrees of freedom via electronic signals in both the classical and quantum regimes. Develop coherent electronic control of both photonic and phononic quanta using electrically-based quantum circuits such as superconducting qubits, or optical or phononic control of synthetic or naturally-occurring atomic defect spin states. Provide multi-field quantum transduction linking electronics, spintronics, mechanics and photonics, and demonstrate quantum control of phonons, enabling photon-like manipulation of this degree of freedom. This quantum transducer should yield (1) high-bandwidth transmission and reception of optically-encoded, quantum-encrypted information, providing secure high-bandwidth communication; (2) the development of coherent coupling between hybrid quantum systems; and (3) new integrated means for quantum information storage and processing.

Photonic and optomechanical structures have been largely based on Si and SiN. Other materials should be considered, e.g., SiC and AlN, which are now available as high-quality, thin films with desirable optical properties, tunable electronic spin, and which provide strong piezoelectric response. Properly harnessed, the piezoelectric response enables strong coupling of electrical signals to mechanical motion at microwave frequencies, affording a new mode for high-speed information transfer between photons and quantum-controlled phonons. A focused effort should explore the capabilities of such "3-field" systems. This will require materials processing, quantum structures, coupling modalities, theory, and simulation tools incorporating all degrees of freedom. Strong electro-optomechanical coupling, with quantum control over electronic, spintronic, photonic and phononic degrees of freedom, should be achievable. Very high bandwidths for quantum-entangled photonic states may be achieved using such devices. These also should provide new transduction mechanisms for coupling hybrid quantum systems.
Deadlines: White Paper, October, 15, 2014; Submission, December 16, 2014.

NOTE: *All faculty, researchers, and scientists on continuing contracts at IU interested in applying for Department of Defense funding are eligible for assistance by the consulting firm--Cornerstone Government Affairs-- arranged by the Vice President for Research. Those interested in securing assistance from Cornerstone must submit a 2 page summary of their research project and a CV or biosketch to the VP for Research Office at vpr@iu.edu . Prior to submission, the IUPUI Office of the Vice Chancellor for Research is offering assistance with the 2 page summaries. For more information, contact Ann Kratz akratz@iupui.edu.*

NATIONAL ENDOWMENT FOR THE HUMANITIES

Digital Topics for the Public: The Digital Projects for the Public program supports projects such as websites, mobile applications, games, and virtual environments that significantly contribute to the public's engagement with humanities ideas. Projects must be analytical and deeply grounded in humanities scholarship in a discipline such as history, religion, anthropology, jurisprudence, or art history. Digital Projects for the Public grants support projects that are largely created for digital platforms. While these projects can take many forms, shapes, and sizes, you should apply to this program primarily to create digital projects or the digital components of a larger project. NEH is a national funding agency, so these projects should demonstrate the potential to attract a broad, general audience. Projects can have specific targeted audiences (including K-12 students), but they should also strive to cultivate a more inclusive audience. *Deadline: June 11, 2014.*

NATIONAL INSTITUTES OF HEALTH

Assessing & Addressing Community Exposures to Environmental Contaminants:

This Funding Opportunity Announcement (FOA) encourages applications using community-engaged research methods to investigate the potential health risks of environmental exposures of concern to the community and to implement an environmental public health action plan based on research findings. The overall goal is to support changes to prevent or reduce exposure to harmful environmental exposures and to improve the health of a community. **Components of Participating Organizations:** National Institute of Environmental Health Sciences (NIEHS) National Institute of Nursing Research (NINR).
Deadline: October 5, 2014.

Phenotyping Embryonic Lethal Knoockout Mice (R01):

The purpose of this Funding Opportunity Announcement (FOA) is to encourage applications to phenotype embryonic lethal knockout (KO) mouse strains being generated through the International Mouse Phenotyping Consortium (IMPC) of which the NIH Knockout Mouse Phenotyping Program (KOMP2) is a member. It is estimated that KO mouse phenotyping efforts will generate 20,000 mouse strains over the next decade of which about 30% will be embryonic or perinatal lethal. A large portion of homozygous lethal mutations are expected to have viable heterozygous phenotypes. The scientific community has the unique opportunity to leverage these mouse strains while they are being created and bred as part of the IMPC adult mouse phenotyping effort. **Components of Participating Organizations:** Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD), National Human Genome Research Institute (NHGRI), National Heart, Lung, and Blood Institute (NHLBI), National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK).
Deadline: October 5, 2014.

Advanced Neural Prosthetics Research & Development (U01):

The purpose of this FOA is to encourage applications to pursue translational and pilot clinical studies for neural prosthetics. The program will utilize the cooperative agreement mechanism to enable support for milestone-driven projects for the development and demonstration of clinically-useful neural prosthetic devices. Activities supported in this program include implementation of clinical prototype devices, preclinical safety and efficacy testing, design verification and validation activities, pursuit of regulatory approval for clinical study, and proof-of-concept or pilot clinical studies. **Components of Participating Organizations:** National

Institute of Neurological Disorders and Stroke (NINDS), National Institute of Biomedical Imaging and Bioengineering (NIBIB), Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD).
Deadline: February 5, 2015.

