

**Program Announcement  
To DOE National Laboratories  
LAB 07-27**

***Nanotechnology Research Awards Investigating Fate,  
Transport, Transformation, and Exposure of Engineered  
Nanomaterials: A Joint Research Solicitation - EPA, NSF &  
DOE***

**SUMMARY:** Research supported under this RFA should focus on developing new understandings of potential impacts and risks of nanophases and nanoparticulates relevant to DOE missions. To this end and in particular, research on nanoparticles and nanomaterials that could find application in energy technologies, possibly including the use of chemically inert nanoparticles as environmental tracers is solicited. From a DOE perspective, investigating the impact and risk of nanomaterials in the environment requires understanding both the critical characteristics of newly developed engineered nanomaterials as well as the baseline characteristics of existing engineered nanoscale substances in the environment that may be potentially harmful. The DOE is particularly interested in furthering the understanding of the role(s) that nanophase structures/particles may have on controlling the fate and transport of radionuclide and heavy metal contaminants in groundwater and surface water systems. The DOE is also interested in technological by-products, at the nanoscale, of energy, remediation, or carbon cycling technologies that have never previously been appreciated for their significance but which may have become prevalent in the environment since before the advent of nanotechnology. Information on DOE and nanotechnology research can be found at: <http://www.energy.gov/sciencetech/nanotechnology.htm>.

**DATES:** Potential researchers should submit a one-page preproposal electronically by June 26, 2007 to "SC.NanoELSI@science.doe.gov".

**Formal proposals** in response to this Notice should be submitted via ePMA and must be received by 8:00 pm Eastern Time, **August 22, 2007**.

A complete formal FWP in a single Portable Document Format (PDF) file must be submitted through the DOE ePMA system ( <https://epma.doe.gov>) as an attachment. To identify that the FWP is responding to this program announcement, please fill in the following fields in the "ePMA Create Proposal Admin Information" screen as shown:

**Proposal Short Name:**

**Fiscal Year:**

**Proposal Reason:**

**Program Announcement Number:** Lab 07-27 \*

**Program Announcement Title:** Nanotechnology Research Awards Investigating Fate, Transport, Transformation, and Exposure of Engineered Nanomaterials: A Joint Research

Solicitation - EPA, NSF & DOE\*

**Proposal Purpose:**

**Estimated Proposal Begin Date:**

**HQ Program Manager Organization:**

\* Please use the wording shown when filling in these fields to identify that the FWP is responding to this Program Announcement.

**In order to expedite the review process, please submit a CD and three copies of the proposal using the following, by U.S. Postal Service Express Mail, any commercial mail delivery service, or when hand-carried to:**

Ms. Joanne Corcoran  
U.S. Department of Energy  
Office of Biological and Environmental Research, SC-23.2  
19901 Germantown Road  
Germantown, MD 20874-1290  
ATTN: Program Announcement LAB 07-27

**FOR FURTHER INFORMATION CONTACT:** Dr. Daniel Drell, phone: (301) 903-4742; E-mail: daniel.drell@science.doe.gov

#### **SUPPLEMENTARY INFORMATION:**

For additional details on the Program scope see  
[http://es.epa.gov/ncer/rfa/2007/2007\\_star\\_nanotech.html](http://es.epa.gov/ncer/rfa/2007/2007_star_nanotech.html).

**Program Funding:** It is anticipated that approximately \$1 million will be available for research proposed by universities and non-profit institutions, and that approximately \$2 million will be available for U.S. Department of Energy Federally Funded Research and Development Centers (FFRDCs), including DOE National Laboratories in FY 2008. The number of awards will be contingent on satisfactory peer review, the availability of appropriated funds, and the size of the awards. Multiple year funding is expected. Proposals may request project support for up to three years, with out-year support contingent on the availability of funds, progress of the research, and programmatic needs. Annual budgets are expected to range from \$250,000 to \$500,000 total costs. DOE is under no obligation to pay for any costs associated with the preparation or submission of a proposal. DOE reserves the right to fund, in whole or in part, any, all, or none of the proposals submitted in response to this Notice.

#### **Submission Information:**

##### **Preproposals**

Potential researchers should submit a one-page preproposal that consists of a narrative stating the research objectives, describing the technical approach(s), and the outcomes or deliverables. The preproposal should identify the title of the

project, the institution or organization, principal investigator name, telephone number, fax number, and e-mail address. No budget information or biographical data need be included, nor is an institutional endorsement necessary.

Preproposals referencing LAB 07-27 should be sent as a text file or single PDF file attachment via e-mail to: "SC.NanoELSI@science.doe.gov" with "Preproposal LAB 07-27 NanoELSI" as the subject. No FAX or mail submission of preproposals will be accepted.

