NJIT Research Newsletter includes Grant Opportunity Alerts, recent awards, and announcements of research related seminars, webinars and special events. The Newsletter is posted on the NJIT Research Website http://www.njit.edu/research/

Recent Research Grant and Contract Awards

Congratulations to faculty and staff on receiving research grant and contract awards!

**PI:** John Federici (PI)  
**Department:** Physics  
**Grant/Contract Project Title:** Development, Integration, Testing, and Training (DITT) of Systems and Processes for Systems & Facilities Optimization  
**Funding Agency:** US Army  
**Duration:** 09/15/15-09/30/16

**PI:** William Marshall (PI)  
**Department:**  
**Grant/Contract Project Title:** Development, Integration, Testing, and Training (DITT) of Systems and Processes for Systems & Facilities Optimization  
**Funding Agency:** US Army  
**Duration:** 09/15/15-09/30/16

**PI:** NM Ravindra (PI)  
**Department:** Physics  
**Grant/Contract Project Title:** Modeling/Experimental Evaluation of the Effect of Surface Damage on Texturing of Diamond Wire Sawn Silicon Wafers and Verification  
**Funding Agency:** UDDOE/NREL  
**Duration:** 09/21/15-09/21/16

**PI:** Richard Foulds (PI)  
**Department:** BME  
**Grant/Contract Project Title:** Admittance Controlled Upper Extremity Orthosis for Children with Muscular Dystrophy  
**Funding Agency:** Pfeiffer Research Foundation  
**Duration:** 06/01/13-05/31/16
**PI:** Catalin Turc (PI)  
**Department:** Mathematical Sciences  
**Grant/Contract Project Title:** Innovative Physics-based Modeling Tool for Application to Passive Radio Frequency Identification System on Rotorcraft  
**Funding Agency:** DoD/Navy  
**Duration:** 05/30/15-12/29/15

**PI:** Gale Spak (PI)  
**Department:** CPE  
**Grant/Contract Project Title:** Technology & Entrepreneurship Talent Network  
**Funding Agency:** NJ Labor and Workforce Department  
**Duration:** 07/01/14-10/31/15

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**Events and Announcements**

**Faculty Research Related Events hosted by Office of Research**

The following research related events are organized for faculty and staff to provide information and promote collaborative research. All research faculty and staff members are invited. More details and information will be published in the future newsletters and also posted on the research website.

**Office of Research Open House:** September 28, 2015, 12:00 Noon-3:00 PM (Light Lunch), Ballroom A

**Undergraduate Research and Innovation Phase -1 and Phase -2 Student Seed Grant Workshop,** October 14, 2015, 12:00 PM – 3.00 PM, Room235 Campus Center, URI Advisory Board will speak about proposal writing and discuss review criterion on research and innovation proposal for different levels of funding.

**First NJIT Research Center Showcase:** November 16, 2015, 12:00 Noon–4:00 PM ( with light Lunch and networking), Ballroom A &B

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**Event:** IEEE Spectrum Webinar: Inductive Components and Devices: Simulation and Optimization  
**When:** October 1, 2015 11:00 AM – 12.00 PM  
**Brief Description:** Wireless chargers, sensors, current limiters: all these devices rely on inductive components to fulfill their purpose. In the mass market, cost and functional efficiency requirements are of paramount importance.  

This webinar will show how electromagnetic field simulation is commonly applied to the design and analysis of such devices to determine optimal coil topology and size and study the effect of installation environment on performance. It will also show how the shape can be optimized for reduced core size, losses and temperatures to increase device efficiency. Critical
features and considerations in the simulation process such as the appropriate choice of solver, core loss calculation method and ferrite material models will also be discussed.


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**Event: COMSOL Multiphysics & Application Builder Workshop**

**When:** October 16, 2015; 9.00 AM – 12.00 PM  
**Where:** Electrical and Computer Engineering Center Room 202, NJIT  
**Registration Website:** [http://comsol.com/c/2rtx](http://comsol.com/c/2rtx)  

**Brief Description:** Join us for this unique opportunity to advance your skills in multiphysics simulation. This half-day workshop begins with a walk-through of the fundamental modeling steps in COMSOL Multiphysics®. Attendees will then have the chance to set up and solve a simulation through a hands-on exercise, guided by a COMSOL expert. You will leave with new skills to work on your own applications using your free, two-week COMSOL trial.

During the workshop you will:
- Learn the fundamental modeling steps in COMSOL Multiphysics
- Convert existing COMSOL models into Apps using the COMSOL Application Builder
- Set up and solve a simulation through a hands-on exercise
- Free, 2 week COMSOL trial

**Contact for More Information:** Prof. Sagnik Basuray at sagnik.basuray@njit.edu

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**Event: NSF Webinar: Engineering Education Program**

**When:** September 29, 2015 1:00 PM – 2.30 PM  
**Registration Website:** Register at [WebEx](https://nsf.webex.com/mw0401lsp13/mywebex/default.do?nomenu=true&siteurl=nsf&service=6&rnd=0.897184038093997&main_url=https%3A%2F%2Fnsf.webex.com%2Fec0701isp13%2Feventcenter%2Fevent%2FeventAction.do%3FtheAction%3Ddetail%26cDefViewID%3D4070518523%26%26%26siteurl%3Dnsf)  

**Brief Description:** This webinar will provide guidance to prospective PIs interested in submitting proposals to the Research in the Formation of Engineers (RFE) and Research Initiation in Engineering Formation (RIEF) programs. Topics to be discussed include the overall goals of the programs, specific requirements for each program, elements of a strong proposal, and common mistakes made in proposals. There will also be a question and answer session.

Questions should be submitted via email during the webinar to the contacts listed below.  

Webinar participants must [register via WebEx](https://nsf.webex.com/mw0401lsp13/mywebex/default.do?nomenu=true&siteurl=nsf&service=6&rnd=0.897184038093997&main_url=https%3A%2F%2Fnsf.webex.com%2Fec0701isp13%2Feventcenter%2Fevent%2FeventAction.do%3FtheAction%3Ddetail%26cDefViewID%3D4070518523%26%26%26siteurl%3Dnsf) in advance in order to receive instructions for joining the webinar.

The video capacity for the webinar is limited to the first 200 participants who register. Additional participants will have audio access.