Advanced Interpreting Variation in Human Non-Coding Genomic Regions Using Computational Approaches & Experimental Assessment (R01):

This Funding Opportunity Announcement (FOA) solicits applications to develop highly-innovative computational approaches for interpreting sequence variants in the non-protein-coding regions of the human genome. The goal is to develop methods that analyze whole-genome sequence data by integrating data sets, such as ones on genome function, phenotypes, patterns of variation, and other features, to identify or substantially narrow the set of variants that are candidates for affecting organismal function leading to disease risk or other traits. The accuracy of the computational approaches developed should be assessed using experimental data. The scale of analysis should be genome-wide interpretation of the variants that may contribute to the trait or disease being studied, rather than variants found in a particular gene, gene family, or chromosome region. The initial approaches should start with the entire genome and narrow the focus to sets of regions for more analysis, such as by using data from whole-genome sequencing studies, GWAS studies, or scans for natural selection. (The focus is on interpreting germline variants; somatic mutations, e.g., in tumors, raise issues such as heterogeneity that are important but not the focus of this FOA.) Applications may identify one or more organismal traits or diseases to study, such as a human disease, disease resistance, pharmacologic responses, or physiological traits. Any traits or diseases chosen should be well-justified, such as by the potential for generalizable results and data availability. NHGRI solicits applications that investigate any disease or trait. NCI solicits applications for studies focusing on germline variants related to cancer susceptibility. NIDA solicits applications for studies related to drug addiction. **Components of Participating Organizations:** National Human Genome Research Institute (NHGRI), National Cancer Institute (NCI), and National Institute on Drug Abuse (NIDA).
Deadlines: Letter of Intent: December 21, 2014; Application: January 21, 2015.

Modeling the Scientific Workforce (U01):

This announcement solicits cooperative agreement applications that propose to develop computational models for better understanding of the dynamics of the scientific workforce in the United States. These models may be used to inform program development and management, identify questions that need additional research, and guide the collection and analysis of the data to answer these questions. **Participating Organizations:** National Institute of General Medical Sciences (NIGMS) Office of Behavioral and Social Sciences Research (OBSSR).
Deadlines: Letter of Intent: January 4, 2015; Application: February 4, 2015.

NATIONAL SCIENCE FOUNDATION

Wireless Innovation Between Finland & U.S. (WiFiUS):

Proposals are solicited for joint US-Finland foundational and transformative research in the area of wireless networking. Reflecting the funding priorities of each participating NSF division as well as those of Tekes and the Academy of Finland, this program seeks research projects on novel frameworks, architectures, protocols, methodologies and tools for the design and analysis of robust and highly dependable wireless networks, including cognitive radio networks. General topic areas include, but are not limited to, the following: spectrum sensing and spectrum sharing, network security and capacity, coexistence of legacy and future systems, network

architectures, heterogeneous network design, resource allocation, quality of service, energy efficiency, interference management and alignment, device-to-device communication, cooperation/coordination methods among wireless clients, configurable antennas, and millimeter wave communications.

NSF is especially interested in joint US-Finland projects that explore the design of a new spectrum architecture and clean slate design that can multiply the effective capacity of the spectrum by a factor of 1,000 and enable spectrum sharing at scale across many dimensions, including the number of nodes, channels per radio, and geographical extent. Accurate channel models and spectrum-sensing schemes that take into account mobility and imperfect cognition, and efficient medium access protocols that take into account the coexistence of heterogeneous networks, are needed in order to achieve high spectrum utilization. Meanwhile, there is an urgent need to develop fundamental theories that characterize the tradeoffs between capacity and latency, and between spectrum sharing and security. It is envisioned that future-generation wireless networks will comprise systems of interdependent networks, such as wireless sensor networks, cellular networks, and sociotechnical networks; consequently, there exists the need for novel heterogeneous network design to ensure efficient data fusion, energy-efficient operation, fair resource allocation, and high quality of service.
Deadline: August 1, 2014.

Advanced Technological Education (ATE):

With an emphasis on two-year colleges, the ATE program focuses on the education of technicians for the high-technology fields that drive our nation's economy. The program involves partnerships between academic institutions and employers to promote improvement in the education of science and engineering technicians at the undergraduate and secondary school levels. The ATE program supports curriculum development, professional development of college faculty and secondary school teachers, career pathways to two-year colleges from secondary schools and from two-year colleges to four-year institutions, and other activities. Another goal is articulation between two-year and four-year programs for K-12 prospective teachers that focus on technological education. The program also invites proposals focusing on research to advance the knowledge base related to technician education.
Deadline: November 6, 2014.

