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## MESSAGE FROM THE VICE CHANCELLOR FOR RESEARCH

Dear Colleagues,

I would like to extend a personal invitation to each of you to join us at the [2014 IUPUI Research Day](#), on April 11th. Our theme this year is ***Research and Creative Activity Matter: From IUPUI to the World***. This daylong celebration of IUPUI research and creative activity will be held in the IUPUI Campus Center and will begin with a morning plenary session from 9:30 am to 11:00 am in the lower level theatre. This session will start with the announcement of the 2014 Research Frontiers Trailblazer Award recipients, who will make short presentations, followed by a student presentation, then keynote presentation by Mr. Richard Blanco, President Obama's 2013



Vice Chancellor Kody Varahramyan

Inaugural Poet. Mr. Blanco is internationally known as a poet, author, and civil engineer. He travels the world, inviting audiences to reconnect to the heart of the human experience and all of its beautiful diversity.

Research Day events also include two poster sessions, showcasing the innovative research of our faculty, staff, and graduate, professional and undergraduate students. Also new this year is "Jag Talks", a series of short but dynamic presentations that illuminate the breadth of research and creative activity happening at IUPUI and beyond. Jag Talks is open to all Research Day attendees. Faculty are also invited to participate in Grand Challenge Initiative Research Roundtable discussions. These roundtables, which will take place during a lunch working session sponsored by the OVCR, require first come first served reservation through the [registration](#) process.

Research Day is a great way for IUPUI faculty, staff, and students, and their academic, industrial, governmental partners, along with the broader community, to learn more about the research enterprise at IUPUI, explore new collaborations, and lay the foundation for new partnerships. This is truly an exciting time for research at IUPUI.

[Please click here to register for Research Day.](#)

I look forward to seeing all of you at the April 11 Research Day!

Kody Varahramyan  
Vice Chancellor for Research

## FEATURE STORY

### IUPUI Receives \$1.25M Grant to Prepare Students for Graduate Studies and Careers

## in the Biomedical and Behavioral Sciences

The National Institutes of Health recently awarded IUPUI a \$1.25M grant to prepare undergraduate students from underrepresented minority populations, including students with disabilities, for admission to graduate programs in the biomedical and behavioral sciences. The Indiana University-Purdue University Post Baccalaureate Program (IPREP) draws on IUPUI's programmatic and research strengths in the health and life sciences. IPREP will prepare students for successful graduate and professional careers through an intensive research internship coupled with a rigorous and individualized academic and professional/personal development plan. Designated as IPREP fellows, select students will be provided at least twelve months of paid research experience working with an active faculty research mentor in an area relevant to the student's career interests.



David Burr, Ph.D.

Training will be available for 4-6 students each year in five areas of interest to the nation's health industry including biomedical engineering, clinical psychology, human performance and kinesiology, medical neuroscience or the psychobiology of addictions, toward the goal of matriculation into these graduate programs. This will be accomplished both through research and through professional development activities. The long-term goal of IPREP is to improve diversity in the community of graduate students and faculty for these five targeted programs at IUPUI.

Trans-disciplinary work is emphasized through frequent interaction of the IPREP fellows, their research mentors and other members of the IPREP support staff. Professional development activities will build the fellows' strengths in those areas determined to be most important for successful admission to the targeted graduate programs. Activities may include improving analytical ability, writing skills, oral expression, or basic laboratory skills.

Under the direction of Dr. David Burr, distinguished professor and associate vice chancellor for research at IUPUI, the grant is an innovative partnership between four schools, the Office of the Vice Chancellor for Research and its Center for Research and Learning (CRL). Coordinating the work of these units are Co-Investigators, Dr. Rafael Bahamonde, associate dean and professor of kinesiology in the IU School of Physical Education and Tourism Management; Dr. Kim Nguyen, director of operations in the Urban Center for the Advancement of Science and Mathematics Education, and director of the Louis Stokes Midwest Center of Excellence; Dr. Sherry Queener, director of the Graduate Office and professor of pharmacology and toxicology in the Indiana University School of Medicine; and Dr. Richard Ward, executive director of the IUPUI Center for Research and Learning (CRL) and chancellor's professor of anthropology in the Indiana University School of Liberal Arts. The first cohort of students is expected in August of 2014, with the goal of successfully placing each student in a biomedical or behavioral science graduate program in 2015. The ultimate goal of the IPREP program is the creation of a more diverse, trans-disciplinary faculty in the biomedical and behavioral sciences.

According to the most recent report by the National Science Foundation, only 6% of research scientists are African American and only about 5% of scientists are Hispanic. "Yet research shows that minority undergraduates in the sciences aspire to graduate degrees," said Dr. Burr. "The lack of diversity in BBS [biomedical and behavioral sciences] disciplines is evident at IUPUI, where the percentage of African Americans among full-time faculty is 4% while Hispanics comprise only 2%."

According to Dr. Richard Ward, the IPREP grant builds on the long history in the CRL of supporting access to advanced degrees for students who have traditionally had limited opportunities. The CRL will utilize its existing programming developed to promote undergraduate success to help IPREP students set and achieve high expectations through providing mentored research experiences coupled with strong social support. The CRL views IPREP as a natural extension of its efforts to support student success and especially to move students into successful graduate and professional careers.

"The CRL will benefit from connecting with some of the strongest graduate and professional programs in the state, and we hope to develop additional mentors and research opportunities for other IUPUI students beyond those involved in IPREP. The campus and broader academic community will benefit from the injection of greater diversity in the faculty and professional ranks together with the



infusion of talent and fresh thinking this will bring to these disciplines,” said Dr. Ward. “The CRL has great expertise in supporting research success of students from under-represented groups. Our years of experience have given us good insight into how to combine rigorous academic programs and individualized counseling to help all students achieve their potential. Typically these programs had retention and graduation rates much higher than among similar cohorts of students who were not fortunate enough to join these programs.”

“We are thankful to the National Institutes of Health for their support of this important initiative, which will provide the opportunity for students from underrepresented minority populations to be mentored and pursue doctoral studies at IUPUI in areas of great national importance and societal impact. We are also thankful to Dr. Burr and Dr. Ward for their leadership in developing this initiative,” said Dr. Kody Varahramyan, Vice Chancellor for Research.

## ANNOUNCEMENTS

### IUPUI Students Win Top Prizes for Innovative Ideas to Solving Social and Economic Problems

The Indiana University-Purdue University Indianapolis Office of the Vice Chancellor for Research recently announced the winners of the 3rd annual Ideas Solving Social and Economic Challenges (ISSEC) student “pitch” competition. The competition encourages IUPUI students to come up with innovative ideas to solve real-world problems through new approaches, products, services or ventures.