The full audio and video transcript of the webinar will be available online. Please check the following link for information about the online transcript when it becomes available: [http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13540](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13540)  

Grant Opportunity Alerts

Keywords and Areas Included in Grant Opportunity Alerts:

**Internal Competition:** NSF MRI Grants (Reminder)
**NSF:** MRI; **Partnerships for Innovation:** Building Innovation Capacity (PFI:BIC), Division of Environmental Biology (core programs) (DEB)
**NIH:** BRAIN Initiative: Foundations of Non-Invasive Functional Human Brain Imaging and Recording - Bridging Scales and Modalities (R01), Capturing Complexity in the Molecular and Cellular Mechanisms Involved in the Etiology of Alzheimer’s Disease (R01), Novel Approaches to Diagnosing Alzheimer's Disease & Predicting Progression (R01), Major Opportunities for Research in Epidemiology of Alzheimer’s Disease and Cognitive Resilience (R01), Research on the Mechanisms and/or Behavioral Outcomes of Multisensory Processing (R01)
**DoD/ONR/AFOSR/ARL:** Fiscal Year 2016 Office of Naval Research Young Investigator Program
**Department of Energy:** Request For Information (RFI) - Building Sensor And Control Technologies
**Bill and Melinda Gates Foundation:** Global Grand Challenges Explorations: Update

Grant Opportunities

National Science Foundation

**NSF Limited Submission and Internal Competition Through College/School Deans:**

**Grant Program:** NSF Major Research Instrumentation Program: (MRI)
**Agency:** National Science Foundation NSF 15-504
**Brief Description:** The Major Research Instrumentation Program (MRI) serves to increase access to shared scientific and engineering instruments for research and research training in our Nation's institutions of higher education, not-for-profit museums, science centers and scientific/engineering research organizations. The program provides organizations with opportunities to acquire major instrumentation that supports the research and research training goals of the organization and that may be used by other researchers regionally or nationally.

**Limited Number of Submission:** Three (3) as described below.
If three proposals are submitted, at least one of the proposals must be for instrument development (i.e., no more than two proposals may be for instrument acquisition).
**Awards Range:** $100,000-$4 million
**Letter of Intent:** Not Required
**Submission Deadline:** January 13, 2016
**Internal Competition:** Please submit up to 5 pages pre-proposal white paper to your respective Dean by November 2, 2015.
**For more information and submission format for internal competition, please the Research Newsletter Issue:** ORD-GOA-2015-28 posted on the website
Grant Program: Partnerships for Innovation: Building Innovation Capacity (PFI:BIC)
Agency: National Science Foundation NSF 15-610
RFP Website: http://www.nsf.gov/pubs/2015/nsf15610/nsf15610.htm

Brief Description: The Partnerships for Innovation: Building Innovation Capacity (PFI:BIC) program supports academe-industry partnerships which are led by an interdisciplinary academic research team collaborating with a least one industry partner. In this program, there is a heavy emphasis on the quality, composition, and participation of the partners, including the appropriate contributions for each role. These partnerships focus on the integration of technologies into a specified human-centered service system with the potential to achieve transformational change, satisfying a real need by making an existing service system smart(er) or by spurring the creation of an entirely new smart service system. The selected service system should function as a test bed.

Service systems are socio-technical configurations of people, technologies, organizations, and information [1] designed to create value by fulfilling the needs of those participating in the system. A "smart" service system is a system that amplifies or augments human capabilities [2] to identify, learn, adapt, monitor and make decisions. The system utilizes data received, transmitted, or processed in a timely manner, thus improving its response to future situations. These capabilities are the result of the incorporation of technologies for sensing, actuation, coordination, communication, control, etc.

PFI:BIC funds research partnerships working on projects that operate in the post-fundamental/translational space; the proposers must be mindful of the state of the art and the competitive landscape, yet recognize that it is not a central task in this proposal to carve out, or be on, a clear path to commercialization. These projects require additional effort to integrate the technology into a real service system, incorporating human factors considerations to assure the system’s efficacy. The research tasks in turn might spawn additional discoveries inspired by this interaction of humans with the technology.

Partnership activities that drive sustained innovation include the targeted allocation of resources such as capital, time, and facilities; and sharing of knowledge in a cross-organizational and interdisciplinary context. The research tasks of the project must demonstrate a highly collaborative research plan involving participation of the primary industrial partner(s) as well as of any other primary partners with the academic researcher during the life of the award. NSF recognizes that a highly interdisciplinary collaboration involving many areas of expertise beyond those related to the technology is needed to achieve successful integration into a smart service system. The research components to be included in this project are: 1) engineered system design and integration; 2) computing, sensing, and information technologies; and 3) human factors, behavioral sciences, and cognitive engineering. The proposer must show how these components will be integrated in the context of the project as part of the research plan in the Project Description.

WEBINARS: Webinars will be held to answer questions about the solicitation. Register on the PFI:BIC website where details will be posted (http://www.nsf.gov/eng/iip/pfi/bic.jsp). Potential proposers and their partners are encouraged to attend. Also encouraged to attend are the following stakeholders in the successful review of PFI:BIC proposals: Vice Presidents for Research, Vice Presidents for Research and
Innovation, and academic personnel concerned with the review of their respective institution’s selection of candidates for submission, individuals from Sponsored Research Offices, and those focused on the identification and understanding of limited application submissions.

**Awards:** Awards may be up to $1,000,000 with an award duration of three (3) years. Anticipated Funding Amount: $10,000,000

**Letter of Intent:** December 02, 2015

**Full Proposal Deadlines:** January 27, 2016

**Contacts:**
- Sara B. Nerlove, ENG/IIP/PFI:BIC, Program Director, telephone: (703) 292-7077, email: snerlove@nsf.gov
- Alexandra Medina-Borja, ENG/OAD, telephone: (703) 292-7557, email: amedinab@nsf.gov
- Gurdip Singh, CISE/CNS, telephone: (703) 292-8950, email: gsingh@nsf.gov
- Hector Munoz-Avila, CISE/IIS, telephone: (703) 292-7129, email: hmunoz@nsf.gov
- Alexander Leonessa, ENG/CBET, telephone: (703) 292-2678, email: aleoness@nsf.gov
- Leon Esterowitz, ENG/CBET, telephone: (703) 292-7942, email: lesterow@nsf.gov
- William J. Cooper, ENG/CBET, telephone: (703) 292-5356, email: wjcooper@nsf.gov
- Jordan M. Berg, ENG/CMMI, telephone: (703) 292-5365, email: jberg@nsf.gov

