**Engineering Research Digest**

A weekly newsletter for Engineering PIs interested in funding opportunities and news

Prepared by TEES Research Development

April 6, 2016  http://teesresearch.tamu.edu/  researchnews@tees.tamus.edu

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**Funding Opportunities** (from the past 7 days)

For previous funding opportunities, see
http://teesresearch.tamu.edu/funding-opportunities/

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**LIMITED SUBMISSIONS**

If you would like to receive all notices of limited submission opportunities, please email shelly.martin@tamu.edu.

Note that if you are on this list, you will receive any and all announcements, whether or not they apply to you. All limited submission opportunities are also posted on the VPR’s site.

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**DOD**

Solid State Energy Recovery Prototype Solutions for the Office of Naval Research ([link](link)) – See Research News below – White Paper Due April 15, 2016 – Amount to Be Determined

Fiscal Year 2017 Defense University Research Instrumentation Program ([link](link)) – Full Due July 22, 2016 – Total Amount Available $47,000,000

Defense Medical Research and Development Program (DMRDP) ([link](link)) – See link for due dates and funding information.

Targeted Neuroplasticity Training (TNT) ([link](link)) – Proposal Due June 2, 2016 – Total Amount Available to be Determined

**DOE**

Bioenergy Research Centers ([link](link)) – Pre-Application Due June 17, 2016 – Total Amount Available $89,000,000 (annually) – If you are interested in this funding opportunity, please contact Dr. Narasimha Reddy at reddy@tamu.edu.

Industrial Assessment Centers (IAC) ([link](link)) – LOI Due April 28, 2016 – Total Amount Available $35,000,000

**Fulbright Scholar Program**

Fulbright Opportunities in Sustainable Development in the Western Hemisphere ([link](link)) – Please see website for due dates and award amounts.

**NIH**

NIH Director's Transformative Research Awards (R01) ([link](link)) – LOI Due September 7, 2016 – Total Amount Available $8,000,000
NIH Research Project Grant (Parent R01) ([link]) – Due September 7, 2016 – Amount Contingent upon NIH Appropriations and Number of Meritorious Applications

Use of Imaging and Digital Image Analysis Software/s to Evaluate Transdermal Irritation and Non-inferiority of Generic Transdermal Products (U01) ([link]) – LOI Due April 15, 2016 – Up to $250,000 for FY 2016

Bioequivalence of Topical Products: Comparing Epidermal Pharmacokinetics by Spectroscopic Imaging Techniques (U01) ([link]) – Due June 3, 2016 – Up to $500,000 for FY 2016

NSF
Small Business Technology Transfer Program Phase I (STTR) ([link]) – See Research News below – Due June 20, 2016 – Total Amount Available $11,250,000

Dear Colleague Letter: Fundamental Research to Improve STEM Teaching and Learning, and Workforce Development for Persons with Disabilities within the EHR Core Research Program ([link])

TEES/Engineering/Division of Research
Strategic Areas Interdisciplinary Research Seed Grants ([link]) – Due May 1, 2016 – Up to $50,000

Upcoming Events
See also [http://teesresearch.tamu.edu/events/](http://teesresearch.tamu.edu/events/) for a complete listing and links to handouts/presentations

TEES Research Development
We will post upcoming events as they are announced

Other Opportunities

**NSF 2016 CBET CAREER Proposal Writing Webinar**
April 27, 2016
Information and Registration

**Register Now**
**Texas A&M ENG-Life Workshop**
April 29, 2016
8:00 a.m. - 4:30 p.m.
Engineering Technology Building (ETB), Room 2005
Information and Registration – Flyer and Abstract Template to upload during registration

**Spring 2016 NIH Regional Seminar**
May 11-13, 2016
Baltimore, MD
Renaissance Baltimore Harborplace Hotel
Registration and Information
Research News

Additional Information Provided on NSF and DoD STTRS

NSF
- NSF STTR encourages commercialization of previously NSF-funded fundamental research (NSF funding lineage).
- NSF has broad topics for STTRs: [http://www.nsf.gov/eng/iip/sbir/topics.jsp](http://www.nsf.gov/eng/iip/sbir/topics.jsp).

DoD
- No lineage is necessary.
- Most STTRs mandate a minimum of 1/3 and a maximum of 1/2 participation by the academic institution. List of STTRs from other agencies can be found at: [https://www.sbir.gov/about/about-sttr](https://www.sbir.gov/about/about-sttr).
- Success rate of STTRs is slightly high (comparatively): [https://www.sbir.gov/competitiveness](https://www.sbir.gov/competitiveness).

TEES can help find small business partners for your STTR proposals.

Office of Naval Research (ONR) Issues Call for White Papers for the Solid State Energy Recovery Prototype Solutions Program

On behalf of the Office of Naval Research, TechConnect and NSTXL encourage you to submit your innovative technology solutions for prototype support consideration in the primary focus area of: Solid State Energy Recovery Prototype Solutions.