The 2014 ISSEC winners and their innovative solutions are:



**1st Place, \$2,500: Payne Chestnut, Usman Chaudhary, and Roshan Selladurai**

IU Kelley School of Business | Business

**Foodraiser:** a deal-of-the-week website that offers premium coupons for Indianapolis' best restaurants. Foodraiser also serves as a fundraising platform, with the majority of revenue being donated to a noble cause or nonprofit. Foodraiser offers weekly meal deals (such as half off an entree) from one restaurant, as well as 4 add-on deals (such as a discounted dessert or appetizer)

from 3 other participating restaurants (one deal will include the meal deal restaurant). The goal of Foodraiser is to provide a fine dining experience, and an even greater giving experience.



**2nd Place, \$1,500: Laken Sisko**

IU School of Public and Environmental Affairs | Nonprofit Management

**Kelsey's Voice:** looks at each high school art classroom as a potential conduit of a micro-investment into the community via the art therapy program of their choosing based upon funds co-raised by the students and Kelsey's Voice's unique funding method. Every child is worth saving and Kelsey's Voice gives us an opportunity to save as many as possible.

**3rd Place, \$500: Drew Witte**

Purdue University School of Engineering and Technology | Electrical and Computer Engineering

**Wood to Electricity: Micro-Grid Kits for Developing Parts of the World:**

could be used in developing countries to power people out of poverty by providing power for communication, education, and economic development.



**Audience Choice, \$1,000: Abdul Karim Khan**

Purdue School of Science | Biology

**My Size Now:** helps the e-commerce industry by providing consumers a tool to use when purchasing clothing online. This tool allows consumers to input their sizes into a database which then matches their size to perfectly fit clothing on websites they use regularly.

The competition's structure allows students three minutes to present to judges their concept or solution—without the benefit of slides or other props. According to Karen White, OVCR Research Development and Commercialization Facilitator and competition moderator, this “elevator pitch” format teaches students to tell their story, in a concise and persuasive manner, at a moment's notice.

“For our team, winning first was validation of our idea. We had a few hundred hours invested in this project, and we were pretty confident that we had a good idea; the win confirmed that for us,” said first-place winner Payne Chestnut. “In the short term, we plan to run a small-scale version of our idea for research and testing purposes, with much technology. Something should be put together in the next couple of weeks. Going forward, Roshan Selladurai plans to take this idea long term. He would love to start it here in Indy, and eventually expand the model to other cities.”

A panel of expert judges, internal and external to IUPUI, selected winning pitches to receive the awards.

“This competition is an exciting example of the innovation and energy the students and faculty of IUPUI are generating, both for their individual growth and that of the greater Indianapolis community.” said, George Farra, a judge for the competition.

David Steele, a local entrepreneur and adjunct faculty member with IU Kelley School of Business, who also served as a judge observed, “The ideas presented by students from many of the schools and disciplines on our campus were all worthy of recognition. The diligence each individual displayed in developing and presenting their idea, and its application to solving current and future challenges, reflects exceptionally well on the orientation and capability of the entire IUPUI student body.”

The pitches from thirteen finalists included a wide range of potential products or new ventures, and non-profit projects. “We are gratified that there are many good outcomes arising from this event each year. This is all thanks to the participating students and their ideas and passion to contribute to the societal and economic wellbeing,” said Dr. Kody Varahramyan, IUPUI Vice Chancellor for Research.

To learn more about ISSEC, go to <http://www.crl.iupui.edu/issec/>. Questions can be directed to Karen White at [kfwhite@iupui.edu](mailto:kfwhite@iupui.edu) or (317) 274-1083.

**NASA Destination Station Day - April 29, 2014**



Destination Station is NASA's International Space Station Program national awareness campaign that promotes research opportunities, educates communities about activities performed on the International Space Station, and communicates the real and potential impacts of the station on our everyday lives. NASA representatives will be at IUPUI to talk about possible opportunities for university researchers to conduct research aboard the space station. They also would like to learn more about the IUPUI research enterprise.

#### Agenda

- |                  |  |
|------------------|--|
| 8:00-9:15 a.m.   | Breakfast Meeting  |
| 9:30-10:45 a.m.  | Presentation to Researchers (including Q&A) – University Library, Lilly Auditorium |
| 10:45-11:00 a.m. | Break  |
| 11:00-11:45 a.m. | Meeting with Students  |
| 12:00-1:15 p.m.  | Lunch Meeting  |
| 1:15-4:30 pm.    | Tour of Facilities and Meetings with Multiple Research Groups                      |

Register: <https://crm.iu.edu/CRMEvents/NASADestinationStation/>

Questions can be directed to Sue Cassidy ([sucassid@iupui.edu](mailto:sucassid@iupui.edu)), Office of the Vice Chancellor for Research.

## Town Hall Meetings Planned to Discuss Development of New IUPUI Research Strategic Plan

The IUPUI Office of the Vice Chancellor for Research has been charged to develop an updated IUPUI Research Strategic Plan, as part of the IUPUI campus Strategic Planning process, and to utilize a transparent public process during the development of the plan, to communicate elements of the plan and to solicit input from the campus and community constituencies. **Three Town Hall meetings** have been scheduled to present elements of the initial draft of the Research Strategic Plan, to invite inputs, and to address specific questions that may arise concerning the Plan.

#### The dates/times/locations are as follows:

Monday, April 14:

12:30-1:30 p.m. - ROC Auditorium

Register: <https://crm.iu.edu/CRMEvents/TownHallROC/>

Wednesday, April 16:

9:00-10:00 a.m. - UL Lilly Auditorium

Register: <https://crm.iu.edu/CRMEvents/TownHallUL/>

Thursday, April 24:

3:00-4:00 p.m. - Campus Center Theatre

Register: <https://crm.iu.edu/CRMEvents/TownHallICE/>

## Call for Academic Year 2014-2015 Multidisciplinary Undergraduate Research Institute (MURI) Proposals

The Center for Research and Learning welcomes proposals for the Academic Year 2014-2015 [Multidisciplinary Undergraduate Research Institute \(MURI\) at IUPUI](#). Proposals should represent two or more disciplines and should offer undergraduate students the opportunity to engage in a substantive research experience focused on a significant research problem.

This is a unique opportunity provided to IUPUI faculty and researchers for mentoring students while conducting pilot projects or testing new techniques and designs.

**Some key points regarding this year's program are as follows:**

\*Faculty writing proposals are encouraged to review the document entitled [MURI FAQs for Faculty Submitting Proposals](#).

\*Proposals must be submitted by using the current version of the [MURI Project Proposal Form](#).

\*The MURI Review Committee will review the submitted proposals using the [MURI Proposal Evaluation Form \(login with IUPUI username and password\)](#).

\*Graduate students and post-doctoral trainees may also serve as a third co-mentor on a team, but the proposal should identify at least two faculty mentors from different disciplines.

\*Proposals are due by midnight on March 28, 2014, to the following address: [CRLGrant@iupui.edu](mailto:CRLGrant@iupui.edu)

\*The Proposal Review Committee Meetings are currently scheduled for April 24 and 25, 2014.

\*The announcement regarding funded proposals is currently scheduled for May 2, 2014.

\*Students may apply to MURI and rank their project choices beginning May 9, 2014, with a deadline of September 10, 2014.

