Office of Science
Notice 03-03

Enhanced Research Capabilities at DOE X-ray and Neutron Facilities

Department of Energy

Office of Science Financial Assistance Program Notice 03-03; Enhanced Research Capabilities at DOE X-ray and Neutron Facilities

AGENCY: U.S. Department of Energy

ACTION: Notice inviting grant applications.

SUMMARY: The Office of Basic Energy Sciences (BES) of the Office of Science (SC), U.S. Department of Energy (DOE), hereby announces its interest in receiving grant applications for new capabilities or for upgrading existing research capabilities for innovative fundamental research at DOE-supported synchrotron light sources and neutron sources. Such instrumentation should employ state-of-the-art technology so that the photon and neutron beams are utilized more effectively. Applications for the development of new capabilities, as well as upgrading of existing capabilities are encouraged.

DATES: Potential applicants are required to submit a brief preapplication. All preapplications, referencing Program Notice 03-03, should be received by November 12, 2002. A response to the preapplications encouraging or discouraging a formal application will be communicated to the applicant within approximately thirty days of receipt. To permit timely consideration for awards in Fiscal Year 2003, formal applications submitted in response to this notice must be received by January 28, 2003.

ADDRESSES: All preapplications, referencing Program Notice 03-03, should be sent to Dr. Helen M. Kerch, Office of Basic Energy Sciences, Division of Materials Sciences, ER-132/Germantown Building, Office of Science, U.S. Department of Energy, 1000 Independence Avenue, SW, Washington, D.C. 20585-1290.

After receiving notification from DOE concerning successful preapplications, applicants may prepare formal applications. We encourage you to submit formal applications in response to this solicitation electronically through DOE's Industry Interactive Procurement System (IIPS) at: http://e-center.doe.gov/. IIPS provides for the posting of solicitations and receipt of applications in a paperless environment via the Internet. Applications must be submitted through IIPS in PDF format by an authorized institutional business official. Questions regarding the operation of IIPS may be e-mailed to the IIPS Help Desk at: HelpDesk@pr.doe.gov or you may call the help desk at (800) 683-0751. Further information on the use of IIPS by the Office of Science is available at: http://www.sc.doe.gov/production/grants/grants.html.

If you are unable to submit the application through IIPS, formal applications may be sent to: U.S. Department of Energy, Office of Science, Grants and Contracts Division, SC-64/Germantown Building, 1000 Independence Avenue, SW, Washington, D.C. 20585-1290, ATTN: Program Notice 03-03.

When submitting applications by U.S. Postal Service Express Mail, any commercial mail delivery service, or when hand carried by the applicant, the following address must be used: U.S. Department of Energy, Office of Science, Grants and Contracts Division, SC-64, 19901 Germantown Road, Germantown, MD 20874-1290, ATTN: Program Notice 03-03.

FOR FURTHER INFORMATION CONTACT: Dr. Helen M. Kerch, Office of Basic Energy Sciences, Division of Materials Sciences, ER-132/Germantown Building, Office of Science, U.S. Department of Energy, 1000 Independence Avenue, SW, Washington, D.C. 20585-1290. Telephone: (301) 903-2346; Fax: (301) 903-9513; E-Mail: helen.kerch@science.doe.gov. The full text of Program Notice 03-03 is available via the Internet using the following web address: http://www.sc.doe.gov/production/grants/grants.html.

SUPPLEMENTARY INFORMATION: X-ray and neutron scattering are powerful tools used to investigate the fundamental properties of materials. BES is the major supporter of x-ray and neutron science in the United States and has pioneered the development of virtually all of the instruments and techniques used at these facilities for research in materials sciences, surface science, condensed matter physics, atomic and molecular physics, chemical dynamics, x-ray microscopy, tomography, femtosecond phenomena, interfacial/environmental, and geophysics studies. Within the physical sciences, BES remains the dominant federal supporter of beamline development and instrument fabrication providing as much as 85% of the federal support for these activities. Major instruments at the synchrotron light sources and the neutron sources have a lifetime of 7-10 years after which the instruments may undergo major upgrades or be retired. Thus, after a facility is fully instrumented, about 10-15% of the instruments must be upgraded or replaced each year to keep the facility at the forefront of science.