For more details on this Call for White Papers, please see below. For submission information, please link and follow the instructions here: [http://nstxl.org/white_paper/](http://nstxl.org/white_paper/). **Submissions due:** April 15, 2016.
The Office of Naval Research (ONR) is seeking prototypes for innovative capabilities and solutions to convert waste heat into electrical power. Approximately two-thirds of the energy from fuel burned in military engines is lost as waste heat. Capturing and converting exhaust heat into useful electrical power could provide an effective means for Department of Defense (DoD) platforms to increase mission endurance and operational reach, enhance capabilities through additional power for advanced sensors and weapons, and lighten the logistical burden of fuel resupply. ONR would like to explore solid-state solutions to reduce fuel consumption in diesel and gas turbine generators in a wide variety of environments. This technology has the potential to reduce fuel and emissions of prime power generators (400 kW and higher) without introducing maintenance tasks or operator training, and could ultimately pay for itself with quickly realized cost savings in forward contingency bases.

In contrast to commercial power generation systems, military generators spend much of their time operating at 50% or less of full capacity, whereas commercial systems operate mostly at peak capacity and rely on peaking power plants coming online to meet excess demand. Another challenge in military platforms is the transient nature of engine operation. This leads to large temperature swings in the heat exchangers that are not seen in commercial systems, and these swings have led to failure in prior developmental efforts. Finally, integration of a waste heat recovery system with military ruggedized systems can be a challenge. Requirements for reliability and survivability dictate that military systems must not negatively impact the performance of the existing equipment, and they must harness the energy within rigorous specifications prescribed for military applications.

ONR seeks prototypes that are designed to be easily retrofit onto existing DoD prime power generators (400kW and higher) without a significant increase in equipment footprint, maintenance workload, and crew training. Solutions must be compact, reliable, and ultimately manufacturable at relevant sizes (> 50 kW). They must also be able to interface with existing mechanical, electrical and cooling systems with minimal modifications and have minimal exhaust-side pressure drop. Additionally, the prototype must operate reliably while subjected to thermal transients associated with repeated on-off cycles, and it must provide power output over the range of generator exhaust temperatures and flow rates experienced during typical military operating scenarios.

New DARPA Grand Challenge to Focus on Spectrum Collaboration – Agency Unveils the World's First Collaborative Machine-Learning Competition

DARPA announced the newest of its Grand Challenges, one designed to ensure that the exponentially growing number of military and civilian wireless devices will have full access to the increasingly crowded electromagnetic spectrum. The agency’s Spectrum Collaboration Challenge (SC2) will reward teams for developing smart systems that collaboratively, rather than competitively, adapt in real time to today’s fast-changing, congested spectrum environment—redefining the conventional spectrum management roles of humans and machines in order to maximize the flow of radio frequency (RF) signals. DARPA officials unveiled the new Challenge before some 8,000 engineers and communications professionals gathered in Las Vegas at the International Wireless Communications Expo (IWCE).
The primary goal of SC2 is to imbue radios with advanced machine-learning capabilities so they can collectively develop strategies that optimize use of the wireless spectrum in ways not possible with today’s intrinsically inefficient approach of pre-allocating exclusive access to designated frequencies. The challenge is expected to both take advantage of recent significant progress in the fields of artificial intelligence and machine learning and also spur new developments in those research domains, with potential applications in other fields where collaborative decision-making is critical.

“DARPA Challenges have traditionally rewarded teams that dominate their competitors, but when it comes to making the most of the electromagnetic spectrum, the team that shares most intelligently is going to win,” said SC2 program manager Paul Tilghman of DARPA’s Microsystems Technology Office (MTO). “We want to radically accelerate the development of machine-learning technologies and strategies that will allow on-the-fly sharing of spectrum at machine timescales.”

The Challenge comes at a time of fast-growing need. Military operations increasingly rely on access to the wireless spectrum in order to assess the tactical environment and coordinate and execute their critical missions. But the military is not alone in this challenge: as society enters an era in which ever more products, from refrigerators to automobiles to commercial unmanned aerial vehicles, need access to the spectrum, it will take far more efficient and nimble use of finite spectrum resources to meet the demand.

To host the new Challenge, DARPA aims to construct the largest-of-its-kind wireless testbed, which will serve during and after the SC2 as a national asset for evaluating spectrum-sharing strategies, tactics, and algorithms for next-generation radio systems. The “Colosseum,” named after the ancient Roman amphitheater, will allow researchers to remotely conduct large-scale experiments with intelligent radio systems in realistic, user-defined RF environments, such as the wireless conditions of a busy city neighborhood or battle setting.

SC2 will unfold in three year-long phases beginning in 2017 and finish in early 2020 with a live competition of finalists who have survived the two preliminary contests. The team whose radios collaborate most effectively with various types of other radios to dynamically optimize spectrum usage will walk away with a grand prize of $2M.

A Broad Agency Announcement for the Spectrum Collaboration Challenge will be released in the coming months and will be available on FedBizOpps.gov. An SC2 website is accessible at http://spectrumcollaborationchallenge.com and will be updated with information about the challenge, a rules document, and registration forms as they become available.

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Prepared by TEES Research Development under the auspices of the Associate Agency Director for Strategic Initiatives and Centers. For questions, email researchnews@tees.tamus.edu.