\*The academic year program begins on October 3, 2014, and continues through May 1, 2015.

MURI is jointly funded by the Center for Research and Learning, a division of the Office of the Vice Chancellor for Research, and the School of Engineering and Technology.

Project proposals from [all disciplines](#) on the IUPUI campus are encouraged.

For more information contact Elizabeth Rubens [erubens@iupui.edu](mailto:erubens@iupui.edu), or go to <http://crl.iupui.edu/programs/MURI/index.asp>.

## CENTER SPOTLIGHT

### CTSI Support Speeds Hunt for New Genetic Markers for Breast Cancer Risk

As a member of one of the first teams to use cutting-edge techniques to assess the genetic risk of breast cancer, Chunyan He, Sc.D., joined IU, as it is uniquely positioned to further push innovation in this arena. However, as a young investigator, she needed a sponsor willing to take a risk on an untested idea. She found that sponsor, the Indiana Clinical and Translational Sciences Institute.

Genetic epidemiologist Dr. Chunyan He is an assistant professor at the IU Richard M. Fairbanks School of Public Health and a member of the IU Melvin and Bren Simon Cancer Center.

The recipient of an early pilot grant from the Indiana Clinical and Translational Sciences Institute (CTSI), Dr. He has been working to advance a project that combines genome-wide association studies, or GWAS, with global gene expression profiling -- two techniques that may soon provide important insights into genetic risk factors for cancer, including their underlying molecular



Chunyan He, Sc.D.

processes.

"Our ultimate goal is to find and understand the mechanisms behind the genes causing the cancer," said Dr. He. "When you identify these causal genes, they open the window for early detection and help with early intervention for the patients and treatments."

GWAS is a form of analysis used to discover the genetic variations in the human genome associated with disease risk. For gene expression profiling, Dr. He employs next-generation RNA-sequencing technology to measure the activity, or expression, inside thousands of genes to create an overall view of cellular function at the whole genome level.

Yet despite yielding promising preliminary results, and subsequent industrial funding, Dr. He's project almost didn't get off the ground. It wasn't until she presented her proposals to the Indiana CTSI's [Project Development Team](#) program -- which provides free consultations and access to resources such as funding, data analysis and lab technologies to investigators pursuing novel research topics with strong potential to quickly translate into clinical practice -- that she earned crucial start-up funds to perform a feasibility study using about 20 samples from the Komen Tissue Bank at the IU Simon Cancer Center. The \$20,000 pilot grant was provided by the Indiana CTSI PDT focused on behavioral and population science -- one of eight PDTs at the Indiana CTSI.

Dr. He said the funds contributed to performing the first steps required to reveal the power of combining GWAS with gene expression profiling. Although GWAS reveal breast cancer-associated genetic variations that can act as genetic markers for breast cancer, she said a GWAS approach alone is ultimately limited because identifying genetic variations does not necessarily lead to identification of causal genes or shed light on mechanisms underlying the diseases development and spread.

The solution? Gene expression profiling, which can dig deeper into the underlying mechanisms that fuel cancer cell development and growth. However, Dr. He said many researchers are limited by their inability to access truly healthy breast tissue.

Most scientists are dependent upon comparing tumor tissues removed during surgery to tumor-adjacent tissue contributed from the same patient, which already contains aberrantly expressed genes as the spread of the tumor affects surrounding tissue. Access to samples from the Komen Tissue Bank, the only source of healthy breast tissue in the world, provides the rare opportunity to compare truly healthy tissue with tumor tissue to more accurately pinpoint the differences between cancerous and normal genes.

"The limitation to the GWAS approach is you know you're going to find disease-associated genetic variations, but you really don't know how they work or how they're related to breast cancer since the underlying molecular mechanisms are still largely unknown," Dr. He said. "Combining GWAS and gene expression profiling, you can identify causal genes whose expression is regulated by these genetic variations, and those genes can act as pre-cursors to breast cancer development -- powerful targets for drugs designed to treat tumor as well as molecular markers for early detection since early changes in their expression drive tumor formation."

"You can really see that the normal cells from the Komen Tissue Bank are very different from the other 'normal' cells, since tumor-adjacent cells aren't really normal; they're already more similar to cancer cells as the tumor sends signals to the nearby environment in order to facilitate their spread," she added.

Based on the result of the feasibility study, Dr. He earned \$400,000 from ExpressionAnalysis, a North-Carolina based genomics service company, to advance the project on March 30, 2011. (In a coincidence, she also earned \$100,000 on the same date from the [Kay Yow Cancer Fund](#), in partnership with the V Foundation for Cancer Research, to advance a separate breast cancer project.)

Dr. He is well-positioned to pursue this "next generation" approach to GWAS due to her experience as an early pioneer conducting research using the technology. As a doctoral student at Harvard University, she was a member of one of the first groups supported by the National Cancer Institute's [Cancer Genetic Markers of Susceptibility Project](#) in a cutting-edge project that analyzed breast cancer data using information from the Nurses' Health Study. The study was a landmark project that has collected long-term health data every two years from 120,000 nurses across 11 states since 1976. The results of this study were published in the journal "Nature Genetics" in 2009.



Dr. He accepts a check for \$100,000 from the Kay Yow Cancer Fund on March 30, 2011.

"[ BRCA1 and BRCA2] are the most famous breast cancer genes discovered in the pre-GWAS era, but breast cancer-associated mutations in these genes are actually very uncommon," Dr. He said. "I'm aiming to discover genetic markers that are much more common among the general population in order to assess breast cancer risk among a larger proportion of patients."

In addition to early funding, Dr. He said that experts from the Indiana CTSI provided important advice on topics outside her area of expertise, including potential intellectual property issues related to future discovery.

"One of the implications of this approach is the potential to discover, and patent, novel genes related to breast cancer risk," Dr. He said. "But patent issues are very new to me -- they simply weren't on my radar - - so I hadn't really considered the intellectual property issues involved in moving any discoveries that might arise from this work toward new industrial testing kits for disease."

Dr. He also said the novel approach used in the study isn't limited to breast cancer, as the integrative approach has the potential to advance research on other cancer types, including lung or testicular cancer. In fact, she is already pursuing a collaboration related to testicular cancer research with fellow scientists at the IU Simon Cancer Center.

Additional next steps include awaiting the results of a new application for \$1.5 million to the NIH's New Innovator's Award Program built upon the strength of her research funded by ExpressionAnalysis and, earlier, the Indiana CTSI.

"When I first joined IU, I had this idea of linking the gene expression with the GWAS, but as a junior scientist without a long research history, you've got to show people you can carry out the experiments in reality," she said. "I want to thank the Indiana CTSI for having the vision to help fund this project."

## FACULTY SPOTLIGHT

### Surgeon Leads Innovative App to Train Remote Physicians in Cleft Palate Repair

Dr. Roberto Flores, assistant professor of surgery at the IU School of Medicine and medical director for cleft and craniofacial anomalies at Riley Hospital for Children at IU Health, has spent years helping Hoosier children born with challenging physical conditions.