**Grant Program:** Division of Environmental Biology (core programs) (DEB)

**Agency:** National Science Foundation NSF 15-609


**Brief Description:** The Division of Environmental Biology (DEB) supports fundamental research on populations, species, communities, and ecosystems. Scientific emphases range across many evolutionary and ecological patterns and processes at all spatial and temporal scales. Areas of research include biodiversity, phylogenetic systematics, molecular evolution, life history evolution, natural selection, ecology, biogeography, ecosystem structure, function and services, conservation biology, global change, and biogeochemical cycles. Research on organismal origins, functions, relationships, interactions, and evolutionary history may incorporate field, laboratory, or collection-based approaches; observational or manipulative experiments; synthesis activities; as well as theoretical approaches involving analytical, statistical, or computational modeling.

Proposals are welcome in all areas of science supported by the Division of Environmental Biology. Unsolicited proposals to any of the below programs and special categories are subject to submission limits.

**Ecosystem Science**

- Ecosystem Studies Program

**Evolutionary Processes**

- Evolutionary Ecology Program
- Evolutionary Genetics Program

**Population and Community Ecology**

**Cluster:** [http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503665&org=DEB&from=home](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503665&org=DEB&from=home)
- Population and Community Ecology Program

**Systematics and Biodiversity Science**

- Biodiversity: Discovery and Analysis
- Phylogenetic Systematics

**Special Categories**

1) Small Grants

The Division welcomes proposals for Small Grants to the core programs via this solicitation. Projects intending total budgets of $150,000 or less should be identified as such with the designation "SG:" as a prefix to the project title in the preliminary proposal and, if invited, the full proposal. These awards are intended to support full-fledged research projects that simply require smaller budgets. Small Grant projects will be assessed based on the same merit review criteria as all other proposals. REU, RET, and RAHSS projects can be requested as part of the full proposal for a Small Grant as long as the total request remains within the $150,000 cap. Small Grants are also eligible to request post-award supplements for REU, RET and RAHSS projects in excess of the cap.

2) Research in Undergraduate Institutions (RUI)

Preliminary proposals for RUIs must be submitted to the core programs via this DEB solicitation by the listed deadlines. Invited **full RUI proposals** should comply with the instructions in this solicitation, include the required RUI documentation and **be submitted to the current RUI solicitation**. If the invited full proposal is a collaborative, only the undergraduate institution(s) should submit to the RUI solicitation, other institutions should submit to this DEB solicitation. Additional information on the scope of RUI projects and the format of those proposals can be found at [http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5518&org=NSF&sel_org=NSFW&from=fund](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5518&org=NSF&sel_org=NSFW&from=fund). Please note: Neither preliminary nor full proposals from RUI-eligible institutions are required to use the RUI designation. An invited full proposal from an RUI-eligible institution may choose to submit through the RUI solicitation or not regardless of whether the preliminary proposal was identified as an RUI.

3) NERC and BSF International Collaborative Proposals

The core programs will accept preliminary proposals for international collaborative research following DEB Dear Colleague Letters that announced two distinct international activities: one with the Natural Environment Research Council (NERC) [http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf14098](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf14098) of the United Kingdom and the other with the U.S.–Israel Binational Science Foundation (BSF) [http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf14094](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf14094). These international collaborative proposal submissions (whether reviewed by NSF or international partners) will be subject to the submission limits in this solicitation for any PI, co-PI, or PI of a subaward on the proposal. Questions regarding these activities can be directed to NSFDEB-NERC@nsf.gov or NSFDEB-BSF@nsf.gov respectively.

4) Long Term Research in Environmental Biology (LTREB)

New LTREB proposals require a preliminary proposal. All preliminary, invited full, and renewal LTREB proposals must be submitted to the core programs via the separate LTREB solicitation by the listed deadlines [http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=1354](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=1354). LTREB proposals must address the additional review criteria as described in the LTREB solicitation

**Awards:** Various levels, Anticipated Funding Available: $72,000,000.

**Letter of Intent:** Not required

**Preliminary Proposal Due Date: (required)(due by 5 p.m. proposer's local time):**

January 25, 2016

**Full Proposal Deadlines:** August 02, 2016

**Contacts:**
• Division of Environmental Biology, telephone: (703) 292-8480, email: debquestions@nsf.gov

National Institutes of Health

Grant Program: BRAIN Initiative: Foundations of Non-Invasive Functional Human Brain Imaging and Recording - Bridging Scales and Modalities (R01)
Agency: National Institutes of Health RFA-MH-16-750
RFP Website: http://grants.nih.gov/grants/guide/rfa-files/RFA-MH-16-750.html

Brief Description: As stated in the BRAIN 2025 report, “The last twenty years have seen explosive growth in the development and use of noninvasive brain mapping methods, predominantly MRI, complemented by MEG and electroencephalography (EEG), to investigate the human brain under normal and pathological conditions, and across the human lifespan.” Human neuroimaging methods and technology have made significant advances in elucidating the macroscopic structural and functional organization of the human brain. At the same time animal research, aided by advances in optical imaging and other techniques, has allowed detailed study of the brain anatomy and physiology at the microscopic scale of brain function. The overarching research objective of this FOA is to advance our ability to accurately and precisely infer these microscopic details of underlying anatomy and physiology in the human brain from the more limited data available from noninvasive functional brain mapping methods. At present, relatively little is understood of the fundamental relationships between brain imaging signals at macroscopic levels and the underlying circuits and cellular activity at more fine-grained scales. What is needed is to integrate the information from the signals collected using non-invasive imaging and recording techniques with studies aimed at better understanding the cellular- and circuit-bases of these signals. Such integrative, multidisciplinary efforts would revolutionize our understanding of the biological and bioinformatic content of data collected from non-invasive human brain imaging and functional evaluation techniques. This knowledge could lead to transformative breakthroughs in understanding dynamic functions of the human brain under both normal and pathological conditions.

