Dear Colleagues,

I hope you have had a productive and rewarding fall semester. I’d like to share with you some of our recent successes, as a result of your hard work, dedication, and commitment.

Since our last bulletin we have been working on expanding the scope and impact of our research through partnerships with external organizations. For example, ASU has formed a strategic collaboration with Battelle, the world’s largest research and development organization, to develop new technologies to support the future of science, technology, engineering and mathematics education.

Also, we are expanding the work with Intel Corporation and the U.S. Agency for International Development (USAID) to assist Vietnamese universities in their goal of training the trainers for enhanced workforce in engineering disciplines. In November, U.S. Secretary of State Hillary Clinton recognized Intel Corporation’s efforts in our project in Vietnam with the 2012 Award for Corporate Excellence.

Our partnership with Mayo Clinic continues to grow and develop, with several joint research projects and programs to ensure better health outcomes. On December 1, we hosted the annual ASU/Mayo research summit, with 150 participants from ASU and Mayo Clinic.

We are also continuing our success in attracting funding to advance discoveries and create impact. Since our last bulletin we have received several significant grants, including:

- **Bill and Melinda Gates Foundation** awarded $5.8 million to Professor Kurt VanLehn from the School of Computing, Informatics, and Decision Systems Engineering (CIDSE) to develop technologies for enhancing mathematics education and the **Office of Naval Research** awarded $1.5 million to VanLehn to develop an intelligent tutoring system for science education.

- **Higher Education for Development, a USAID funding agency** for institutions of higher learning awarded $1.3 million to Professor Victor Agadjanian from the Melikian Center to conduct a Women’s Leadership Project in Armenia, entitled “Advancing Gender Equality and Women’s Empowerment in Armenia.”

- **Chevron Energy Technology Company** awarded $1 million for the first year of a five-year project to Dean Paul Johnson and the Ira A. Fulton Schools of Engineering for the multi-university multinational team of researchers and technical advisors project entitled the “Heavy Hydrocarbon-Impacted Soil Research Group (HHSRG).”

- **Department of Energy’s Advanced Research Projects Agency-Energy (ARPA-E)** awarded funding to Professor Dan Buttry from the Department of Chemistry and Biochemistry for a project to develop technologies to capture carbon emissions from power plants. This is the third ARPA-E award ASU has received, which is a testament to our innovative approaches and successes in high-risk, high-reward projects.

ASU inventors have submitted a record number of invention disclosures during this first half of the fiscal year, recording the 100th disclosure on December 6th. Many of these inventions were inspiration for entrepreneurs in the state to launch new companies through the Arizona Furnace Accelerator program. 10 startups were invited to join the inaugural Furnace cohort, representing an array of technologies and innovative solutions.

In this bulletin, we are profiling our institutes and initiatives and encourage you to explore possibilities of connecting your work where appropriate.

Thanks for all your work this semester.

Wishing you and your family a wonderful holiday season,

Sethuraman “Panch” Panchanathan
Senior Vice President of OKED
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Updates & Reminders

Updated NSF Merit Review Criteria
NSF has updated the Proposal & Award Policy and Procedures Guide effective 01/14/2013. NSF has included in this version updated Merit Review Criteria. Details regarding the revised review criteria can be found on the Merit Review page of the NSF website. Faculty are strongly encouraged to review this information. Proposals that are not compliant may be returned without review. http://researchadmin.asu.edu/announcements/new-nsf-proposal-award-policies-and-procedures-guide-effective-11413, http://www.nsf.gov/bfa/dias/policy/merit_review/index.jsp

Research.gov Pilot
ASU is participating in piloting NSF’s new project reporting system, Research.gov. Faculty will now submit annual, final and interim progress reports to NSF via http://research.gov. The pilot will run from October 2012 to January 2013. For more information about this transition, please go to the Project Report Informational Page on Research.gov. Additionally, you may register for the January 16 Project Report Webinar by emailing webinars@research.gov. If you have specific questions about how this pilot impacts your reporting requirements, please contact Lisa Mosley, executive director of research operations, at lisa.mosley@asu.edu.