But with thousands of new cases of cleft palates across the globe every year, it's a difficult reality that patients' needs far outweigh the number of surgeons skilled at repairing the condition. It was in recognition of this fact that Dr. Flores agreed to partner with [Smile Train](#), a New York City-based nonprofit that is the world's largest cleft lip and palate repair nonprofit.



Dr. Roberto Flores

The group's mission isn't to send doctors overseas to perform pediatric cleft lip and palate surgery, but rather to provide training to physicians in the developing world.

"There are countless benefits of this type of 'mission trip,'" [Dr. Flores](#) said. "Smile Train's approach allows

you to empower regional communities to the point where they become less dependent on others; it is less costly in the long-run; and, ultimately, those who were once students will become teachers, allowing a continuum of learning to occur throughout these developing nations."

It's a sustainable approach absent in similar nonprofit organizations, and one that is much more far-reaching than traditional mission trips to provide medical treatment, he said.

His role at Smile Train is medical director of the [Virtual Surgery Simulator](#), a free, Web-based, 3-D interactive surgical explorer that educates doctors in cleft lip and palate care. He was tapped for the position by [Court Cutting](#), M.D., who served as Dr. Flores' mentor at the New York University School of Medicine, where he first developed an interest in craniofacial surgery.

"This simulator will change the way surgeons will be trained in cleft lip and palate around the world," Dr. Flores said. "It's already gone above and beyond what other individuals have done within the practice of surgery education. It requires no special hardware for use, and practically anyone can use it as long as they have access to the Internet."

Tracking data shows the program has quickly grown into one of the most popular surgery simulators in the world, he added. Countries using the simulator include Honduras, Nepal, Egypt, Iraq and other areas too remote or dangerous for many doctors to travel.

Smile Train's philosophy could be summed up with the Chinese proverb, "Give a man a fish and you feed him for a day; teach a man to fish and you feed him for a lifetime," said Dr. Flores, who also contributes to the group by grading Smile Train-educated physicians' performances based upon photos of their surgeries, as well as other information, after which he offers recommendations and advice to improve their techniques.

The next step in the Virtual Surgery Simulator's development is creating a version that allows surgeons to use the program on their tablet or smartphone, a project under development in partnership between Smile Train and [BioDigital Inc.](#), also a New York City-based company, which specializes in the creation of 3-D animation and virtual training environments.

"In developing nations, it can actually be more difficult to access a textbook than the Internet," Dr. Flores said. "Increasing access to the surgery simulator via mobile app will boost its global reach and help children in need live a higher quality of life. It's my firm belief that remote, app-based education will be the future of surgical training."

At the IU School of Medicine, Dr. Flores also serves as the director of the craniofacial surgery fellowship program, where fellows and residents have watched him perform many difficult surgeries at Riley. Among his most challenging cases recently is a 3-year-old boy with an extremely rare form of cleft palate, in which the eyes and other facial structures did not form properly. The boy's story, and resilience, has garnered [local](#) and [national](#) media coverage, as well as loyal followers on [social media](#).

"I believe the face is where the soul exists; when we think of someone, we think of their face, not any other part of their body," Dr. Flores said. "When one's face is disfigured, it has a very deep effect on their psyche, so helping repair an individual's face is an enormous responsibility. Hopefully those patients whom I have served have gone into society feeling as though they are part of society, not just a specimen within society."

In his role as a physician and an educator, Dr. Flores aims to teach the importance of affecting individuals' lives each and every day.

"Every time I perform a surgery, I hope there is someone learning from it," he said. "Every time I operate, I hope that I'm fulfilling a greater purpose."

## STUDENT SPOTLIGHT

### CyberLab Interns at IUPUI Develop Smartphone App for CourseNetworking

A new smartphone app developed by CyberLab interns at Indiana University-Purdue University Indianapolis opens a mobile, global doorway to CourseNetworking, a free academic social networking site created to change the

way the world learns. The app was created for students as a supplemental academic tool, but anyone anywhere may use it.

With the app, students don't have to sit in front of their desk computers or laptops, said Mengyuan Zhao, a CyberLab research associate and project coordinator. "They can bring learning with them wherever they are as long as they have a smartphone and access to the Internet."

Two interns who are computer science majors in the School of Science at IUPUI, Manpreet Singh and Phillip Heebner, developed the CourseNetworking app for Android that was launched earlier this month. Singh also developed the CN app for iPhones, launched about six months ago. The free CourseNetworking [\[SRC1\]](#) app can be accessed through the app store on iPhones and through Google Play on Android phones.



Manpreet Singh and Phillip Heebner

Singh, CyberLab's most experienced programming intern, said the biggest challenge had to do with code for the app. "Because this project needed to be completed as a team, we had to make sure that the code we wrote was compatible with the code others had written."

Heebner, who worked directly with Singh, said, "The most challenging part for me was learning how to use a large number of tools at once. In some ways, the experience was one of the most rewarding."

CyberLab is a research and development center in the School of Engineering and Technology. It provides research and intellectual support for the design, development and implementation of innovative educational technology and builds connections between the university and industries to transfer research outcomes into practice. Currently, CyberLab is providing research and instructional design support for the design, development and implementation of The CN.

[CourseNetworking](#) was founded in July 2011 by Dr. [Ali Jafari](#), a professor of information technology in the School of Engineering and Technology and director of the CyberLab. He is serving as the conceptual architect and CEO of the CN. Jafari conceptualized and founded three other learning environments and companies at the CyberLab, including Indiana University's [Oncourse](#) (now Sakai), [ANGEL Learning](#) and [Epsilon Environment](#), with capital funding from *The New York Times*.

The CN has users from more than 100 countries. It focuses on collaboration, social learning and pairing learners based on shared interests. The site has two layers, one a global learning environment and the other a platform for specific courses.

The app offers users a simplified version of the CN website, enabling students to, among other things, make posts, comment on posts and share learning materials.

## TRANSLATIONAL RESEARCH IMPACT

### Music Therapy Has Positive Effects on Young Cancer Patients' Coping Skills

A former faculty fellow at the Indiana CTSI recently co-published an influential study on the power of music therapy to help adolescents and young adults undergoing cancer treatment.

Dr. Sheri L. Robb, associate professor of family health at the IU School of Nursing, is the co-leader of a study published early online Jan. 27 in [Cancer](#), a peer-reviewed journal of the American Cancer Society. The study found that cancer patients at Riley Hospital for Children at IU Health experienced greater coping skills and resilience-related outcomes when they participate in a therapeutic music process that includes writing song lyrics and producing videos.



Joan Haase, Ph.D., and Sheri Robb, Ph.D. Dr. Robb was named an Indiana CTSI Young Investigator Awardee from 2009 to 2011.

"The availability of music therapy services from a board-certified music therapist in the United States has become more widespread, and through studies like this one, we hope to see increased availability and access to this important allied health service," Dr. Robb said. "One of the challenges in health care today is making sure that research findings from studies such as ours are used to inform health care practices and service delivery."