Thus, the goal of this FOA is to improve our understanding of the dynamic function of the human brain using non-invasive imaging techniques that are suited to the general human population. Research proposed in response to this FOA should focus on determining what the signals detected with non-invasive neuroimaging and functional evaluation techniques reveal about the underlying neural circuitry, with an emphasis on determining how the acquired signal at one level informs our understanding of activity at other levels. A key to achieving these goals will be bridging microscopic and macroscopic scales across temporal and spatial domains. This approach will yield a deeper understanding of how electrical and chemical activity in different populations of neurons and glia are represented in macroscopic-level measurements of brain structure and function. The knowledge gained could potentially enable non-invasive measurements of circuit and network interactions at multiple spatial and temporal scales.

Integrative Approaches
Transformative approaches are needed that will enable the testing and validation of estimation of anatomy and physiology across scales in both time and space. These approaches could include: (a) combining current and emerging neural recording and neuromodulation techniques and methods (leveraging theoretical models, simulations, and sophisticated quantitative analyses) to deconstruct signals from non-invasive neuroimaging and
neurophysiological recording; (b) using both correlations and perturbations of micro- or meso-level activity to determine relationships with macro-level activity to reveal and define the principles by which signals decay or amplify across scales; and (c) innovative design of critical experiments to validate and test emerging theories and ideas.

Making progress in overcoming obstacles in one discipline often requires research approaches from another discipline. Achieving the goals of this FOA will likely require collaborative efforts between imaging scientists, physicists, mathematicians, computational and informatic theorists, engineers, biologists, neuroscientists, clinical scientists, and behavioral scientists. If necessary to achieve the goals, investigators are strongly encouraged to form teams to work across the translational spectrum, including pre-clinical studies in small and large animal species. Partnerships with industry are also encouraged. It is anticipated that progress on specific key questions will be enhanced by interdisciplinary collaborations. This FOA is designed to provide resources to leverage transformative, interdisciplinary approaches to human brain imaging and functional evaluation techniques.

Examples of potential studies responsive to this FOA include:

- Applications that significantly advance our understanding of the structure-function relationship of defined units in the brain using non-invasive imaging and functional evaluation techniques, high-density recording, and behavioral manipulations. Studies may include investigations aimed at understanding how recorded signals map onto neural code in the context of specific behaviors.
- Integrative, multimodal approaches combining non-invasive brain stimulation and neuromodulation techniques with functional neuroimaging (e.g. simultaneous transcranial magnetic stimulation and fMRI, focused ultrasound and other neuroimaging and recording techniques) to elucidate functional networks through focal stimulation of cortical brain regions and monitoring of the distributed signals.
- Manipulation of subcortical activity through neurons and circuits deep within the brain, and subsequent imaging of downstream effects on cortical dynamics or circuit function. Use of integrated multimodal imaging approaches across structural levels to link neural circuit dynamics (e.g., oscillations) to structural or functional measurements in subcortical structures, and those to observations in the cortex.

**Awards:** Application budgets are limited to $700,000 in direct costs in any project year, and need to reflect the actual needs of the proposed project.

**Letter of Intent:** December 6, 2015

**Deadline:** January 6, 2016, by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on this date. No late applications will be accepted for the Funding Opportunity Announcement. Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

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**Grant Program:** Capturing Complexity in the Molecular and Cellular Mechanisms Involved in the Etiology of Alzheimer’s Disease (R01)

**Agency:** National Institutes of Health  RFA-15-358


**Brief Description:** The goal of this FOA is to support innovative research focused on understanding the molecular and cellular mechanisms underlying the heterogeneity and multifactorial nature of AD with the potential to create new or to challenge existing scientific paradigms. This FOA encourages individual and/or collaborative research projects that propose
innovative approaches to understanding the complex biology of AD to fill critical knowledge gaps or to examine critical areas of AD biology that have not been adequately addressed in the past. Applicants are encouraged to use or develop state-of-the-art research and analytical tools and to integrate the use of human data and biosamples with cell-based and animal models.

Areas of high program relevance include, but are not limited to:

- Molecular, cellular, and physiological studies to define the function of genetic risk factors for AD, including integrative physiological mechanisms of ApoE in AD;
- Comprehensive structural and functional characterization of various amyloid and tau variants by high resolution X-ray crystallography, cryo-EM, solid-phase NMR, and native protein mass spectrometry to identify structural basis underlying toxicity and spreading of misfolded protein aggregates;
- Molecular mechanisms underlying exosome-mediated AD pathogenesis and using exosome as a potential multicellular phenotyping tool for AD biomarker discovery;
- Molecular mechanisms underlying the propagation of pathological protein assemblies in AD, including the role of glial cells and other non-neuronal cell types in spreading of pathological protein assemblies;
- Molecular phenotyping and connectivity of single neural cells in human aging and AD brain using/developing methods (e.g. CLARITY-related approaches, axon tracing, RNAseq) for isolation and characterization (in vitro and in vivo) of neurons and glia;
- Systems biology of brain neural cells derived from human AD induced pluripotent stem cells and development of genetic, molecular and physiological milieu that mimics in vivo biology, e.g. 3D cell culture and aging; define molecular ‘omics’ signatures of neural cells, genotype-phenotype relationships, and environmental influences;
- Molecular mechanisms by which metabolic and vascular risk factors as well as blood brain barrier permeability impact the initiation and progression of neurodegenerative changes in AD;
- Molecular mechanisms underlying the impact of sleep deficiency and chronic circadian disruption in the etiology of AD;
- Molecular mechanisms of gender-specific differences in the initiation and progression of neurodegeneration in AD, and on modulation of genetic and environmental risk factors;
- Molecular mechanisms by which peripheral systems (e.g. immune, metabolic, microbiome) interact with the brain during aging and the impact of this interaction on the initiation and progression of neurodegeneration in AD;
- Development of standardized, cost-effective, high-throughput methods to isolate neural and glial cells for “omics” profiling and drug-screening;
- Development of the next generation of animal models (e.g. using genome editing) based on genetic and environmental risk and protective factors for AD.

**Awards:** NIH intends to fund an estimate of 35 - 40 awards, corresponding to a total of $20 million for fiscal year 2016. Future year amounts will depend on annual appropriations.