Shared Resources Portal
A new version of the Shared Resources portal is now available which allows investigators “one stop shopping” access to schedule time on a variety of research tools, including microscopy, x-ray, proteomics, and mass spectrometry equipment. Another improvement, streamlined billing, frees facility managers to focus less on administration and more on research. The site has received rave reviews and a high approval rating among the 130 users recently surveyed.

OKED developers are working on the next release, which will allow users to request quotes, submit job orders, and track project status. Job assignment and integrated billing features will be available to facility managers. http://sharedresources.asu.edu/

Revisions to ASU Policy and Procedures Manuals
The ASU Policies and Procedures Manuals are regularly revised. Some policies that affect your research or instruction may have been changed. We encourage all ASU Faculty to work with their business people to determine if any of the recent changes will affect them. The ASU Policy and Procedures Manuals, as well as the most recent manual revision notices, can be found at http://www.asu.edu/aad/manuals/.

Faculty Women’s Association Grant Writing Workshop, sponsored by OKED
OKED will sponsor a panel discussion on “Strategies for Grant Writing Success” hosted by the Faculty Women’s Association on December 12, 2012 in the Memorial Union (Gold 207). Faye Farmer of the Research Strategy Group will be providing best practice recommendations based on her five years of proposal development experience at ASU. http://fwa.org.asu.edu/

Interdisciplinary Science & Technology Building 4
ISTB4 is now a vibrant, active building on campus. During the summer and fall most of the investigators who will be housed in ISTB4 moved in. ISTB4 is about 60% occupied by the School of Earth and Space Exploration, including 34 faculty, and the Center for Meteorite Studies (and the world’s largest university-based meteorite collection). ISTB4 also houses about 27 faculty and some exciting programs from the Ira A. Fulton Schools of Engineering, the Security and Defense System Initiative, the Sustainable Water Initiative, Zero Mass Labs, and the Center for Environmental Security within the Biodesign Institute.

The Marsden Theater and TEAL (Technology Enabled Active Learning lab) are in regular use, and the next open house (January 25th) will include an Astronomy Show presented by Ric Alling, in the ISTB4 theater. Dr. Mark Robinson will give the next public lecture series, which will take place February 8th at the Marston Theater. https://asuresearch.asu.edu/facilities/oked-research-buildings/istb4
Economic Development and Corporate Engagement Update

Arizona Furnace Accelerator

The AZ Furnace Accelerator, a groundbreaking initiative that encourages entrepreneurs from across the country to find and commercialize innovations developed within the state’s universities and research institutions, has announced the first 10 startups invited into its inaugural cohort. These 10 winning companies used innovations from Arizona State University, Dignity Health Arizona and University of Arizona. The first Furnace cohort represents a wide array of technologies and innovative solutions, from biomarkers for disease diagnosis to new methods for massive data storage to repurposing discarded tires for new construction materials. The companies invited into the Furnace Accelerator include:

- **Attometrics** will use a novel technology capable of rapidly detecting protein, metabolite and DNA analytes with unprecedented sensitivity. Attometrics will sell an automated, multiplexed detection system that can handle high sample throughput to detect and identify groups of biomarkers for cancer and infectious diseases.

- **CYMEDX** will develop assays for the early detection of mitochondrial diseases such as Alzheimer’s disease. Earlier detection enables earlier therapy and development of personalized medicine solutions. CYMEDX’s vision is to help millions of people avoid the physical, emotional and financial burdens of these devastating diseases.

- **DataWare Ventures** will be a software development firm catering to the Large Data Analytics and Database Management System (DBMS) Optimization segment of the industry.

- **Fast PCR Diagnostics** will develop polymerase chain reaction (PCR) technology to amplify and quantify the presence of a specific DNA/RNA sequence. PCR is omnipresent in all biological/medical applications. PCR is also the gold standard for identifying bacterial/viral infections. Fast PCR Diagnostics will commercialize a system for super-fast, portable and accurate diagnosis of blood infection, which can be best utilized in medical diagnostics, especially within the emergency room (ER) setting.