Dr. Robb was the recipient of an Indiana CTSI's Young Investigator Award from 2009 to 2011. These awards are designed to provide career development and research support to junior faculty working on promising research projects.

In addition to the journal article, Dr. Robb's study garnered significant media coverage, including the [BBC](#), [Reuters](#), [HuffingtonPost Live](#), [Health](#), [Mother Nature Network](#), [Science Recorder](#), [The Plain Dealer](#) and [Utah People's Post](#).

The co-leader of the study is Dr. Joan Haase, Holmquist Professor in Pediatric Oncology Nursing at the IU School of Nursing. She and Dr. Robb are also members of the IU Melvin and Bren Simon Cancer Center.

The researchers found that music therapy interventions can provide essential psychosocial support to help young patients positively adjust to cancer. Patients enrolled in the study participated in a music therapy intervention designed to improve resilience in the face of stem cell transplant treatments for cancer. In the study, "resilience" was defined as the process of positively adjusting to stressors, including those associated with a cancer diagnosis and treatment.

The study also sought to target a gap in research focused on the unique psychosocial needs of these adolescents and young adults.

The primary means by which the patients who received the most benefit engaged in the study was through the creation of a music video created to explore and express thoughts and emotions about their disease and treatment that might otherwise go unspoken. Through the creative process of writing song lyrics and producing videos, a board-certified music therapist offered children with cancer the structure and support needed to reflect on their experiences and identify what is important to them, such as their spirituality, family, and relationships with peers and health care providers.

As they moved through phases of the intervention, including sound recordings, collecting video images and storyboarding, patients had opportunities to involve family, friends and health care providers in their project, maintaining those important connections during treatment and encouraging communication. Once complete, videos were shared through video premieres, events that allowed others the chance to gain a better understanding about the patients' perspectives on their cancer, their treatments, and their desires for the future.

For the study, 113 patients age 11 to 24 undergoing stem cell transplant treatments for cancer were randomized to be part of a Therapeutic Music Video intervention group or to be part of a control group that received audiobooks. Participants completed six sessions over three weeks.

After the intervention, the Therapeutic Music Video group reported significantly better courageous coping. One hundred days after stem cell transplant treatments, the Therapeutic Music Video group reported significantly better social integration and family environment. The investigators found that several protective factors helped adolescents and young adults be resilient in the face of cancer treatments, including spiritual beliefs and practices; having a strong family environment characterized by adaptability, cohesion and positive communication; and feeling socially connected and supported by friends and health care providers.

"These protective factors influence the ways adolescents and young adults cope, gain hope and find meaning in the midst of their cancer journey," Dr. Haase said. "Adolescents and young adults who are resilient have the ability to rise above their illness, gain a sense of mastery and confidence in how they have dealt with their cancer, and demonstrate a desire to reach out and help others."

The researchers also found that the parents of participating patients reported the videos gave them insights into their children's cancer experiences; however, the parents needed help initiating and sustaining important conversations about messages shared through their children's videos.

To address this need, Drs. Robb, Haase and their collaborative have received additional funding from the National Institutes of Health and the Childrens Oncology Group to examine the potential benefits of adding a parent communication component to their intervention.

"The study's findings provide evidence supporting the use of a music-based intervention delivered by a music therapist to help adolescents and young adults positively cope with high-risk, high-intensity cancer treatments," Dr. Robb said. "One of our team's next steps is to disseminate findings; train professional music therapists on this intervention; and then conduct an implementation study to examine how the intervention may change as it moves into the standard care setting and whether, in the presence of these changes, patient benefits are maintained," Dr. Robb said.

In addition to Haase and Robb, members of the research team were Debra Burns, Kristin A. Stegenga, Paul R. Haut, Patrick O. Monahan, Jane Meza, Timothy E. Stump, Brooke O. Cherven, Sharron L. Docherty, Verna L. Hendricks-Ferguson, Eileen K. Kintner, Ann E. Haight, and Donna A. Wall.

## OVCR INTERNAL GRANT DEADLINES

**RESEARCH SUPPORT FUNDS GRANT (RSFG):** The Research Support Funds Grant (RSFG) program is designed to enhance the research mission of IUPUI by supporting research projects and scholarly activities that are sustainable through external funding. The next RSFG application deadline is **April 15, 2014**. For grant guidelines and application forms, go to <http://research.iupui.edu/funding/>.

## OTHER INTERNAL GRANT DEADLINES

### Young Investigator Awards in Clinical-Translational Research

The Indiana Clinical and Translational Sciences Institute is seeking applications for its Young Investigator Awards in Clinical-Translational Research. 

Benefits include partial salary support, as well as tuition and fees for required and elective coursework, pilot research monies, and travel funds to attend the national CTSI young investigator meeting. Awards will begin July 1.

These awards provide promising junior investigator faculty with the opportunity to be mentored in research-intensive multi-disciplinary settings toward the goal of developing careers in clinical-translational research. Clinical research includes epidemiological studies, clinical trials, or other investigations involving human subjects. Translational research consists of either "T1 research," which involves the interface of basic science to human studies, or "T2 research," which involves the interface of human studies to the community.

To be eligible, candidates must fall into one of two categories:

- Clinician-scientists with a doctoral degree (physicians, nurses, dentists, pharmacists, clinical psychologists, optometrists, veterinarians, allied health care professionals, etc.)
- Basic scientists with a PhD, who are doing translational research, which has high potential for early translation into impacting patient care

Applicants must be full-time junior faculty or research scientists who would be eligible to apply as principal investigator on an NIH grant or career development award, but who have not to date been a principal

investigator on an R01 or equivalent grant. Applications must also be able to identify co-mentors who are faculty investigators from at least two different disciplines (preferably a clinician-scientist and a Ph.D.-scientist) and be planning to submit a grant for external funding (either a career development award or independent research grant) during the first 12 months of the award. U.S. citizenship or permanent residency status is also required.

Postdoctoral clinical or research fellows are not eligible to apply unless their institution has arranged for them to have a full-time faculty or research scientist appointment by summer 2014.

Applications are due Tuesday, April 1. For more information, or to submit an application, visit the Indiana CTSI [grants portal](#) and enter your institutional username and password. Application instructions are located under "CTSI Young Investigator Award in Clinical - Translational Research - 2014.04."

Direct questions to Donna Burgett at [dfburget@regenstrief.org](mailto:dfburget@regenstrief.org).

## OVCR EVENTS AND WORKSHOPS

### National Science Foundation Faculty Early Career Development Program

The Faculty Early Career Development (CAREER) Program is an NSF-wide activity offering prestigious awards in support of junior faculty who exemplify the role of teacher-scholars through outstanding research, excellent education and the integration of education and research within the context of the mission of their organizations.

The NSF deadlines for submission of proposals are July 22, 23, and 24, 2014, depending on discipline. If you are interested in applying and would like assistance by OVCR staff, be sure to attend all of the following sessions.