The National User Facilities supported by the Office of Basic Energy Sciences are the Spallation Neutron Source (SNS) (currently under construction), National Synchrotron Light Source (NSLS), High Flux Isotope Reactor (HFIR), Intense Pulsed Neutron Source (IPNS), Stanford Synchrotron Radiation Laboratory (SSRL), Advanced Light Source (ALS), Advanced Photon Source (APS), and Los Alamos Neutron Scattering Center (LANSCE). These facilities have the capabilities of extreme flux, or brightness, to make certain experiments possible, which couldn't be done otherwise. The Department's intention for this program is to support fundamental research, which will include the upgrade and/or development of new instrumentation for general user beamlines at the Department's National User Facilities. The ability to conduct innovative fundamental research should be emphasized in each application. Grant applications are encouraged from the fields of solid-state physics, materials chemistry, metals and ceramics, chemical sciences, geosciences, and environmental sciences for energy-relevant research which make use of the DOE-supported user facilities. Instrumentation appropriate for consideration would include, but not be limited to, the following: beamline optics and transport guides, monochromators of much greater resolution, more efficient detectors to reduce the background noise, sample environments that afford control of temperature, pressure and magnetic field,

electronics and data processing equipment to enable investigators to carry out new or more difficult experiments and/or more experiments in the same amount of time.

Program Funding

It is anticipated that approximately $7,292,000 will be available for awards during FY 2003 to support instrument upgrades, instrument replacements, and new instrumentation at the x-ray and neutron scattering facilities, contingent upon the availability of appropriated funds. These funds will be competed among both academic and laboratory institutions, and the resulting instruments and beamlines will be made available to the entire U.S. scientific research community. Multiyear beamline and instrument development in such areas as materials sciences, surface science, condensed matter physics, atomic and molecular physics, polymers and soft materials, nanostructured materials, x-ray microscopy, tomography, femtosecond phenomena, interfacial studies, and imaging results will be considered. The number of awards and the range of funding will depend on the number of applications received and selected for award.

Collaboration

Applicants are encouraged to collaborate with industry and to incorporate cost sharing and consortia wherever feasible. The extent of the collaboration and cost sharing will be factors, along with the principal criterion of the scientific merit of the application, in the selection process by the Department.

Merit Review

Applications will be subjected to scientific merit review (peer review) and will be evaluated against the following criteria listed in descending order of importance as codified at 10 CFR Part 605.10(d):

1. Scientific and/or technical merit of the project;
2. Appropriateness of the proposed method or approach;
3. Competency of applicant's personnel and adequacy of proposed resources;
4. Reasonableness and appropriateness of the proposed budget.

The evaluation will include program policy factors, such as the relevance of the proposed research to the terms of the announcement and agency's programmatic needs. External peer reviewers will be selected with regard to their scientific expertise and the absence of conflict-of-interest issues. Non-federal reviewers may be used, and submission of an application constitutes agreement that this is acceptable to the investigator(s) and the submitting institution.

General information about the development and submission of applications, eligibility, limitations, evaluation and selection processes, and other policies and procedures are contained in the Application Guide for the Office of Science Financial Assistance Program and 10 CFR Part 605. Electronic access to the latest version of SC's Application Guide is possible via the Internet at the following web address: http://www.sc.doe.gov/production/grants/grants.html. DOE is under no obligation to pay for any costs associated with the preparation or submission of applications.

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

John Rodney Clark
Associate Director of Science
for Resource Management

Published in the Federal Register September 24, 2002, Volume 67, Number 185, Pages 59837-59838.