

**Office of Science
Notice 02-02**

Nanoscale Science, Engineering, and Technology

REVISED November 1, 2001

(Changes are in red.)

**Department of Energy
Office of Science**

Office of Science Financial Assistance Program Notice 02-02; Nanoscale Science, Engineering, and Technology

AGENCY: U.S. Department of Energy (DOE).

ACTION: Notice inviting research 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 innovative research on the topic of nanoscale science, engineering and technology. Opportunities exist for research with primary focus in materials sciences and engineering, chemical sciences, biosciences, and biomolecular materials. More specific information is outlined in the supplementary information section below.

DATES: Potential applicants are strongly encouraged to submit a brief preapplication. All preapplications, referencing Program Notice 02-02, should be submitted by mail and received by DOE by 4:30 P.M., E.S.T., November 16, 2001. **Due to interruptions in mail service, and to ensure that your preapplication is received on time, you may wish to use e-mail or fax for your submission.** [Added November 1, 2001] A response to the preapplications encouraging or discouraging a formal application generally will be communicated to the applicant on or before December 21, 2001. The deadline for receipt of formal applications is 4:30 P.M., E.S.T. February 12, 2002, in order to be accepted for merit review and to permit timely consideration for award in Fiscal Year 2002.

ADDRESSES: All preapplications referencing Program Notice 02-02 should be sent to Dr. Jerry J. Smith, Division of Materials Sciences and Engineering, SC-13, Office of Science, U.S. Department of Energy, 19901 Germantown Road, Germantown MD 20874-1290. **Preapplications may also be sent via e-mail or fax to the following**

locations:

E-Mail Address: nanoscience.preproposal@science.doe.gov

Fax Numbers: 301-903-0271, 301-903-1003, 301-903-4110, or 301-903-9513

[Added November 1, 2001]

Formal applications referencing Program Notice 02-02, should be forwarded to: U.S. Department of Energy, Office of Science, Grants and Contracts Division, SC-64, 19901 Germantown Road, Germantown, Maryland 20874-1290, ATTN: Program Notice 02-02. This address must also be used when submitting applications by U.S. Postal Service Express, any commercial mail delivery service, or when hand carried by the applicant.

FOR FURTHER INFORMATION CONTACT: For questions concerning research topics in specific technical areas, contact the following individuals in the appropriate area of interest (please use e-mail when possible):

- Materials Sciences and Engineering: Dr. Jerry J. Smith, Division of Materials Sciences and Engineering, SC-13, Office of Science, U.S. Department of Energy, 19901 Germantown Road, Germantown, MD 20874-1290, telephone (301) 903-4269, e-mail: jerry.smith@science.doe.gov.
- Chemical Sciences: Dr. Walter J. Stevens, Division of Chemical Sciences, Geosciences, and Biosciences, SC-14, Office of Science, U.S. Department of Energy, 19901 Germantown Road, Germantown, MD 20874-1290, telephone (301) 903-2046, e-mail: walter.stevens@science.doe.gov.
- Biosciences: Dr. Sharlene Weatherwax, Division of Chemical Sciences, Geosciences, and Biosciences, SC-14, Office of Science, U. S. Department of Energy, 19901 Germantown Road, Germantown, MD 20874-1290, telephone (301) 903-6165, e-mail: sharlene.weatherwax@science.doe.gov.

SUPPLEMENTARY INFORMATION: Controlling and manipulating matter at the atomic and molecular scale is the essence of nanoscale science, engineering, and technology (NSET). The BES program has worked with the National Science and Technology Council's Interagency Working Group on Nanotechnology, with the Basic Energy Sciences Advisory Committee (BESAC), and with the broad scientific community from academia, industry, and the National Laboratories to define and articulate the goals of this research.