- **IMANIN** will make ultrasound-based preventative diagnostic tools for cardiovascular disease more efficient and available for widespread clinical adoption. There is a clinical need for an efficient software solution for carotid intima–media thickness (CIMT) interpretation. To meet the clinical need, IMANIN has developed an innovative prototype, which is highly efficient and user friendly for CIMT image interpretation.

- **PiVoT** will commercialize an improved concrete mixture where specific quantities of crumb rubber are added, resulting in improved thermal cycling resistance without the expense of additional cement. The concrete is lighter and displays increased traction, reduced contact noise and superior crack resistance. This technology provides an attractive end use for the millions of rubber tires discarded each year.

- **Rarus Innovations** will be an EdTech company focused on delivering e-learning through Mobile Apps and Internet using gamification principles and social media. Through a partnership with GreenCave, Rarus seeks to create innovative and fun Android and iOS based apps.

- **RehabDev** will provide safe, wearable, low-cost stroke rehabilitation products for use at home or in the clinic. The technologies promote repetition and task-oriented use toward effective and efficient stroke recovery. The wearable wireless products offer an unobtrusive and discreet solution that can be taken and used virtually anywhere.

- **SiO2 Nanotech** will develop VitreOx™ for applications in vitro-retinal surgery and other procedures involved with endoscopes and laparoscopes. VitreOx™ inhibits fogging on intra-ocular lenses and endoscope/laparoscope lenses by changing the condensation on the surface. The invention not only saves the vision of a patient undergoing vitro-retinal secondary cataract surgery, it also reduces operation time by 40% in endoscopic and laparoscopic procedures.

- **Traken Technologies** will be a veteran-owned start-up, developing an access control system with a secure mobile-cloud data acquisition system to help local, national and multi-national convenience stores reduce loss due to theft, while protecting critical data belonging to the retailers and their customers.

More information on the companies and AZ Furnace can be found at [http://www.azfurnace.org](http://www.azfurnace.org).
Institutes & Initiatives

OKED oversees several interdisciplinary institutes and initiatives. These build on our existing foundation of expertise while allowing us to expand our capabilities in areas of current and future social relevance. The institutes and initiatives enable researchers to collaborate freely across diverse disciplines, partner with outside organizations and industries, and receive support in pursuing large grants.

There are a variety of ways for faculty to collaborate across the university through institutes and initiatives. These areas help researchers identify colleagues across the university who can help broaden the scope of their research, and integrate the work being done in other disciplines, to expand the perspectives of projects and programs. https://asuresearch.asu.edu/institutes

Biodesign Institute

All living systems are constructed from the same molecular building blocks arranged in infinite variations. At the Biodesign Institute, multidisciplinary teams of researchers are working to understand the design principles that govern nature in order to improve health, protect lives and sustain our planet.

Dr. Raymond DuBois, the new executive director of the Biodesign Institute, brings a wealth of experience and expertise to the Institute’s history of success.

For example, HealthTell Inc., a spin-out company from the Biodesign Institute, was selected as the Start-up of the Year at the 2012 Governor’s Celebration of Innovation. http://biodesign.asu.edu/news/asu-spin-out-healthtell-named-start-up-of-the-year.

Learn more about the Biodesign Institute at http://biodesign.asu.edu/.

Global Institute of Sustainability

The Global Institute of Sustainability is the hub of ASU’s sustainability initiatives. The Institute advances research, education and business practices for an urbanizing world. Its School of Sustainability offers trans-disciplinary degree programs focused on finding practical solutions to environmental, economic and social challenges.

Among the many recent achievements and accolades for the institute is a $27.5 million investment by the Walton Family Foundation for delivering sustainability solutions, accelerating global impacts, and inspiring future leaders. http://sustainabilitysolutions.asu.edu/

In addition, the institute’s Sustainable Cities Network received a 2012 President’s Award for Sustainability for the way it bridges ASU’s research and technical capabilities with the front-line sustainability challenges facing cities. http://sustainablecities.asu.edu/

The Sustainability Science for Sustainable Schools educational initiative won a Valley Forward Award for its wide reach in bringing sustainability projects into high schools’ curriculum, campuses and larger communities. http://sustainableschools.asu.edu/

Learn more about ASU’s sustainability efforts at http://sustainability.asu.edu/.
LightWorks Initiative

LightWorks pulls light-inspired research at ASU under one strategic framework. It is a multidisciplinary effort to leverage ASU’s unique strengths, particularly in renewable energy fields such as artificial photosynthesis, biofuels and next-generation photovoltaics. Beyond science and technology, LightWorks integrates these areas with social sciences, law, policy and economic development efforts.