## **Full Proposal**

Full proposals adhering to DOE Field Work Proposal format (Reference DOE Order 412.1) are to be prepared and submitted consistent with policies of the investigator's laboratory and the local DOE Operations Office. Laboratories may submit proposals directly to the SC Program Office listed above. A copy should also be provided to the appropriate DOE Operations Office.

The instructions and format described below should be followed. You must reference Program Announcement LAB 07-27 on all submissions and inquiries about this program.

### **OFFICE OF SCIENCE GUIDE FOR PREPARATION OF SCIENTIFIC/TECHNICAL PROPOSALS TO BE SUBMITTED BY NATIONAL LABORATORIES**

Proposals from National Laboratories submitted to the Office of Science (SC) as a result of this program announcement will follow the Department of Energy Field Work Proposal process with additional information requested to allow for scientific/technical merit review. The following guidelines for content and format are intended to facilitate an understanding of the requirements necessary for SC to conduct a merit review of a proposal. Please follow the guidelines carefully, as deviations could be cause for declination of a proposal without merit review.

#### **1. Evaluation Criteria**

Proposals will be subjected to formal merit review (peer review) and will be evaluated against the following criteria which are listed in descending order of importance:

Scientific and/or technical merit of the project

Appropriateness of the proposed method or approach

Competency of the personnel and adequacy of the proposed resources

Reasonableness and appropriateness of the proposed budget

DOE's programmatic review will consider the following factors:

- Scientific merit and diversity of research activities that will lead to new understandings of ecological impacts of nanomaterials that could find application in energy technologies

and provide insights into the potential uses of inert nanomaterials for use as environmental tracers;

- Importance of the proposed activity to advancing knowledge and understanding within its own field or across different fields;
- How well qualified the proposer (individual or team) is to conduct the project;
- The extent to which the proposed activity identifies and explores creative and original concepts;
- How well conceived and organized the proposed activity is;
- The integration of the proposed research with other nanoscience activities (including DOE Nanoscience Centers) being funded by other National Nanotechnology Initiative participating agencies;

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 a proposal constitutes agreement that this is acceptable to the investigator(s) and the submitting institution.

## **2. Summary of Proposal Contents**

- Field Work Proposal (FWP) Format (Reference DOE O 412.1A) (DOE ONLY)
- Proposal Cover Page
- Table of Contents
- Budget (DOE Form 4620.1) and Budget Explanation
- Abstract (one page)
- Narrative (main technical portion of the proposal, including background/introduction, proposed research and methods, timetable of activities, and responsibilities of key project personnel)
- Literature Cited
- Biographical Sketch(es)
- Description of Facilities and Resources
- Other Support of Investigator(s)
- Appendix (optional)

### **2.1 Number of Copies to Submit**

A complete formal FWP in a single Portable Document Format (PDF) file must be submitted through the DOE ePMA system ( <https://epma.doe.gov>) as an attachment. To identify that the FWP is responding to this program announcement, please fill in the following fields in the "ePMA Create Proposal Admin Information" screen as shown:

**Proposal Short Name:**

**Fiscal Year:**

**Proposal Reason:**

**Program Announcement Number:** Lab 07-27 \*

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**Proposal Purpose:**  
**Estimated Proposal Begin Date:**  
**HQ Program Manager Organization:**

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**In order to expedite the review process, please submit a CD and three copies of the proposal using the following, by U.S. Postal Service Express Mail, any commercial mail delivery service, or when hand-carried to:**

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U.S. Department of Energy  
Office of Biological and Environmental Research, SC-23.2  
19901 Germantown Road  
Germantown, MD 20874-1290  
ATTN: Program Announcement LAB 07-27

### **3. Detailed Contents of the Proposal**

Adherence to type size and line spacing requirements is necessary for several reasons. No researcher should have the advantage, or by using small type, of providing more text in their proposals. Small type may also make it difficult for reviewers to read the proposal. Proposals must have 1-inch margins at the top, bottom, and on each side. Type sizes must be 10 point or larger. Line spacing is at the discretion of the researcher but there must be no more than 6 lines per vertical inch of text. Pages should be standard 8 1/2" x 11" (or metric A4, i.e., 210 mm x 297 mm).

#### **3.1 Field Work Proposal Format (Reference DOE O 412.1A) (DOE ONLY)**

The Field Work Proposal (FWP) is to be prepared and submitted consistent with policies of the investigator's laboratory and the local DOE Operations Office. Additional information is also requested to allow for scientific/technical merit review. Laboratories may submit proposals directly to ePMA.

