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Subject: Grant Opportunities for the week ending 21 December 2018
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Grant Opportunities for the week ending 21 December 2018

Happy Holidays! This is the last Grant Opportunities until next year.

We're always looking for **pictures of you and/or your students doing science or science outreach!** We would like to feature you on our Instagram feed. Please send any pictures and brief descriptions of the activity to me (jan.taylor@wvresearch.org) and we'll put them up. Thanks!

[NSF](#)

[NIH](#)

[DOE](#)

National Science Foundation

[Training-based Workforce Development for Advanced Cyberinfrastructure \(CyberTraining\)](#)

- This program seeks to prepare, nurture, and grow the national scientific research workforce for creating, utilizing, and supporting advanced cyberinfrastructure (CI) to enable and potentially transform fundamental science and engineering research and contribute to the Nation's overall economic competitiveness and security. The goals of this solicitation are to (i) ensure broad adoption of CI tools, methods, and resources by the research community in order to catalyze major research advances and to enhance researchers' abilities to lead the development of new CI; and (ii) integrate core literacy and discipline-appropriate advanced skills in advanced CI as well as computational and data-driven science and engineering into the Nation's educational curriculum/instructional material fabric spanning undergraduate and graduate courses for advancing fundamental research. Pilot and Implementation projects may target one or both of the solicitation goals, while Large-scale Project Conceptualization projects must address both goals. For the purpose of this solicitation, advanced CI is broadly defined as the set of resources, tools, methods, and services for advanced computation, large-scale data handling and analytics, and networking and security for large-scale systems that collectively enable

potentially transformative fundamental research. This solicitation calls for innovative, scalable training, education, and curriculum/instructional materials—targeting one or both of the solicitation goals—to address the emerging needs and unresolved bottlenecks in scientific and engineering research workforce development, from the postsecondary level to active researchers. Full Proposal Deadline Date: February 6, 2019.

[Ideas Lab: Cross-cutting Initiative in CubeSat Innovations](#) - CubeSat constellations and swarms have been identified as a new paradigm for space-based measurements to address high-priority science questions in multiple disciplines. However, the full potential of CubeSat constellations and swarms for scientific studies has not yet been realized because of: i) the limitations of some of the existing key CubeSat technology, ii) knowledge gaps in the design and optimization of CubeSat technology for swarms and constellations, and iii) the increasing cost of more sophisticated CubeSat technology. The technology challenges include high bandwidth communications in CubeSat-to-CubeSat and CubeSat-to-ground scenarios, circuits and sensors miniaturization, on-board signal processing, and power generation. The vision of a satellite mission consisting of 10-100 CubeSats will require focused investment and development in a myriad of CubeSat-related technologies to build a cost-effective constellation or swarm of CubeSats. This will require transformative approaches for designing and building CubeSat subsystems and sensors, and innovative production approaches that will reduce the cost of implementing large-scale constellation missions. Spectrum allocations for data transmission and possible electromagnetic interference between or within constellations of CubeSats are issues that also will need to be considered. This solicitation describes an Ideas Lab focused on CubeSat Innovations to push the envelope of space-based research capabilities by simultaneously developing enabling technologies in several domains, including propulsion systems, sensor design, electronic circuits, antennas, satellite-to-ground and satellite-to-satellite communications and wireless networking, and power management. The vision of this Ideas Lab is to support research and engineering technology development efforts that will lead to new science missions in geospace and atmospheric sciences using self-organizing CubeSat constellations/swarms. The resulting new crosscutting concepts in CubeSat technology are expected to transform and stimulate CubeSat-enabled science and engineering research supported by NSF. The realization of self-organizing CubeSats will also require innovative approaches in educating, training, and developing a cross-disciplinary workforce with the relevant expertise spanning propulsion systems, sensors, circuits, antennas, wireless communications and networking, radio-frequency interference issues, and power management. It is anticipated that these innovations in CubeSat technology and education will enable new mission concepts for Cube-Sat based science investigations. Preliminary Proposal Deadline Date: February 8, 2019. Full Proposal Deadline Date: May 30, 2019.