Because of the tremendous support from faculty, this initiative has fostered research projects that have led to significant funding, including a $15M Department of Energy award for the Algae Testbed Public-Private Partnership (ATP³) and the most recent $600K ARPA-E award for the Energy Efficient Electrochemical Capture and Release of Carbon Dioxide project. https://asunews.asu.edu/20120912_algaetestbed, https://asunews.asu.edu/20121128_DOEgrant

Learn more about LightWorks and how you may participate in this initiative at http://asulightworks.com.

Institute for Humanities Research

The Institute for Humanities Research generates and supports transformative, transdisciplinary, collaborative and socially engaged humanities scholarship that contributes to productive social dialogue and makes a difference in the world. By facilitating collaboration among scholars in the humanities, social sciences, engineering, and sciences, the institute’s programs expose faculty in many fields to what humanities research is, how it operates, and why it is important.

The IHR’s programs include lectures, symposia, research clusters, seed grants and fellowships, which engage ASU faculty research and creates opportunities for interdisciplinary partnerships. Examples include the current open calls for the IHR Fellows Program that is focused on “the humanities and home” and nominations for the 2013 IHR Transdisciplinary Book Award that honors work of academic non-fiction by an ASU humanities faculty member on any campus. Nominations for the book award close January 7, 2013. http://ihr.asu.edu/funding/fellows, http://ihr.asu.edu/news-events/events/2012-2013-annual-book-award

Learn more about IHR’s upcoming events, news and opportunities to get involved at http://ihr.asu.edu/.

Institute for Social Science Research

The Institute for Social Science Research is the home of state-of-the-art research facilities for the social sciences across the entire university. The ISSR provides three specific services to assist researchers: geographic information systems, web design and information management, and survey support.

The ISSR provides seed grant resources in order to improve the quality of external grant submissions. The ISSR also provides workshops to provide instruction related to the employment of social science research methods.

Learn more about ISSR at http://issrweb.asu.edu/.
Security and Defense Systems Initiative

The Security and Defense Systems Initiative has been established to provide real-world solutions to growing national and global security challenges. The initiative is focused not only on devising technology-enabled solutions, but also on addressing a variety of related legal and policy implications, as well as social root causes that underlie our security issues.

Through the participation of outstanding faculty, SDSI has mapped the technical specialties that exist across ASU around seven research thrust areas where much of SDSI’s efforts are focused. Specialized projects and high-level engagements are underway at multiple local facilities, in Washington D.C., and elsewhere around the nation, and there are increasing opportunities for faculty to participate in this initiative.

Learn more about SDSI at http://sdsi.asu.edu/.

Decision Theater Initiative

Decision Theater is a state-of-the-art visualization and research epicenter for exploring and understanding decision-making in uncertain times. Decision Theater connects the science of ASU with the needs of the community. It uses visualization, modeling and simulation, and collaboration tools to assist policy makers on issues related to urban growth, education, public health and the environment.

Learn more about Decision Theater, schedule a tour of the facility, and discover more about how it could help you make better decisions for your projects at http://dt.asu.edu.

Complex Adaptive Systems Initiative

The Complex Adaptive Systems Initiative (CASI) addresses multifaceted challenges in health, sustainability, security and education through the study of complex adaptive systems. These systems involve a network of interacting and independent agents that learn and adapt over time.

Through the collaborative work among faculty in a variety of different disciplines, CASI develops and promotes research and education, while engaging partners nationally and globally to further expand ASU’s efforts. Periodic lectures and seminars expand on the areas of focus of this initiative, including personalized care and products for medicine.