#### »*Session 3: Jumpstarting the NSF CAREER Proposal Writing Process*

When: Friday, May 2, 2014 | 10:00am - 12:00pm

Where: University Library, Room 1126

The Office of the Vice Chancellor for Research Proposal Development team will provide one-to-one support for developing and submitting NSF CAREER proposals. Attendees at this session will present their proposal concepts and be matched with an experienced professional writer/editor who will work with them through submission. You are welcome to bring your lunch.

Register: <https://crm.iu.edu/CRMEvents/NSFCAREERJumpstarting/>

### What You Need to Know About the NIH Policy on Data Sharing

When: Tuesday, March 25, 2014 | 9:30am - 10:30am

Where: IB - Ruth Lilly Medical Library, Room 225

Data sharing promotes many goals of the NIH research endeavor. It is particularly important for unique data that cannot be readily replicated. Data sharing allows scientists to expedite the translation of research results into knowledge, products, and procedures to improve human health. Do you know what a data sharing plan should include? Are you aware of common practices and standards for data sharing? Do you know what services are available to help share your data responsibly? This workshop will begin to address these questions. Q&A will follow the presentation. Anyone interested in or planning to apply for NIH funding should attend. Note: The NIH data-sharing policy applies to applicants seeking \$500,000 or more in direct costs in any year of the proposed research.

Register: <https://crm.iu.edu/CRMEvents/NIHDataSharing/>

### Meeting the NSF Data Management Plan Requirement: What you need to know

When: Thursday, March 27, 2014 | 10:00 AM-11:00 AM  
 Where: University Library, Room 2120 (IUPUI) or stream it online\*

As of January 18, 2011, the National Science Foundation requires a Data Management Plan for all new proposals. This plan should describe how the proposed study will disseminate and share the collected research results. Do you know what this plan should include? Are you aware of best practices and standards for data management, sharing, and preservation? Do you know what support services are available at IU? This workshop will outline the process of developing a data management plan, provide resources for DMP development, and introduce data services available. Q&A will follow the presentation. Anyone interested in or planning to apply for NSF funding should attend.

*\*If you plan to view the stream, please register so we can share the link when it is available.*

Register: <https://crm.iu.edu/CRMEvents/NSFDataMgmtPlan/>

### **Nine Golden Rules to Succeed in Research and Scholarship**

When: Friday, March 28, 2014 | 11:00am - 1:00pm  
 Where: University Library, Room 1126

This session will reveal the Nine Golden Rules on how to succeed in research and scholarship. It is focused toward new and early career investigators; however, mid career faculty should find information of interest as well.

Register: <https://crm.iu.edu/CRMEvents/GoldenRules/>

### **Making it Work: How to Commercialize Your Innovation**

When: Monday, March 31, 2014 | 10:00am - 12:00pm  
 Where: University Library, Room 1126

This workshop is co-sponsored by the IU Research and Technology Corporation and the Office of the Vice Chancellor for Research and will provide guidance and describe the resources available for commercialization of inventions by IUPUI researchers. IUPUI has a process in place to help...starting with the submission of invention disclosures and patent applications, to the licensing of the patent or in some cases to the development of a start-up company. IUPUI faculty will also be on hand to discuss their experiences in commercial development of their research.

Who should attend?

Faculty, staff, and students who:

- \*Have an idea for an invention that may be the basis for a new product
- \*Are interested in learning the next steps after an invention is made
- \*Want to learn about available resources to support the commercialization process

#### **Workshop Agenda**

9:30 a.m.	Registration
10:00 – 10:15 a.m.	Welcome and Introductions: IURTC and OVCR
10:15 – 11:00 a.m.	Indiana University process for protecting and commercializing inventions
11:00 – 11:10 a.m.	Break

11:10 – Noon

OVCR support for  
commercialization and Q&A  
with Faculty Panel

Register: <https://crm.iu.edu/CRMEvents/CommercializeYourInnovation/>

## Richard Blanco Poetry Reading

When: Thursday, April 10, 2014 | 7:30pm

Where: Herron School of Art and Design Basile Auditorium

Born in Madrid and raised in Miami, Blanco earned a B.S. in civil engineering and an M.F.A. in creative writing from Florida International University. A practicing engineer and writer, Blanco has taught at Georgetown University and American University, among other institutions. His books include *Directions to the Beach of the Dead* (2005), *Looking for the Gulf Motel* (2012), *Boston Strong* (2013), and *For All of Us, One Today: An Inaugural Poet's Journey* (2013). In 2013, Blanco served as the fifth inaugural poet of the United States, performing the original poem "One Today."

This poetry reading is co-sponsored by the School of Liberal Arts Department of English Spring Louise Reiberg Reading Series and by the Office of the Vice Chancellor for Research as part of [IUPUI Research Day](#) April 11, 2014.

## Polishing Your Grant Proposal: Writing with Clarity, Conviction, and Confidence

When: Friday, April 18, 2014 | 11:30am - 1:00pm

Where: University Library, Room 1126

Writers from the OVCR Proposal Development Services team will offer tips, techniques, and individual writing consultations to improve the fundability of grant proposal submissions. You are encouraged to bring works-in-progress and other writing samples to discuss. You are welcome to bring your lunch.

Register: <https://crm.iu.edu/CRMEvents/PolishingProposals/>

## Working with Industry on Applied Research & Creative Activity

When: Friday, April 25, 2014 | 1:00pm - 2:30pm

Where: University Library, Room 1126

This session will provide participants with an overview of services provided by the Office of the Vice Chancellor for Research that help link faculty researchers to industry partners for potential collaborations. Although this information session is geared toward new to mid-career faculty/researchers with a desire to work with industry, all faculty are welcome to attend. The following topics will be discussed: Research vs. applied research; Benefits of collaboration; How much industry research is currently being conducted at IUPUI; What industry looks for in applied research; What industry looks for in an applied researcher.

Registration: <https://crm.iu.edu/CRMEvents/Industry/>

## OTHER EVENTS AND WORKSHOPS

**National Endowment for the Humanities Program Officer to Visit IU**



On Monday, April 7, **Jane Aikin**, Program Officer at the National Endowment for the Humanities, will be at IU Bloomington, at the invitation of the College Arts & Humanities Institute. Interested faculty in the Humanities are invited to participate in this event.

## **SCHEDULE OF PUBLIC EVENTS**

### **MONDAY, APRIL 7**

All events will be held at the **University Club of the Indiana Memorial Union** (located at 900 E. Seventh St., Bloomington, Indiana).