[Mid-scale Research Infrastructure-2 \(Mid-scale RI-2\)](#) - The NSF Mid-scale Research Infrastructure-2 Program (Mid-scale RI-2) supports implementation of projects that comprise any combination of equipment, instrumentation, computational hardware and software, and the necessary commissioning and human capital in support of implementation of the same. The total cost for Mid-scale RI-2 projects ranges from \$20 million to below the minimum award funded by the Major Research Equipment and Facilities Construction (MREFC) Program, currently \$70 million. Mid-scale RI-2

projects will directly enable advances in any of the research domains supported by NSF, including STEM education. Projects may also include upgrades to existing research infrastructure. The Mid-scale RI-2 Program emphasizes strong scientific merit and response to an identified need of the research community, technical and managerial readiness for implementation, and a well-developed plan for student training and involvement of a diverse workforce in mid-scale facility development, and/or associated data management. Mid-scale RI-2 will consider only the implementation (typically construction or acquisition) stage of a project, including a limited degree of advanced development immediately preparatory to implementation. It is thus intended that Mid-scale RI-2 will support projects in high states of readiness for implementation, i.e., those that have already matured through previous developmental investments. Mid-scale RI-2 does not support post-implementation research, operations or maintenance, the anticipated source(s) of which are expected to be discussed in the proposal. Letter of Intent Deadline Date: February 8, 2019. Preliminary Proposal Deadline Date: March 11, 2019. Full Proposal Deadline Date: August 2, 2019. Submission by invitation only.

The [Tectonics Program](#) supports a broad range of field, laboratory, computational, and theoretical investigations aimed at understanding the deformation of the terrestrial continental lithosphere (i.e. above the lithosphere-asthenosphere boundary). The Program focuses on deformation processes and their tectonic drivers that operate at any depth within the continental lithosphere, on time-scales of decades/centuries (e.g. active tectonics) and longer, and at micro- to plate boundary/orogenic belt length-scales. Full Proposal Accepted Anytime.

[Solar Terrestrial](#) supports research on the processes by which energy in diverse forms is generated by the Sun, transported to the Earth, and ultimately deposited in the terrestrial environment. Major topics include space weather impacts, helioseismology, the solar dynamo, the solar activity cycle, magnetic flux emergence, solar flares and eruptive activity, coronal mass ejections, solar wind heating, solar energetic particles, interactions with cosmic rays, and solar wind/magnetosphere boundary problems. Full Proposal Accepted Anytime.

The [Solar and Planetary Research Grants \(SPG\) Program](#) provides individual investigator and collaborative research grants for observational, theoretical, laboratory, and archival data studies in the science of our solar system and extrasolar planetary systems. Proposals for projects and tools that enable and enhance research in those areas may also be submitted. Proposals addressing the astronomy and astrophysics of stars, our galaxy, external galaxies, and cosmology will be handled under a companion NSF solicitation, [NSF 16-574](#), Astronomy and Astrophysics Research Grants (AAG), not under the SPG Program. Proposals that address planet formation within circumstellar disks are appropriate for this SPG Program; proposals that address star formation are better directed to the AAG Program and will not be considered by the SPG Program. Proposals submitted to one of these two programs, and deemed more appropriate for the other program, will be routed to the other program and considered during the next proposal submission season for that program. Full Proposal Accepted Anytime.

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National Institutes of Health

[HIV and Hepatitis B Co-Infection: Advancing HBV Functional Cure through Clinical Research \(R21\)](#)

The purpose of this Funding Opportunity Announcement (FOA) is to fill scientific gaps needed to (a) inform HBV functional cure strategies by furthering our understanding of unique challenges impacting HBV and HIV co-infected hosts and (b) advance the discovery and development of novel HBV interventions that are safe and achieve a functional cure in HIV and HBV co-infected individuals.

Companion Funding Opportunity is [PA-17-279, R01](#) Research Project Grant.

Application Due Date(s): [Standard AIDS dates](#) apply.

[Academic Research Enhancement Award in Diseases within the Mission of NIDDK \(R15 - Clinical Trial Required\)](#)

The purpose of the Academic Research Enhancement Award (AREA) program is to stimulate research in educational institutions that provide baccalaureate or advanced degrees for a significant number of the Nation's research scientists, but that have not been major recipients of NIH support. AREA grants create opportunities for scientists and institutions otherwise unlikely to participate extensively in NIH research programs to contribute to the Nation's biomedical and behavioral research effort. AREA grants are intended to support small-scale research projects proposed by faculty members of eligible, domestic institutions, to expose undergraduate and/or graduate students to meritorious research projects, and to strengthen the research environment of the applicant institution. The purpose of this FOA is to support AREA grants for clinical trials focused on diseases within the mission of NIDDK. Application Due Date(s): [Standard dates](#) apply.