Learn more about the Complex Adaptive Systems Initiative at http://casi.asu.edu/.
Project Humanities

Created in 2010, Project Humanities is an initiative that reaches across all four ASU campuses and beyond into surrounding communities. From film screenings and discussions to public scholarly lectures and performances, Project Humanities touches virtually every aspect of ASU—faculty, students, emeriti, alumni, staff and administrators. A very successful advisors workshop in the summer brought together 130 advisors across disciplines and campuses to talk about the value of humanities degrees, courses and content. The project endeavors to create local, national and international collaborations via research and public programs.

With its biannual, themed kickoff events, Project Humanities has quickly become a window through which those inside and outside ASU have come to realize the importance of humanities and humanist perspectives. Such themes have included “Perspectives on Place,” “What is American Music?” “Are We Losing Our Humanity?” “Truth,” and the spring 2013 theme of “Heroes, Superheroes and Superhumans,” taking place February 10-16.

Project Humanities brings people together to “talk, listen and connect.” Please see the range of project activities across the Valley, university and institutional partnerships, the Friends of Project Humanities Photo Gallery, and the Project Humanities Events at http://humanities.asu.edu.

Learning Sciences Institute

The Learning Sciences Institute focuses on the generation and dissemination of research on the core human enterprises of learning and education broadly defined. LSI supports interdisciplinary collaboration across ASU and serves as a catalyst for researchers who conduct externally-funded research to advance our understanding of learning, the conditions and behaviors that influence it, and innovations that can maximize it. Current research initiative centers focus on Early Learning, Personalized Digital Learning, and Psychometrics and Learning Analytics.

LSI offers comprehensive grant preparation and support services for faculty investigators and their research teams to conduct and disseminate their findings. The LSI also sponsors a number of research presentations and events to advance the development of the research community for faculty, graduate, and undergraduate students.

Learn more about the Learning Sciences Institute at https://lsi.asu.edu/. Become an LSI affiliate today.

McCain Institute

The McCain Institute for International Leadership is a center for research and action in national security and foreign policy. It seeks to promote leadership and decision-making in the best American tradition of open inquiry, spirited discussion and practical action. Through its policy research, events, fellowship programs and other activities, the institute aims to inform, convene, train and assist current and future leaders from the United States and abroad.

The McCain Institute recently opened its doors in Washington, D.C. and is working with the Decision Theater to open another facility of its kind in our nation’s capital.

Learn more about the work of the McCain Institute and its associated programs and events at http://mccaininstitute.org.
ASU Global

ASU Global works with local, national and international partners to find solutions to the most complex challenges facing our world today. ASU Global identifies international opportunities for researchers and fosters partnerships with institutions around the world that share our commitment to innovation and impact.

By identifying and organizing capabilities that exist across the university, ASU Global is pursuing engagement abroad around a variety of different topical areas, including water, sustainability, energy, health, human trafficking, and education. We work with academic units and faculty to translate ASU innovation into meaningful global solutions, with a particular focus on the developing world.

Faculty who are working to address issues locally that could help people and communities overseas are encouraged to contact ASU Global to learn more about joining a working group and identifying how this team may work with you to enhance your impact on a broader scale. Visit http://asuresearch.asu.edu/global for more information.

What are you drinking?
The latest article in our water series looks at water contamination from natural and manmade sources.
http://researchmatters.asu.edu/stories/what-are-you-drinking-2451

Preserving diversity: ASU Collections
This visually stunning video gives a tour of the SOLS collections, from insects to fish to fossil plants.
http://researchmatters.asu.edu/videos/preserving-diversity-asu-collections

Researchers develop more reliable concussion tests
An ASU researcher and a neurologist at Mayo Clinic have teamed up to improve concussion diagnosis and to determine when recovery is complete. http://researchmatters.asu.edu/stories/researchers-develop-more-reliable-concussion-tests-2431

ASU and USAID helping rural Guyana out of the dark
About 1.5 billion people around the world live without electricity. The VOCTEC program, funded by USAID and led by ASU, seeks to boost solar energy infrastructure and investment by increasing awareness, knowledge and capacity of local stakeholders. https://vimeo.com/47739381

Connect with OKED through social media