Office of Science
Financial Assistance
Funding Opportunity Announcement
DE-PS02-09ER09-13

THIS IS A RECOVERY ACT ANNOUNCEMENT

RECOVERY ACT (ARRA)
APPLICATIONS OF NUCLEAR SCIENCE AND TECHNOLOGY

SUMMARY:

The Office of Nuclear Physics (NP), Office of Science (SC), U.S. Department of Energy (DOE), hereby announces its interest in receiving proposals for initiatives in Applications of Nuclear Science and Technology, aimed at research and development activities in nuclear science that are relevant to applications important to the Nation. The knowledge, data, techniques, and methods of nuclear science are utilized in a broad portfolio of applications, including energy, nuclear medicine, commerce, medical physics, space exploration, finance, geology, environmental sciences and national security.

APPLICATION DUE DATE:

Formal applications submitted in response to this Announcement must be received by May 6, 2009, 8:00 p.m. Eastern time, to permit timely consideration of awards. **You are encouraged to transmit your application well before the deadline. APPLICATIONS RECEIVED AFTER THE DEADLINE WILL NOT BE REVIEWED OR CONSIDERED FOR AWARD.**

ATTENTION - CHANGE IN SUBMISSION REQUIREMENT EFFECTIVE March 12, 2009

The Office of Science is now requiring all financial assistance applications be submitted through the Department of Energy e-Center (IIPS) http://doe-iips.pr.doe.gov/. Applicants will still need to visit the Grants.gov website http://www.grants.gov/ to download the required Application Package (forms), by clicking on "Apply for Grants" and searching for the Funding Opportunity Announcement.

For Instructions on the Use of IIPS visit this web page, IIPS Instructions. http://www.sc.doe.gov/grants/iips-Instructions.html.

Registration Requirements: There are several one-time actions you must complete in order to submit an application through Grants.gov (e.g., obtain a Dun and Bradstreet Data Universal

Numbering System (DUNS) number, register with the Central Contract Registry (CCR), register with the credential provider, and register with Grants.gov). See http://www.grants.gov/GetStarted. Use the Grants.gov Organization Registration Checklist at http://www.grants.gov/assets/OrganizationRegCheck.doc to guide you through the process. Designating an E-Business Point of Contact (EBiz POC) and obtaining a special password called an MPIN are important steps in the CCR registration process. Applicants, who are not registered with CCR and Grants.gov, should allow at least 21 days to complete these requirements. It is suggested that the process be started as soon as possible.

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SUPPLEMENTARY INFORMATION:

Projects under this FOA will be funded, in whole or in part, with funds appropriated by the American Recovery and Reinvestment Act of 2009, Pub. L. 111-5, (Recovery Act or Act). The Recovery Act's purposes are to stimulate the economy and to create and retain jobs. Accordingly, special consideration will be given to projects that promote and enhance the objectives of the Act, especially job creation, preservation and economic recovery, in an expeditious manner.

Be advised that special terms and conditions may apply to projects funded by the Act relating to:

- Reporting, tracking and segregation of incurred costs;
- Reporting on job creation and preservation;
- Publication of information on the Internet;
- Access to records by Inspectors General and the Government Accountability Office;
- Prohibition on use of funds for gambling establishments, aquariums, zoos, golf courses or swimming pools;
- Ensuring that iron, steel and manufactured goods are produced in the United States;
- Ensuring wage rates are comparable to those prevailing on projects of a similar character;
- Protecting whistleblowers and requiring prompt referral of evidence of a false claim to an appropriate inspector general; and
- Certification and Registration.

These special terms and conditions will be based on provisions included in Titles XV and XVI of the Act. The exact terms and conditions will be provided as soon as available.

The Office of Management and Budget (OMB) has issued Initial Implementing Guidance for the Recovery Act. See M-09-10, Initial Implementing Guidance for the American Recovery and Reinvestment Act of 2009. OMB will be issuing additional guidance concerning the Act in the near future. Applicants should consult the DOE website, www.energy.gov, the OMB website

http://www.whitehouse.gov/omb/, and the Recovery website, www.recovery.gov regularly to keep abreast of guidance and information as it evolves.