**Letter of Intent:** Not required

**Deadline:** December 10, 2015 (New, Resubmission, and Revision applications) followed by Standard dates, by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on these dates. Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.
Examples of research that might be supported by this FOA include, but are not limited to:

- Putative biomarkers that are already actively studied in AD. Biomarker but this FOA is not primarily intended to study validated biomarkers or to validate putative biomarkers that are already actively studied in AD. Both clinical and preclinical studies may be supported by this FOA.

Examples of research that might be supported by this FOA include, but are not limited to:

- Abnormal deposits of aggregated, misfolded transactive response DNA binding protein 43 kDa (TDP43) are present in some patients with frontotemporal lobar dementia (FTLD) or with amyotrophic lateral sclerosis (ALS). Cortical Lewy bodies, made up of aggregated misfolded a-synuclein, are characteristic of dementia with Lewy bodies (DLB) and Parkinson's disease dementia. TDP43 deposits and Lewy bodies are found in the brains of many AD patients, as well as in some non-impaired elderly controls. The degree to which these or other misfolded proteins contribute to impairment in AD patients is unknown. Biomarkers to detect the presence of Lewy bodies or TDP43 deposits in vivo would be useful;

- The most important genetic risk factor for late-onset AD is the presence of the E4 allele in the gene for Apolipoprotein E (ApoE). The E4 allele has a dose related effect on development of brain amyloidosis and subsequent onset of AD, but not all E4 allele carriers develop AD. Biomarkers associated with the ApoE4 allele that predict subsequent dementia or that are associated with protection from dementia could be very informative as to pathophysiological mechanisms in AD;

- Inflammatory mechanisms may be supported by this FOA. It may be useful to employ an existing biomarker as a "gold standard" for the novel biomarker but this FOA is not primarily intended to study validated biomarkers or to validate putative biomarkers that are already actively studied in AD. Both clinical and preclinical studies may be supported by this FOA.

Examples of research that might be supported by this FOA include, but are not limited to:

- Abnormal deposits of aggregated, misfolded transactive response DNA binding protein 43 kDa (TDP43) are present in some patients with frontotemporal lobar dementia (FTLD) or with amyotrophic lateral sclerosis (ALS). Cortical Lewy bodies, made up of aggregated misfolded a-synuclein, are characteristic of dementia with Lewy bodies (DLB) and Parkinson's disease dementia. TDP43 deposits and Lewy bodies are found in the brains of many AD patients, as well as in some non-impaired elderly controls. The degree to which these or other misfolded proteins contribute to impairment in AD patients is unknown. Biomarkers to detect the presence of Lewy bodies or TDP43 deposits in vivo would be useful;

- The most important genetic risk factor for late-onset AD is the presence of the E4 allele in the gene for Apolipoprotein E (ApoE). The E4 allele has a dose related effect on development of brain amyloidosis and subsequent onset of AD, but not all E4 allele carriers develop AD. Biomarkers associated with the ApoE4 allele that predict subsequent dementia or that are associated with protection from dementia could be very informative as to pathophysiological mechanisms in AD;
People with Down syndrome, trisomy 21, have an extra copy of the amyloid precursor protein (APP) gene (which is on chromosome 21) and develop early onset AD at a high rate. Biomarkers that predict onset of dementia or that predict protection from dementia in trisomy 21 could be very informative as to pathophysiological mechanisms in AD;

AD is associated with synaptic loss, as indirectly reflected by FDG hypometabolism, and by hippocampal atrophy and loss of gray matter. Neuroimaging or CSF biomarkers that directly assess synaptic density or are associated with loss of synapses and/or apoptosis could be very informative;

A glymphatic, perivascular pathway for CSF exchange with interstitial fluid was recently characterized in the rodent brain, and has been shown to play an important role in removal of protein waste products, including soluble amyloid-beta (1-42) and HPF-tau. Waste removal via the glymphatic pathway has a circadian rhythm, and is most efficient during sleep. Biomarkers to visualize glymphatic flow or quantify changes in glymphatic transport, as well as preclinical and clinical approaches to studying perivascular pathway(s) in the brain may have great impact;

Inflammation is thought to play an important role in AD. PET radiotracers that bind an 18kDa translocator protein (TSPO) found in microglia have been developed, and there is evidence to suggest that TSPO binding may reflect neuroinflammation. Current TSPO ligands have issues with genetic heterogeneity, signal to noise ratio, and with interpretation of results. However, biomarkers for studying neuroinflammation in vivo – whether through neuroimaging or through some other approach (e.g., CSF) would be valuable;

AD is a complicated illness that alters brain function and human physiology in many different ways. Metabolomic, lipidomic, proteomic, and other “omic” approaches to studying AD and other dementias may lead to new biomarkers. Establishing links between peripheral biochemical changes in non-invasively collected bodily fluids and neuroimaging or CSF biomarkers could yield metabolic profiles that could be used to diagnose dementia in the general population;

Electroencephalography (EEG) and magnetoencephalography (MEG) measure the electrical activity of brain neurons with great temporal but somewhat limited spatial resolution. They are relatively non-invasive methods. Studies in AD and other dementias have been suggestive but far from conclusive, and neither EEG nor MEG have proven useful in clinical evaluation of AD. Since EEG and MEG directly reflect neuronal activity, it would not be unreasonable to hypothesize that AD and other dementias may produce unique EEG or MEG signatures, different from healthy controls and perhaps evolving as illness progresses. Modern signal processing algorithms may help identify such “signatures”. It may also be that such “signatures” may be most evident after stimulation or challenge (e.g., evoked response potentials, ERPs), or associated with altered level of consciousness (e.g., sleep);

Unlike any other physiological system, there is no biomarker whose presence or absence reliably or uniquely distinguishes normal from abnormal brain function. Neurodegeneration, death of neurons, is a very blunt concept. Dementia leads to striking changes in behavior. Is there some, as yet unidentified, neural process or function that more closely tracks changes in behavior and cognitive impairment? Is a brain stress test possible, analogous to a cardiologist’s stress EKG that might reveal impending dementia?

**Awards:** NIH intends to fund an estimate of 12 - 15 awards, corresponding to a total of $10 million, for fiscal year 2016. Future year amounts will depend on annual appropriations.