Advancing Informal STEM Learning (AISL):

The Advancing Informal STEM Learning (AISL) program seeks to advance new approaches to, and evidence-based understanding of, the design and development of STEM learning in informal environments for public and professional audiences; provide multiple pathways for broadening access to and engagement in STEM learning experiences; advance innovative research on and assessment of STEM learning in informal environments; and develop understandings of deeper learning by participants. Whether for personal satisfaction, professional advancement, or fulfilling learning requirements for pre-K through graduate and professional education, greater possibilities for accessing and understanding informal education are emerging through increased access to STEM learning anywhere and anytime. AISL's research and development investments focus on the translation of foundational and early stage research to research, design, development, and implementation of STEM learning in informal environments. As such, the knowledge base to which AISL contributes most is more closely aligned with theories of practice and designed-based research than with foundational theory building. The program supports five types of projects: (1) Pathways, (2) Research in Service to Practice, (3) Innovations in Development, (4) Broad Implementation, and (5) Conferences, Symposia, and Workshops.
Deadline: November 14, 2014.

Hydrologic Sciences:

The Hydrologic Sciences Program focuses on the fluxes of water in the environment that constitute the water cycle as well as the mass and energy transport function of the water cycle in the environment. The Program supports studying processes from rainfall to runoff to infiltration and streamflow; evaporation and transpiration; as well as the flow of water in soils and aquifers and the transport of suspended, dissolved and colloidal components. Water is seen as the mode of coupling among various components of the environment, and emphasis is placed on how the coupling is enabled by the water cycle and how it functions as a process. The Program retains a strong focus on linking the fluxes of water and the components carried by water across the boundaries between various interacting components of the terrestrial system and the mechanisms by which these fluxes co-organize over a variety of timescales and/or alter the fundamentals of the interacting components. The Program is also interested in how water interacts with the solid phase, the landscape, and the ecosystem, as well as how such interactions and couplings are altered by land use and climate change. Studies may address aqueous geochemistry and solid-phase interactions as well as physical, chemical, and biological processes as coupled to water transport. These studies commonly involve expertise from basic sciences and mathematics, and proposals may require joint review with related programs. The Hydrologic Sciences Program will also consider some synthesis activities.
Deadline: December 5, 2014.

IDENTIFYING FUNDING OPPORTUNITIES

On-line search tools are available to IUPUI investigators who are interested in identifying funding opportunities in their areas of interest.

Community of Science (COS): COS is a primary on-line search tool for identifying funding opportunities. To take advantage of this tool, register at http://www.cos.com/login/join.shtml. Once you have completed the short registration process, you can personalize your search by selecting the option entitled “launch your workbench”. You can access federal, local, corporate, foundation, nonprofit and other funding opportunities using key terms and save the results of up to 20 searches and have them delivered to you weekly via email.

National Institutes of Health (NIH) “NIH Guide”: To take advantage of this search tool, register at http://grants.nih.gov/grants/guide/listserv.htm. It allows you to receive discipline specific funding opportunities that are delivered to you weekly via email.

National Science Foundation (NSF) “MyNSF”: To take advantage of this search tool, register at http://service.govdelivery.com/service/multi_subscribe.html?code=USNSF&custom_id=823. It allows you to receive discipline specific funding opportunities that are delivered to you weekly via email.

Federal Business Opportunities “FedBizOpps”: FedBizOpps is the single government point-of-entry for Federal government procurement opportunities over $25,000. To take advantage of this search tool, visit https://www.fbo.gov. Opportunities found at this site include, but are not limited to, presolicitations and special notices for research and service contracts for specific projects and some national centers and surveys that would not be found in Grants.gov and may not be found in the Community of Science.

Limited Submission Funding Opportunities:

Many federal agencies and foundations offer grants, awards and fellowships that limit the number of applications that can come from one institution or require special handling. In order to comply with agency and foundation guidelines and increase the chances of Indiana University (IU) succeeding in such limited submissions and

special handling opportunities, IU policies and procedures are in place and are utilized by the Office of the Vice Chancellor for Research and other IU research offices to facilitate internal coordination and competitions.

Individuals interested in responding to limited submission opportunities must inform the Office of the Vice Chancellor for Research about their intent to apply to a given limited submission opportunity, such that they can be included in the internal review and selection process. Failure to do so may disqualify individuals from consideration for submission to the funding opportunity.

Individuals interested in a limited submission opportunity or have any questions about the internal coordination process, contact Etta Ward at emward@iupui.edu or 317-278-8427. For a description of upcoming limited submission funding opportunities, as well as guidelines and application forms, go to: http://research.iu.edu/limited_sub.shtml. Please note that this is not a comprehensive list, and that any external funding opportunity that imposes any type of submission limitation is subject to the IU limited submission policy and procedures.

The Special Handling list was created in order to communicate donor restrictions and/or preferences for managing solicitation requests from Indiana University. The list reflects special relationships that exist between donors and the university and includes corporations and foundations that the President's office wishes to review prior to submission in order to coordinate Indiana University's requests to these donors.

The Special Handling List was compiled and is maintained by the Indiana University Foundation office of Corporate and Foundation Relations. Please contact Dee Metaj at 317-278-5644 if you have any questions regarding this list.

IU Authentication is required to view the following attachments:

IUF Special Handling List and Principal Gifts Review Template

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