Recipients of funding appropriated by the Act shall comply with requirements of applicable Federal, State, and local laws, regulations, DOE policy and guidance, and instructions in this FOA, unless relief has been granted by DOE. Recipients shall flow down the requirements of applicable Federal, State and local laws, regulations DOE policy and guidance, and instructions in this FOA to subrecipients at any tier to the extent necessary to ensure the recipient's compliance with the requirements.

Be advised that Recovery Act funds can be used in conjunction with other funding as necessary to complete projects, but tracking and reporting must be separate to meet the reporting requirements of the Recovery Act and related OMB Guidance. Applicants for projects funded by sources other than the Recovery Act should plan to keep separate records for Recovery Act funds and to ensure those records comply with the requirements of the Act. Funding provided through the Recovery Act that is supplemental to an existing grant is one-time funding.

Applicants should begin planning activities for their first tier subawardees, including obtaining a DUNS number (or updating the existing DUNS record), and registering with the Central Contractor Registration (CCR). The extent to which subawardees will be required to register in the CCR will be determined by OMB at a later date.

ADDITIONAL SUPPLEMENTARY INFORMATION:

The Frontiers of Nuclear Science-a Long Range Plan, DOE/NSF Nuclear Science Advisory Committee (December 2007) http://www.sc.doe.gov/np/.

Report to the Nuclear Science Advisory Committee, Submitted by the Subcommittee on Performance Measures, August 2008, http://www.sc.doe.gov/np/nsac/docs/PerfMeasEvalFinal.pdf.

Report of the Nuclear Physics and Related Computational Science R&D for Advanced Fuel Cycles Workshop, DOE Offices of Nuclear Physics and Advanced Scientific Computing Research (August 2006) http://www.sc.doe.gov/np/program/docs/AFC_Workshop_Report_Final.pdf.

Advancing Nuclear Medicine Through Innovation, National Academy of Sciences (2007) http://www.sc.doe.gov/np/.

Report on the Workshop on the Role of the Nuclear Physics Research Community in Combating Terrorism, DOE Office of Nuclear Physics (July 2002), http://www.sc.doe.gov/np/homeland/index.html.

Nuclear Forensics-Role, State of the Art, Program Needs, American Physical Society and American Association for the Advancement of Science http://www.aps.org/policy/reports/upload/Nuclear-Forensics-Report-FINAL.pdf.

Program Objective:

The mission of the Nuclear Physics (NP) Program is to discover, explore, and understand all forms of nuclear matter. The fundamental particles that compose nuclear matter-quarks and gluons-are relatively well understood, but exactly how they fit together to create different types of matter in the universe is still largely a puzzle. To solve this mystery, the NP program supports experimental and theoretical research-along with the development and operation of particle accelerators and advanced technologies-to create, detect, and describe the different forms and complexities of nuclear matter that can exist in the universe, including those that are no longer naturally found.

Nuclear science basic research is inherently relevant to a broad suite of applications that are important to the Nation. The advancement of knowledge of nuclear matter and its properties is intertwined with nuclear power, nuclear medicine, national security, the environmental and geological sciences, and isotope production. The NP program develops advanced instrumentation, accelerator techniques, and analytical and computational approaches needed for nuclear science research, and which have broad societal and economic benefits. Equally important, the program trains the highly skilled workforce needed to develop and advance nuclear-related technologies in society, and that enter a variety of other fields that require training in advanced technology and computational and analytical backgrounds.