**Letter of Intent:** Not Required
The National Institutes of Health (NIH) supports a broad range of population studies to address questions related to the trajectory of Alzheimer’s disease and other aging phenotypes. The collection and analysis of new phenotypic information, including but not limited to new biomarkers, neuroimaging, and non-traditional data modalities such as that from wearable sensors, could broaden the impact of existing studies. The addition of genetic data to existing or newly collected cohorts in the light of existing or novel phenotypes would allow analyses of how specific genetic variants or polygenic risk scores contribute to the risk of or protection against AD and the trajectory of cognitive performance. Other emerging opportunities stem from the wider availability of electronic health records and administrative data (e.g., CMS Medicare claims) and the ability to collect phenotypic data online at lower cost.

Augmenting existing longitudinal cohort studies

The NIH Precision Medicine initiative (see http://www.nih.gov/precisionmedicine/) presents new opportunities for understanding the molecular determinants of AD risk and cognitive resilience in diverse populations and at the level of the individual. This FOA invites applications that will enhance the potential of community-based cohort studies to enable precision medicine for AD by, for example: expanding the types of cross-sectional and longitudinal ante- and post-mortem-biospecimen data-collection needed to generate multiple layers of “omics” data; incorporating dense molecular endophenotyping (e.g., genomic, epigenomic, proteomic, metabolomic, and microbiomic); collecting nontraditional data modalities using wearable sensors and mobile-health technologies; and embedding biomarkers of environmental exposure and geocodes. The large-scale multidimensional data generated with the above approaches could serve as the basis for future systems biology and gene-environment studies and the development of a new taxonomy for AD prevention.

Enabling precision medicine for AD through deep molecular phenotyping

The multi-factorial etiology and heterogeneity of AD may reveal itself in racial or ethnic differences in overall AD risk and in putative risk or protective factors or in the progression of neuropathology. Although multi-ethnic cohorts can be very informative, well-powered cohort studies are needed to identify specific risk or protective factors that vary between (sub)populations. These cohorts may also benefit from the addition of measures that may better help us identify the determinants of both disease risk and cognitive resilience. The 2015
Alzheimer’s Disease Research Summit includes a recommendation to establish new cohorts for intense endophenotyping that are sufficiently powered to analyze the effects of gender and diverse populations.

Exploring of trends in the risk of AD and their explanation via putative risk and protective factors.

Recent research in well-characterized cohorts suggests the age-specific risk of AD may be declining in some populations and increasing in others. The answer to the trend question has clear implications for public health and policy. Trend data also provide a potentially powerful way to test whether putative risk or protective factors are truly causal. For example, educational attainment appears to be protective against AD whereas both cardiovascular disease (CVD) and female sex may confer additional risk. But the reasons for these observed patterns are not yet clear. The risk posed by female sex status, for example, may reflect sex differences affecting the disease process, which may include differences in the trajectory of hormonal changes with age or in the sex chromosome, or gender differences in educational attainment or all of these. Comparisons between cohorts differing in these factors over time will be informative and may require sophisticated analyses or meta-analyses and replication plans.

Collecting and sequencing DNA samples from well-characterized cases and controls.

Research conducted by investigators from the Alzheimer’s Disease Sequencing Project (ADSP; see https://www.niagads.org/adsp/content/home) and others has demonstrated the value of whole-genome and whole-exome sequencing in the detection of genetic variants that may modify AD risk or protection. The sequencing of more genomes of well-characterized cases and controls and family based cohorts from large multiply-affected families will accelerate gene discovery for target identification efforts and to accelerate the progress of the drug development pipeline. Well-characterized subjects from diversity sample sets are especially needed to augment statistical power. Applicants interested in this line of research should be aware of current and emerging NIH guidance with respect to sharing genomic data (see http://gds.nih.gov/) and are expected to facilitate rapid data-sharing according to existing ADSP and NIA policies, which include providing all types of data to the ADSP NIAGADS/dbGaP database (https://www.niagads.org/adsp/).

Electronic archiving of cohort studies

Although NIH encourages broad and inclusive data-sharing for large studies, electronic archiving of data from many longitudinal cohorts is either incomplete or relies on data infrastructure that is vulnerable to research-funding lapses. Current efforts at NIH to support Big Data to Knowledge (BD2K; see https://datascience.nih.gov/bd2k for more information) focus on enhancing the discoverability and usability of data sets and developing appropriate analysis tools, providing special opportunities for collaboration between epidemiologists and survey scientists on the one hand and computer and data scientists on the other. There is currently a wealth of information relevant to cognitive epidemiology that is trapped in non-digitized or obsolete formats. NIH-NIA believes, however, that these resources can be reclaimed & revitalized by modern archiving methods and technology.

Harmonizing complex data sets relevant to AD

Although there have been substantial efforts at NIH to develop brief, reliable measures (e.g., PROMIS® and the NIH Toolbox®; see https://www.nihpromi.org for more information) as well as recommendations for the use of off-the-shelf phenotypic measures (e.g., PhenX) in large epidemiological studies, there has been less work on creating crosswalks between these measures and those that have been historically used in cohort studies. The need for harmonization across these platforms is particularly acute in studies that include longitudinal clinical, neuroimaging, genetic and genomic, and biomarker data that are costly to
obtain. Coordination and harmonization of data from existing cohort studies with the Alzheimer’s Disease Neuroimaging Initiative (ADNI; see http://www.adni-info.org/ for more), the Accelerating Medicines Partnership (AMP) effort for AD (see http://www.nih.gov/science/amp/alzheimers.htm), and the ADSP (see: https://www.niagads.org/adsp/content/home) are also welcome.

**Harmonizing dementia assessment to enhance cross-national comparisons.**

As important as harmonization is to the study of dementia trends and the risk and protective factors (against dementia) that differ between cohorts, more work is needed on the harmonization of dementia-assessment methods that could inform cross-national comparisons. This requires more than simple translation of instruments, since even the best ones may not operate equivalently in developing countries where literacy rates and levels of educational attainment are much lower. Two recent examples where this work is being done are the 10/66 Dementia Research Group (see https://www.alz.co.uk/1066/default.php) in lower income countries and more recent work done within the US-based Health and Retirement Study (HRS; see http://hrsonline.isr.umich.edu/). Both examples use a harmonized cognitive assessment protocol (HCAP) that can be used to compare dementia prevalence in higher- and lower-income countries. Applications to use or extend these approaches or develop new approaches to harmonize dementia assessment suitable for cross-national comparisons and feasible both in clinical and field settings are encouraged.