11:00 am: General Presentation on the NEH: Jane Aikin

12:00 pm: BUFFET LUNCH, courtesy of the College Arts & Humanities Institute

12:45 pm: Panel Discussion on Review Boards:

**Jane Aikin**, NEH

**Jamsheed Choksy**, Professor of History and Central Eurasian Studies, IU  
Member of the National Council on the Humanities of the NEH

**David Hertz**, Professor Comparative Literature, IU  
Professor Comparative Literature, IU

Member of the National Council on the Humanities of the NEH

**Christopher Irmischer**, Provost Professor of English, IU  
George F. Getz Professor in the Wells Scholars Program  
Director of two NEH Institutes, and reviewed applications

1:45 pm: COFFEE BREAK

2:15 pm: Workshop on Applications: Jane Aikin

### **INDIVIDUAL CONFERENCES:**

Ms. Aikin is also available for a limited number of one-on-one conferences with faculty in the humanities, to discuss ideas or proposals in progress. (The deadline for NEH proposals for Fellowships is May 1, 2014.) These will be scheduled for Monday morning, from 9:00-10:30 am, and Tuesday morning, from 9:00-11:00 am, as needed. **Faculty members who plan to come and wish to schedule a meeting with Jane Aikin should send an email to [cahi@indiana.edu](mailto:cahi@indiana.edu), with "Aikin Conference" in the subject line. Faculty will also be required to send a one-page prospectus of a potential project to be forwarded to Ms. Aikin in advance of her meeting.**

## **Research Coordinator Education (RCEDU) Spring 2014 Level Three Program Dates**

The Indiana Clinical and Translational Sciences Institute (CTSI), IU Office of Research Compliance (ORC), and Richard L. Roudebush Veterans Affairs Medical Center are pleased to announce that the spring offering of the **Research Coordinator Education (RCEDU) Level Three Program** will be held on **April 24-25, 2014**.

The two-day, Level Three program serves as a way to recognize experienced Research Coordinators, provide additional education relative to the campus-specific aspects of conducting research, and to foster the

implementation of best practices for advancing the research enterprise. The program is designed to offer benefits not only to the individual participants, but also to their research teams, departments, and Schools as a whole.

Additional details regarding the program, including application information and attendance fees, are forthcoming. General information about the RCEDU initiative can be found at [www.indianactsi.org/training/coordinators](http://www.indianactsi.org/training/coordinators).

## Dr. Gary Kreps to Visit IUPUI as Keynote for Launch of Ph.D. in Health Communications

Dr. Gary Kreps is a University Distinguished Professor at George Mason University. Previously he was with the National Cancer Institute, NIH, 1999-2004, Founding Chief, Health Communication and Informatics Research Branch, Behavioral Research Program, Division of Cancer Control and Population Sciences, Founding Coordinator, Trans-Department of Health and Human Services Health Communication Research Working Group, Bethesda, MD. He will be visiting IUPUI as a keynote speaker to launch the Ph.D. in Health Communication. He is also available to meet with IUPUI researchers.

### Meeting with IUPUI Researchers

3:00 – 4:30 PM, Wednesday March 26, 2014

Campus Center, Room 406

**\*\*Faculty interested in meeting with Dr. Kreps must contact Etta Ward at 278-8427 or [emward@iupui.edu](mailto:emward@iupui.edu).**

### Keynote Presentation to Launch the Ph.D. in Health Communication

1:30 – 3:30 PM, Friday March 28, 2014

Campus Center, Room 309

**\*\*A reception follows the presentation in the same room.**

## 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 - January 2014

PI	Agency	Project Title	School	Department	Total
Yang, Feng-Chun	NATIONAL CANCER INSTITUTE	Role of Asx1 in normal hematopoiesis and pathogenesis of myeloid malignancies	MEDICINE	PED-NEONATALBASIC RESEARCH	\$1,618,500
Chang, Ching-Pin	GILEAD SCIENCES, INC.	Ask1 and heart failure	MEDICINE	CARDIOLOGY	\$274,690
Goodpaster, John V	NATIONAL INSTITUTE OF JUSTICE	SPECIES AND AGE DETERMINATION OF BLOW FLY PUPAE BASED UPON HEADSPACE ANALYSIS	SCIENCE	CHEMISTRY	\$197,491
Liu, Chiung-Ju	RETIREMENT RESEARCH FOUNDATION	Maintaining Independence at Home for Vulnerable Elders: A Pilot Randomized Controlled Trial	HEALTH/REHABILITATION SCIENCES	HEALTH/REHABILITATION SCIENCES	\$187,542
Mitchell, Alice Marina	AMERICAN HEART ASSOCIATION INCORPORATED	Decreasing Contrast-Induced Nephropathy from Pulmonary Embolism Testing: Physician Adoption of Risk-Stratification Strategies in the Emergency Care Setting	MEDICINE	EMERGENCY MEDICINE	\$154,000
Miyamoto, Richard T.	UNIVERSITY OF SOUTHERN CALIFORNIA	Development and Adaptive Behavior of Young Children with Hearing Loss	MEDICINE	OTOLARYNGOLOGY & H/N SURGERY	\$137,500
Liu, Yan	ELSA U. PARDEE FOUNDATION	Targeting PRL2 in Acute Myeloid Leukemia	MEDICINE	PED-NEONATAL BASIC RESEARCH	\$125,000
Hudmon, Andy	INDIANA STATE DEPARTMENT OF HEALTH	Developing Novel CaMKII Activators to Reduce Neurodegeneration	MEDICINE	BIOCHEMISTRY/MOLECULAR BIOLOGY	\$120,000
Jin, Xiaoming	INDIANA STATE DEPARTMENT OF HEALTH	Optogenetic evaluation and acute protection of corticospinal tract after spinal cord injury	MEDICINE	STARK NEUROSCIENCES RES INST	\$120,000

Tan, Zhiyong	INDIANA STATE DEPARTMENT OF HEALTH	Pain following ischemic spinal cord injury: role of voltage-gated sodium channels and investigation of a novel treatment strategy	MEDICINE	PHARMACOLOGY & TOXICOLOGY	\$120,000
Lee, Men-Jean	INDIANA STATE DEPARTMENT OF HEALTH	Team Optimization of Pregnancy Program	MEDICINE	OBSTETRICS AND GYNECOLOGY	\$100,000
Xie, Dong	KIMBERLY-CLARK CORPORATION	Development of Polymeric Proactives for Fragrance Delivery	E&T	BIOMEDICAL ENGINEERING	\$100,000

### Grants and Awards - February 2014

PI	Agency	Project Title	School	Department	Total
Schwarz, Margaret Arlene	NATIONAL HEART, LUNG AND BLOOD INSTITUTE	EMAP II: Pulmonary Vascular Mediator	MEDICINE	IUSM-SOUTH BEND	\$1,288,407
Nguyen, Kim Sa T	CHICAGO STATE UNIVERSITY	Pilot Regional Louis Stokes Center - Midwest Center of Excellence	EDUCATION	EDUCATION	\$390,210
Chen, Yaobin	OHIO STATE UNIVERSITY	Human Systems Integration for Safety in an Autonomous Vehicle World: Impending Collisions	E&T	ELECTRICAL & COMPUTER ENGR	\$316,000
Hashino, Eri	ROYAL NATIONAL INSTITUTE FOR DEAF PEOPLE	Generation of Inner Ear Sensory Epithelia from Human Pluripotent Stem Cells	MEDICINE	OTOLARYNGOLOGY & H/N SURGERY	\$233,070
Jin, Xiaoming	INDIANA STATE DEPARTMENT OF HEALTH	Longitudinal changes in microcirculation and synaptic plasticity after mild TBI	MEDICINE	STARK NEUROSCIENCES RES INST	\$120,000
Frankel, Richard M	HEALTH AND HOSPITAL CORPORATION OF MARION COUNTY	Rapid Assessment, Development and Implementation of a Program to Improve Use of Electronic Health Records in Eskenazi Ambulatory Care Practices	MEDICINE	GENERAL INTERNAL MEDICINE	\$103,300
Soto, Armando	INDIANA STATE DEPARTMENT OF HEALTH	SEAL INDIANA: Statewide mobile dental sealant program (2013-2014)	DENTISTRY	DENTISTRY-ORAL HEALTH	\$99,996