The BES program in NSET has the following overarching goals: (1) attain a fundamental scientific understanding of nanoscale phenomena; (2) achieve the ability to design and synthesize materials at the atomic level to produce materials with desired properties and functions, including nanoscale assemblies that combine hard and soft (biological) materials to achieve novel functions; (3) attain a fundamental

understanding of the structural, dynamic, and electronic aspects of nanoassemblies, including biomolecular assemblies, associated with unique materials properties, chemical transformations, energy conversion, and signal transduction; (4) develop experimental characterization tools and theory/modeling/simulation tools necessary to understand, predict, and control nanoscale phenomena; and (5) to obtain an integrated structural and dynamic view of nanoassemblies in biological systems, through the development of enhanced imaging tools and nanoscale probes.

Two recent reports prepared by the BES program, which address both NSET research and broader program goals that are dependent on nanoscale understanding, are available on the internet. These reports are Complex Systems: Science for the 21st Century (1999) available at:

<http://www.sc.doe.gov/production/bes/complexsystems.htm> and Nanoscale Science, Engineering and Technology Research Directions (1999) available at:

<http://www.sc.doe.gov/production/bes/nanoscale.html>. These reports detail current topics supported by BES in the area of NSET, describe future research directions, and should be used as a guide to appropriate proposal topics. Applications in these areas will be accepted from individual investigators or groups of 2-4 investigators.

Program Funding

It is anticipated that up to \$8 million will be available for grant awards during FY 2002, contingent upon the availability of appropriated funds. Multiple year funding of grant awards is expected, also contingent upon the availability of appropriated funds, progress of the research and continuing program need. Applications received by the Office of Science, Office of Basic Energy Sciences, under its current competitive application mechanisms may be deemed appropriate for consideration under this notice and may be funded under this program.

Preapplications

A brief preapplication may be submitted. The preapplication should identify on the cover sheet the institution, principal investigator name, address, telephone and FAX numbers, e-mail address, title of the project, and the field of scientific research. The preapplication should consist of no more than a three-page narrative describing the research project objectives, rationale, and methods of accomplishment. Budgets are not required. [Preapplications must be submitted by mail. Electronic submissions will not be accepted.] (The two preceding sentences in brackets were deleted November 1, 2001.) **To ensure that your preapplication is received on time, you may wish to use e-mail or fax for your submission.** [Added November 1, 2001] Preapplications will be reviewed relative to the scope and research needs of the Nanoscale Science, Engineering, and Technology initiative, as well as, DOE programmatic needs. Preapplications are strongly

encouraged but not required prior to submission of a formal application. Please note that notification of a successful preapplication is not an indication that an award will be made in response to the formal application.

Merit Review

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

<http://www.sc.doe.gov/production/grants/605index.html>:

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; and
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 an agency's programmatic needs. Note, that external peer reviewers are selected with regard to both 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.

Applications involving collaborations with other institutions are acceptable. Such applications should clearly identify the research to be performed by each collaborator and, when funding is requested for more than one institution, should include a detailed budget for each. Individual investigators are limited to participation in one application only.

While collaborations with researchers at DOE FFRDC's are encouraged, no funds will be provided to these organizations under this notice. A parallel invitation with a similar potential total amount of funds has been sent to DOE FFRDCs. Successful proposals from DOE FFRDC's and DOE FFRDC collaborations on successful non-DOE FFRDC applications will be funded from the DOE FFRDC program. All projects will be evaluated using the same criteria, regardless of the submitting institution. A guide for submitting a collaborative application can be accessed via the web at <http://www.science.doe.gov/production/grants/Colab.html>.

Information about the development and submission of applications, eligibility, limitations, evaluation, selection process, and other policies and procedures may be found in 10 CFR Part 605 and in the Application Guide for the Office of Science Financial Assistance Program. Electronic access to the Guide and required forms is available via the World Wide Web at:

<http://www.sc.doe.gov/production/grants/grants.html>. On the grant face page, form DOE F 4650.2, block 15; provide the principal investigator's phone number, FAX number and e-mail address. The research description should be 20 pages or less, exclusive of figure illustrations, and must contain an abstract or summary of the proposed research. Attachments include curriculum vitae, a listing of all current and pending federal support, and letters of intent when collaborations are part of the proposed research. DOE is under no obligation to pay for any costs associated with the preparation or submission of applications if an award is made.

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

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