**Awards:** NIA intends to fund an estimate of 10 - 15 awards, corresponding to a total of $12 million for fiscal year 2016. Future year amounts will depend on annual appropriations.

**Letter of Intent:** Not Required

**Deadline:** December 11, 2015 (New, Resubmission, and Revision applications) followed by Standard dates, by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on these dates. Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

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**Grant Program:** Research on the Mechanisms and/or Behavioral Outcomes of Multisensory Processing (R01)

**Agency:** National Institutes of Health  PA-15-347


**Brief Description:** The purpose of this Funding Opportunity Announcement (FOA) is to invite applications that elucidate the mechanisms and/or behavioral outcomes of multisensory processing, the integration or processing of at least two distinct types of sensory input as defined by distinct receptor-type transduction, neural pathways and cognate perceptual quality. Specifically, multiple sensory inputs may include the major traditional modalities of hearing, vision, taste, smell, balance, and touch. Additional submodalities of body senses include but are not restricted to thermosensation, body position and proprioception, pain, itch, and general visceral sensation. This FOA encourages research grant applications investigating multisensory processing in perception or other behavioral and social outcomes and/or the mechanisms underlying multisensory processing in the context of the described specific areas of research interests from the participating NIH Institutes, Centers, and Offices (ICOs). The FOA is intended to encourage basic, behavioral, and/or clinical research projects examining the interactions between other neural systems, such as cognitive, affective, or motor processes, and multiple sensory modalities. Multisensory research applications that do not align with the specific areas of research interests described below by the participating NIH ICOs should be submitted to the parent R01 FOA, PA-13-302.
This FOA supports innovative studies using animal or human subjects to examine two or more senses (visual, auditory, olfactory, gustatory, somatosensory including pain or other submodalities of body senses, and vestibular) for the elucidation of mechanisms and behavioral outcomes of multisensory processing. Therefore, applications submitted to this FOA should focus on mechanisms, or the behavioral impact, or both. The initiative encourages the use of diverse methodologies, including basic biochemical, molecular, cellular, genetic approaches, neuroimaging and neurophysiological analyses, experimental psychophysics, “real world” settings, immersive virtual technology, and animal models.

For this FOA, applicants should address multisensory integration across at least two of the broadly different senses (smell, sight, taste, touch, hearing, balance) or the submodalities of body senses including but not restricted to thermosensation, body position and proprioception, pain, itch, and general visceral sensation. Audio-visual, visual-vestibular and chemo-tactile integration already have been noted as examples. However, the perception of form by integrating color contrast with shape-from-shading would be considered visual, and integration of linear with angular acceleration would be considered vestibular, and not appropriate here. This FOA also supports research on the interaction of pain (as part of the somatosensation) with other sensory systems.

**Awards:** Standard awards

**Letter of Intent:** Not Required

**Deadline:** Standard dates apply, by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on these dates.

Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

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**DoD/US Army/Office OF Naval Research/Air Force Office of Scientific Research**

**Grant Program:** Fiscal Year 2016 Office of Naval Research Young Investigator Program (YIP)

**Agency:** Department of Navy, Office of Naval Research ONR FOA Announcement Number N00014-15-R-F013

**RFP Website:** [http://www.onr.navy.mil/~media/Files/Funding-Announcements/BAA/2015/N00014-15-R-F013.aslx](http://www.onr.navy.mil/~media/Files/Funding-Announcements/BAA/2015/N00014-15-R-F013.aslx)

**Brief Description:** The Office of Naval Research (ONR) is interested in receiving proposals for its Young Investigator Program (YIP). ONR’s Young Investigator Program (YIP) seeks to identify and support academic scientists and engineers who are in their first or second full-time tenure-track or tenure-track-equivalent academic appointment, have begun their first appointment on or after 01 Nov 2010, and who show exceptional promise for doing creative research. The objectives of this program are to attract outstanding faculty members of Institutions of Higher Education (hereafter also called "universities") to the Department of the Navy’s research program, to support their research, and to encourage their teaching and research careers.

Proposals addressing research areas (as described in the ONR Science and Technology (S&T) Department section of ONR’s website at www.onr.navy.mil) which are of interest to ONR Program Officers will be considered. Contact information for each Division (a subgroup of an S&T Department) is also listed within the S&T section of the website. Potential applicants are HIGHLY ENCOURAGED to contact the appropriate Program Officer who is the point of contact for a specific technical area to discuss their research ideas. Brief informal pre-proposals may be
submitted to facilitate these discussions. Such discussions can clarify the content and breadth of the priority research areas and enhance the match between a subsequent proposal and Department of the Navy research needs. Please allow adequate time for such discussions with the ONR Program Officer.

An individual wishing to apply for a Young Investigator award must submit a research proposal and a supporting letter through the appropriate university officials. ONR makes awards to institutions, not to individuals. The research proposal should follow the format described in FOA Section IV entitled, “Application and Submission Information.” Proposals may request up to $170,000 per year for three (3) years. These funds may be budgeted against any reasonable costs related to conducting the proposed research; for example, salary for the Young Investigator, graduate student support, supplies, and applicable indirect cost. Additional funds (beyond the basic $170,000 yearly amount) for capital equipment which enhances the Young Investigator's proposed research may be requested for the first budget period based on the needs of the research.

Requesting funds for capital equipment will not decrease the probability of receiving an award. Additional support for equipment will be decided separately from award selections and will depend upon availability of funds.

Upon completion of the three (3) year award period, Young Investigators may apply to ONR for continued support under ONR's Long Range BAA. Decisions about continued funding outside the context of the YIP will be made following a review of the new proposal by the cognizant Program Officer, based on the merits of the proposal, ONR's research priorities, and the creativity and productivity exhibited during the previous Young Investigator research program.

The competition for YIP awards continues to be intense. In 2015 over 380 proposals were received resulting in 36 Young Investigator awards. Past awardees have both submitted outstanding research proposals and possessed outstanding records of prior professional accomplishments. Given that "past performance" is a selection criterion, applicants are advised that the biographical information submitted as part of the proposal (see "Qualifications" under "Proposal Content," below) should list all relevant past and present activities. See Section V. Evaluation Information for more details regarding evaluation of submitted proposals.