Under the American Recovery and Reinvestment Act (ARRA) of 2009 and the Fiscal Year 2009 Appropriation, the Office of Nuclear Physics intends to sponsor initiatives in Applications of Nuclear Science and Technology. The primary goal of these initiatives is to pursue forefront nuclear science research and development important to the NP mission and that is also relevant to applications. The Office of Nuclear Physics solicits innovative research and development applications that are relevant to basic nuclear science research goals, while simultaneously being relevant to existing or next-generation applications of nuclear science. Areas of interest include but are not limited to:

a. Identification and development of approaches to the measurement of nuclear data needed for the nuclear energy industry and other applications;
b. Measurement of neutron cross sections and other relevant nuclear data such as decay properties, delayed neutrons, fission yields, photon production, etc., required for advanced reactor fuel cycles and other applications;
c. Development of new approaches to the handling of nuclear wastes;
d. Development of new and improved instrumentation, techniques and methods that can be applied to nuclear forensics, nuclear energy, national defense, medicine, environmental, space exploration, finance, commerce, radiation health physics, etc;
e. Development and use of covariances and covariance matrices to support reactor and fuel cycle design and other applications, and to identify priorities for cross section measurements and improved modeling of nuclear reactions.

Each application should address the scientific and technical merit of the effort, the appropriateness of the proposed method or approach, the competency of the applicant's personnel, the adequacy of the proposed resources, the reasonableness and appropriateness of the

proposed budget, and any other factors relevant to the proposed project. Applications will be reviewed by experts in nuclear science and in the applications of nuclear science and technology.

In addition, each application should also address these program policy factors:

- The particular outstanding scientific opportunity in nuclear physics research afforded by the proposed research and its relevance to the NSAC Performance Measures and opportunities identified in the NSAC long range plan;
- The relevance and impact of this opportunity on applications and applied sciences; and
- The opportunity for training personnel in key disciplines of nuclear science that are in short supply, such as nuclear chemistry and closely related disciplines, nuclear forensics, nuclear engineering, and radiation health science.

The FOA invites experts from across the National Laboratory complex, Universities and commercial enterprises to plan, design, carry out, and report on the results of the studies and investigations, and assist in the transfer of these results to practice. Collaborative efforts including multi-institutional, multi-investigator efforts are encouraged to foster the measurement of essential data, the development of knowledge, and the exchange of scientific ideas, and to extend interdisciplinary research. Basic research will be performed to provide the fundamental understanding and the basic data needed to advance future technologies. Researchers will design and fabricate state-of-the-art prototype accelerators, instrumentation, and other equipment, and develop advanced methods and techniques for new applications. A modeling and simulation component may foster interdisciplinary methodologies to surmount existing barriers for technology development. An important element of the initiative is to foster training of students and early career scientists and engineers in nuclear sciences.

Disciplines and areas that are likely to benefit from this initiative include but are not limited to: National Security, where advances in accelerator and instrumentation technology are relevant to defense and homeland security; Nuclear energy, where new approaches such as advanced fuel cycles, new fuels, and driven systems may be of interest; Minimization or disposal of nuclear waste and protection of fissile and radioactive material from diversion are important questions; Nuclear medicine applications, in which diagnostics and therapy is a major benefit to the health of the public; Radiation health physics developing new instrumentation leading to safer environments for the public; Development of equipment, methods and techniques that, at lower cost, provide higher performance and improve safety; Nuclear forensics, which has become an increasingly important element to our Nation's security. A skilled nuclear physics and chemistry workforce is essential to apply fundamental nuclear science in the field. Our society needs and continues to develop new applications of nuclear methods and techniques, and could benefit from focused efforts to improve processes, safety, and other characteristics related to the use of radionuclides and radiation. Other nuclear science areas exist from which advances could be identified and developed in future technologies.

PROGRAM FUNDING

It is anticipated that a total of up to approximately $7,000,000 will be available for awards in the first year starting as early as Fiscal Year 2009. Over the estimated five year span of these

initiatives, the total funding may be approximately $30,000,000. The number and size of awards will depend on the number of applications selected for award, and the availability of appropriated funds. DOE is under no obligation to pay for any costs associated with preparation or submission of applications. DOE reserves the right to fund, in whole or in part, any, all, or none of the applications submitted.

The Catalog of Federal Domestic Assistance (CFDA) number for this program is 81.049, and the solicitation control number is ERFAP 10 CFR Part 605.

Posted on the Office of Science Grants and Contracts Web Site
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