## 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

**Care for the Critically Injured Burn Patient:** The objective of this announcement is to explore innovative approaches to accelerate the translation of advances in knowledge into new standards of care for the treatment of the injured warfighter who sustains burn injuries. The results of the research funded through FY13 Care for the Critically Injured Burn Patient II (CCIBPII) Program Announcement/Funding Opportunity are expected to increase the body of knowledge available to professionals and practitioners in health, medical science and related fields. *Deadline: October 16, 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 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](mailto: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](mailto:akratz@iupui.edu).

## NATIONAL ENDOWMENT FOR THE HUMANITIES

**Preservation and Access Research and Development Grants:** This announcement supports projects that address major challenges in preserving or providing access to humanities collections and resources. These challenges include the need to find better ways to preserve materials of critical importance to the nation's cultural heritage--from fragile artifacts and manuscripts to analog recordings and digital assets subject to technological obsolescence--and to develop advanced modes of searching, discovering, and using such materials. Project results must serve the needs of a significant number of humanists.

Applications may be submitted that address any of the following activities: 1) the development of technical standards and best practices for preserving and creating access to humanities collections; 2) the exploration of more effective scientific and technical methods of preserving humanities collections; 3) the development of automated procedures and computational tools to integrate, analyze, and repurpose humanities data in disparate online resources; 4) the development of platforms, systems, and plans for managing humanities data and digital assets; and 5) the investigation and testing of new ways of providing digital access to humanities materials that are not easily digitized using current methods.

*Deadline: May 01, 2014.*

## NATIONAL INSTITUTES OF HEALTH

**Family-Centered Self-Management of Chronic Conditions (R01):** This funding opportunity seeks to build the science of family-centered self-management (FCSM) in chronic conditions. Examples of approaches to this opportunity include but are not limited to the following: 1) Develop and test FCSM interventions that promote family equilibrium for individuals with chronic conditions as well as when multiple family members have chronic conditions and are at risk of exacerbation of their illness. Examples may include community interventions or programs around a built environment. 2) Develop innovative research designs to determine which FCSM interventions are most efficient to include variability across developmental life stages and who will benefit most. Examples of innovative designs may include using a multiphase optimization strategy (MOST) when applied to self-management studies. This design leads to identification of a likely best intervention that can be evaluated at optimal levels, through an iterative process. Another example may be using a Multiple Assignment Randomized Trial (SMART) or pragmatic design that would facilitate high-quality data that can be used to construct adaptive interventions. Methodological designs such as SMART and MOST could be adapted to family-centered self-management research prevention and management programs. 3) Incorporate novel technologies for individual and family members to facilitate FCSM such as: monitoring symptom status, promoting health behavioral modifications and accessing/imparting health information.

*Deadline: June 05, 2014.*

**Innovation for HIV Vaccine Discovery (R01):** The purpose of this Funding Opportunity Announcement (FOA) is to encourage applications from institutions/organizations proposing innovative, high risk, high

impact research to identify novel vaccine concepts and targets that will aid in the design and development of an effective immunogen that may provide long-term protection from either acquisition of or ongoing infection by HIV. The emphasis of this FOA is early discovery research that incorporates new ideas leading to the development of newly engineered conventional or entirely novel approaches for vaccines that may have significant impact on the design of immunogens or immunization strategies for an effective HIV vaccine. The program is open to established and new investigators and does not require research expertise in HIV prevention as a prerequisite for submitting an application. *Deadlines: Letter of Intent: June 15, 2014; Submission: July 15, 2014.*

**Technologies for Healthy Independent Living (R01):** This announcement encourages Research Project Grant (R01) applications for research and development of technologies that monitor health or deliver care in a real-time, accessible, effective, and minimally obtrusive way. These systems are expected to integrate, process, analyze, communicate, and present data so that the individuals are engaged and empowered in their own healthcare with reduced burden to care providers. The development of these technology systems has the potential to significantly improve the quality of life for people with disabilities, people aging with mild impairments, as well as individuals with chronic conditions. **Components of Participating Organizations:** National Institute of Biomedical Imaging and Bioengineering (NIBIB); National Heart, Lung, and Blood Institute (NHLBI); National Institute on Aging (NIA); Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD); National Institute of Nursing Research (NINR); Office of Behavioral and Social Sciences Research (OBSSR). *Deadline: September 23, 2014.*

## NATIONAL SCIENCE FOUNDATION

**Research Networks in the Mathematical Sciences (RNMS):** The RNMS Program creates an award mechanism that supports researchers in ways that are intermediate in scale, scope, and duration to existing individual investigator awards and research institute awards. The RNMS Program recognizes that, over the past quarter century, mathematical research has become increasingly collaborative and interactive, because effectively overcoming core scientific challenges frequently requires the sharing of ideas and expertise. A Research Network is not a substitute for existing funding mechanisms. In particular, it is intended to complement (rather than replace) individual investigator awards by providing additional layers of interaction. Through the involvement of postdoctoral researchers and students and the promotion of international collaborations, the RNMS will not only focus on problems at the frontier of the mathematical sciences but also lead to robust and diverse training of the next generation of mathematicians and statisticians. *Deadline: July 14, 2014.*

**Ecology and Evolution of Infectious Diseases (EEID):** The goal of the EEID program is to support important and innovative research on the ecological, evolutionary, and socio-ecological principles that influence the transmission dynamics of infectious diseases. The program's focus is on the discovery of general principles and processes and on building and testing models that elucidate these principles. Projects must address quantitative or computational understanding of pathogen transmission dynamics. Research in EEID is expected to be an interdisciplinary effort that goes beyond the scope of typical studies funded by the standing programs of the partner agencies. They should bring together such areas as anthropology, computational science, ecology, epidemiology, evolution, food science, genomics, geography, global health, mathematics, microbiology, plant science, population biology, sociology, physical environmental sciences, systems science, and veterinary medicine. The history of the EEID program has shown that the most competitive proposals are those that advance broad, conceptual knowledge that reaches beyond the specific system under study and that may be useful for understanding public, agricultural or ecosystem health, natural resource use and wildlife management, and/or economic development. *Deadline: November 20, 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.*

## 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](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](mailto: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](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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