Proposals not selected for the Young Investigator Program may be considered for grant award under the ONR Long Range Broad Agency Announcement. Under the ONR Long Range BAA, grant proposals would be in competition with all other research proposals submitted in response to the ONR Long Range BAA. Historically, only a limited number of proposals initially submitted to the YIP received funding under the ONR Long Range BAA. Thus, the YIP is not a "research initiation" opportunity with standards that are less demanding than ONR's other research grant programs; however, it is intended to confer honor upon awardees beyond the funding being provided. Consideration of any YIP proposal to another ONR research grant program is at the discretion of the cognizant Program Officer.

**Awards:** Offerors awarded grants under the ONR Young Investigator Program have the opportunity to supplement the basic $170,000 per year award through a "matching funds" enhancement available only to those receiving an ONR Young Investigator award. Proposals submitted against this FOA do not require offerors to identify if they will seek "matching funds" or provide additional documentation.

As an incentive for becoming involved with other Department of the Navy research activities, the Office of the Director of Research of ONR may match on a 1-for-1 basis, the first $25,000 of additional Department of the Navy funding which a successful applicant obtains each year to support additional, collaborative research with a Navy laboratory during the YIP award. Potential sources of research support eligible for the 1-for-1 match include Navy laboratories.
and ONR Program Officers. Thus, these "matching funds" can provide research support over and above the basic $170,000 per year award, e.g. to support an additional graduate student or an additional research task. A Young Investigator is not prohibited from receiving more than $25,000 from other Department of the Navy sources; however, the Office of the Director of Research will match on a 1-for-1 basis only the first $25,000 each year, if funds are available. Other Navy support eligible for matching funds can be arranged at any time and generally will not have been identified at the time of the initial award. ONR Program Officers may assist, upon request, Young Investigators in identifying potential collaborators at Navy laboratories or other Navy organizations interested in funding additional research.

**Full Proposal Deadline:** December 1, 2015

**Contact:** See ONR Science and Technology Departments (http://www.onr.navy.mil/Science-Technology/Departments.aspx) or Technology Locator (http://www.onr.navy.mil/en/Science-Technology/Contacts.aspx) at www.onr.navy.mil to locate the cognizant ONR Program Officer. Questions regarding YIP policy should be submitted to the YIP Program Manager:

Dr. Reginald G. Williams  
Program Manager, Code 03R, YIP  
Office of Naval Research  
875 North Randolph Street - Suite 660 Arlington, VA 22203-1995  
Email Address: reginald.g.williams@navy.mil

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**Department of Energy**

**Grant Program:** Request For Information (Rfi) - Building Sensor And Control Technologies  
**Agency:** US Department of Energy: EEERI DE-FOA-0001409  
**RFP Website:** [https://eere-exchange.energy.gov/#FoaFde0692df-48a8-47da-9aa9-b07abdebc595](https://eere-exchange.energy.gov/#FoaFde0692df-48a8-47da-9aa9-b07abdebc595)

**Brief Description:** The United States (U.S.) Department of Energy (DOE) Building Technologies Office (BTO) is seeking information from the public on sensor and control technologies that can be used within residential and commercial buildings to monitor and optimize energy performance and occupant comfort, as well as support energy-related transactions outside the building envelope. In particular, BTO is interested in the current state-of-the-art in sensor and control technologies, forthcoming research and development (R&D) advances that could reduce cost or improve performance, and the potential market implications of improved building energy management.

There are five categories in which BTO is seeking additional information:  
Multi-purpose Plug-and-Play Sensor Packages  
Virtual Sensors and Predictive Models  
Sub-metering, Continuous Commissioning, and Automated Fault Detection & Diagnostics  
Occupant-Centered Sensing and Controls; Other (does not fit in one of the above categories)

Eleven questions are presented, representing various aspects of information that are important for DOE to collect, such as: state of the art, metrics, qualitative criteria, R&D status, cost, market types, possible opportunities, improvements, and market barriers.

The full RFI can be accessed by clicking the link under the "FOA Documents" heading below.  
**Awards:** This is solely a Request for Information and not a Funding Opportunity Announcement (FOA). EERE is not accepting applications and will not respond to questions.
Proposal Submission Deadline: Responses to this RFI must be submitted electronically to SensorsandControlsRFI@ee.doe.gov no later than 5:00pm (ET) on October 31, 2015.

Bill and Melinda Gate Foundation

Grant Program: Global Grand Challenges Explorations
Explore New Solutions in Global Health Priority Areas (Round 16)
Explore New Ways to Measure Delivery and Use of Digital Financial Services Data (Round 16)
Agency: Bill and Melinda Gate Foundation
RFP Website: http://gcgh.grandchallenges.org/grant-opportunities

Brief Description: This call for ideas is part of the 16th round of Grand Challenges Explorations (GCE). Throughout the preceding 15 rounds, we have experimented with a mix of topics – broad, open topics that leave much to the innovators’ imaginations, and narrow, focused topics that provide a specific toolset or criteria – covering everything from new therapeutics, vaccines, and diagnostics to financial services for the poor and agricultural tools for smallholder farmers. One consistent lesson we have learned is that the world never seems to run out of great ideas. To elicit more of these great ideas without limiting creativity and boldness, we are setting forth a series of challenges that remain broadly unsolved in the areas where we work. Here we provide a bit of guidance around what we will and will not fund, but leave the solution itself open to your imagination.

Above all, our goal is to harness advances in science and technology to save lives, and all of our investments are driven by the need to develop and apply solutions that can be deployed, accepted, and sustained in the developing world.

The challenges laid out fit squarely within our focus areas and identify gaps in knowledge or technology that, if understood and developed, could launch us forward quickly to save lives and improve the quality of life for the worlds’ poorest.

Successful proposals will:
- Clearly describe how the idea, if successful, would help solve one of the challenges described in the call;
- Be directly relevant to the developing world (e.g. low-cost, useful across multiple geographical and cultural settings, self-sustaining);
- Have a clear and testable hypothesis and include an associated plan for how the idea would be tested or validated;
- Yield interpretable and unambiguous data in Phase I, in order to be considered for Phase II funding.

Awards: Initial grants will be US $100,000 each, and projects showing promise will have the opportunity to receive additional funding of up to US $1 million.

Proposal Submission Deadline: November 11, 2015. See the submission guidelines at http://gcgh.grandchallenges.org/application-instructions