[Stimulating Hematology Investigation: New Endeavors \(SHINE\) \(R01 Clinical Trial Not Allowed\)](#)

The Stimulating Hematology Investigation: New Endeavors (SHINE) program is intended to promote innovative, high-quality nonmalignant hematology research relevant to the missions of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), National Institute of Aging (NIA), and the National Heart, Lung, and Blood Institute (NHLBI). Investigator-initiated research project grant applications (R01s) in specific areas of basic and early translational hematology research are invited to this program that supports growth in the nonmalignant hematology research domain. Specific emerging topics that are at the leading edge of the field will change over time and will be updated annually through the NIH Guide to Grants and Contracts and hyperlinked to this FOA. Application Due Date(s): [Standard dates](#) apply.

[Research Grants for Preventing Violence and Violence Related Injury \(R01\)](#) (click on

Related Documents tab) - The Centers for Disease Control and Prevention's National Center for Injury Prevention and Control (NCIPC) is soliciting investigator-initiated research that will help expand and advance our understanding about what works to prevent violence that impacts children and youth, collectively referred to as Adverse Childhood Experiences (ACEs), including child abuse and neglect, teen

dating violence, sexual violence, youth violence, youth/parent suicidal behavior, and exposure to adult intimate partner violence. This initiative is intended to support the evaluation of primary prevention strategies, programs, or policies that target universal or selected high-risk populations (i.e., populations that have one or more risk factors that place them at heightened risk for violence). Funds are available to conduct such studies focused on preventing child abuse and neglect and at least one other form of violence affecting children and youth, including teen dating violence, sexual violence, youth violence and exposure to adult intimate partner violence as detailed elsewhere in this announcement. Application Due Date: 03/08/2019.

[Cancer Tissue Engineering Collaborative: Enabling Biomimetic Tissue-Engineered Technologies for Cancer Research \(R01 Clinical Trial Optional\)](#) - This Funding Opportunity Announcement (FOA) will support the development and characterization of state-of-the-art biomimetic tissue-engineered technologies for cancer research. Collaborative, multidisciplinary projects that engage the fields of regenerative medicine, tissue engineering, biomaterials, and bioengineering with cancer biology will be essential for generating novel experimental models that mimic cancer pathophysiology. The projects supported by this FOA will establish and collectively participate in the Cancer Tissue Engineering Collaborative (TEC) Research Program. The Cancer TEC Program will (1) catalyze the advancement of innovative, well characterized in vitro and ex vivo systems available for cancer research, (2) expand the breadth of these systems to several cancer types, and (3) promote the exploration of cancer phenomena with biomimetic tissue-engineered systems. Letter of Intent Due Date(s): 30 days prior to the application due date. Application Due Date(s): [Standard dates](#) apply.

[Improving Outcomes in Cancer Treatment-Related Cardiotoxicity \(R21 Clinical Trial Optional\)](#) - This Funding Opportunity Announcement (FOA) encourages collaborative applications that will contribute to the identification and characterization of patients at risk of developing cancer treatment-related cardiotoxicity. The primary intent is to mitigate cardiovascular dysfunction while optimizing cancer outcomes. To accomplish this, methods that evaluate cardiovascular risk prior to treatment and integrate evidence-based cancer treatment regimens with cardiovascular screening, diagnostic, and/or management strategies are sought. Research applications should focus on mitigation/management of adverse effects associated with anti-cancer treatments including: cytotoxic chemotherapies, targeted agents, immunomodulatory therapies and radiation (that occur during cancer treatment and/or long-term survivorship) as defined by cardiac and/or vascular specific common terminology criteria for adverse events (CTCAE). Companion Funding Opportunity is [PA-19-112](#). Application Due Date(s): [Standard dates](#) apply.

[Human Islet Research Network - Consortium on Modeling Autoimmune Interactions \(HIRN-CMAI\) \(U01 Clinical Trial Not Allowed\)](#) - This Funding Opportunity Announcement (FOA) invites new and renewal applications to participate in the Consortium on Modeling Autoimmune Interactions (CMAI). CMAI is a component of the Human Islet Research Network (HIRN) that is focused on developing robust systems to measure and model the biology of human type 1 diabetes. Projects will explore and validate research models designed to advance pre-clinical scientific discovery,

mechanistic dissection of disease processes, and testing of potential interventions for T1D. Letter of Intent Due Date(s): January 26, 2019. Application Due Date(s): February 26, 2019.

[Etiologic and Effectiveness Research to Address Polysubstance Impaired Driving](#) (click on Related Documents tab) - The purpose of this funding is to support etiologic and effectiveness research on driving while polysubstance impaired. Specifically, research is solicited to identify risk and protective factors associated with polysubstance impaired driving and its associated deaths and injuries, or to identify effective interventions to prevent polysubstance impaired driving and its associated deaths and injuries. Polysubstance impaired driving includes driving while impaired by alcohol plus at least one other drug, such as marijuana or opioids. Research Priority #1 is to conduct etiologic research to inform our understanding of the characteristics of and risk and protective factors associated with impaired driving when alcohol plus other drugs (such as marijuana or prescription or illicit opioids) are involved. Research Priority #2 is to conduct effectiveness research to evaluate interventions most effective at preventing driving while impaired by alcohol plus other drugs (such as marijuana or prescription or illicit opioids). Application Due Date: 03/15/2019.

[In Vitro and Animal Model Studies on HBV/HIV Co-Infection \(R01\)](#) - The purpose of this Funding Opportunity Announcement (FOA) is to: (a) stimulate and accelerate development of novel in vitro and small animal models of HBV/HIV co-infection to accelerate drug discovery/drug development in HBV/HIV co-infection; and (b) stimulate and accelerate a better understanding of the immunopathogenic interactions between HBV and HIV. Companion Funding Opportunity is [PA-17-281](#), [R21](#) Exploratory/Developmental Grant. Application Due Date(s): [Standard AIDS dates](#) apply.

[Specialized Centers of Research Excellence \(SCORE\) on Sex Differences \(U54 Clinical Trial Optional\)](#) - The ORWH and participating organizations and institutes seek applications for Specialized Centers of Research Excellence (SCORE) on Sex Differences. The Centers of Excellence will support interdisciplinary approaches to advance translational research on sex differences. Each SCORE institution should develop a research agenda bridging basic and clinical research underlying a health issue that is pertinent to improving the health of women. Letter of Intent Due Date(s): New Date December 24, 2018. Application Due Date(s): New Date January 24, 2019.

[Maintain and Enrich Resource Infrastructure for Existing Environmental Epidemiology Cohorts \(R24 Clinical Trial Not Allowed\)](#) - The purpose of this Funding Opportunity Announcement (FOA) is to solicit grant applications that propose to: (1) support the maintenance of existing Environmental Epidemiology Cohorts (EECs) and to (2) enrich research infrastructure to improve scientific activities and resource sharing with the broader scientific communities. The ultimate goal is to maintain and maximize NIEHS cohort investments within the environmental epidemiology community by supporting the infrastructure needed to prepare for future research opportunities and to promote broader scientific collaborations. Letter of Intent Due

Date(s): 30 days prior to the application due date. Application Due Date(s):
December 5, 2019, December 4, 2020.

[Non-human Primates Facilities to Support HIV/AIDS-related Research \(C06 Clinical Trial Not Allowed\)](#) - This Funding Opportunity Announcement (FOA) invites qualified research institution to seek funds to modernize existing research facilities that focus on HIV/AIDS-related research. Institutions that support non-human primate colonies are encouraged to apply to update the animal housing infrastructure and research-dedicated space needed for the animal-related research efforts. Any request must be justified by the needs of NIH-funded investigators who used the laboratory space or rely on the animals raised and care for by the facilities. Applications for regular upkeep and repairs are not appropriate for this FOA. Letter of Intent Due Date(s): February 1, 2019. Application Due Date(s): March 6, 2019.

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Department of Energy

[University Training and Research for Fossil Energy Applications](#) - This Funding Opportunity Announcement (FOA) is for the solicitation of applications from United States Colleges and Universities for Fossil Energy Research. It encompasses two distinct programs with their own dedicated funding, requirements, and restricted eligibility: the University Coal Research (UCR) Program; and the Historically Black Colleges & Universities and Other Minority Institutions (HBCU/OMI) Program. Both programs seek to educate the next generation of scientists and engineers while advancing the frontiers of fossil energy science and technology. The HBCU/OMI program has the additional goal of increasing the participation of under-represented populations of students in such research. Submission Deadline for Full Applications: 02/25/2019 08:00 PM ET.

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