#### **3.2 Proposal Cover Page**

The following proposal cover page information may be placed on plain paper. No form is required.

Title of proposed project  
SC Program announcement title  
Name of laboratory  
Name of principal investigator (PI)  
Position title of PI  
Mailing address of PI

Telephone of PI  
Fax number of PI  
Electronic mail address of PI  
Name of official signing for laboratory\*  
Title of official  
Fax number of official  
Telephone of official  
Electronic mail address of official  
Requested funding for each year; total request  
Use of human subjects in proposed project:  
    If activities involving human subjects are not planned at any time during the proposed project period, state "No"; otherwise state "Yes", provide the IRB Approval date and Assurance of Compliance Number and include all necessary information with the proposal should human subjects be involved.  
Use of vertebrate animals in proposed project:  
    If activities involving vertebrate animals are not planned at any time during this project, state "No"; otherwise state "Yes" and provide the IACUC Approval date and Animal Welfare Assurance number from NIH and include all necessary information with the proposal.  
Signature of PI, date of signature  
Signature of official, date of signature\*

\*The signature certifies that personnel and facilities are available as stated in the proposal, if the project is funded.

### **3.3 Table of Contents**

Provide the initial page number for each of the sections of the proposal. Number pages consecutively at the bottom of each page throughout the proposal. Start each major section at the top of a new page. Do not use unnumbered pages and do not use suffices, such as 5a, 5b.

### **3.4 Budget and Budget Explanation**

A detailed budget is required for the entire project period and for each fiscal year. It is preferred that DOE's budget page, Form 4620.1 be used for providing budget information\*. Modifications of categories are permissible to comply with institutional practices, for example with regard to overhead costs.

A written justification of each budget item is to follow the budget pages. For personnel this should take the form of a one-sentence statement of the role of the person in the project. Provide a detailed justification of the need for each item of permanent equipment. Explain each of the other direct costs in sufficient detail for reviewers to be able to judge the appropriateness of the amount requested.

Further instructions regarding the budget are given in section 4 of this guide. \* Form 4620.1 is available at web site: <http://www.science.doe.gov/grants/budgetform.pdf>

### 3.5 Abstract

Provide an abstract of less than 400 words. Give the project objectives (in broad scientific terms), the approach to be used, and what the research is intended to accomplish. State the hypotheses to be tested (if any). At the top of the abstract give the project title, names of all the investigators and their institutions, and contact information for the principal investigator, including e-mail address.

**3.6 Narrative** (main technical portion of the proposal, including background/introduction, proposed research and methods, timetable of activities, and responsibilities of key project personnel)

The narrative comprises the research plan for the project and is limited to 20 pages (maximum). It should contain enough background material in the Introduction, including review of the relevant literature, to demonstrate sufficient knowledge of the state of the science. The major part of the narrative should be devoted to a description and justification of the proposed project, including details of the methods to be used. It should also include a timeline for the major activities of the proposed project, and should indicate which project personnel will be responsible for which activities.

If any portion of the project is to be done in collaboration with another institution (or institutions), provide information on the institution(s) and what part of the project it will carry out. Further information on any such arrangements is to be given in the sections "Budget and Budget Explanation", "Biographical Sketches", and "Description of Facilities and Resources".

### 3.7 Literature Cited

Give full bibliographic entries for each publication cited in the narrative.

### 3.8 Biographical Sketches

This information is required for senior personnel at the institution submitting the proposal and at all subcontracting institutions (if any). The biographical sketch is limited to a maximum of **two pages** for each investigator.

To assist in the identification of potential conflicts of interest or bias in the selection of reviewers, the following information **must be provided in each biographical sketch**.

**Collaborators and Co-editors:** A list of all persons in alphabetical order (including their current organizational affiliations) who are currently, or who have been, collaborators or co-authors with the investigator on a research project, book or book article, report, abstract, or paper during the 48 months preceding the submission of the proposal. Also include those individuals who are currently or have been co-editors of a special issue of a journal, compendium, or conference proceedings during the 24 months preceding the submission of the proposal. If there are no collaborators or co-editors to report, this should be so indicated.

**Graduate and Postdoctoral Advisors and Advisees:** A list of the names of the individual's own graduate advisor(s) and principal postdoctoral sponsor(s), and their current organizational affiliations. A list of the names of the individual's graduate students and postdoctoral associates during the past 5 years, and their current organizational affiliations.

### **3.9 Description of Facilities and Resources**

Facilities to be used for the conduct of the proposed research should be briefly described. Indicate the pertinent capabilities of the institution, including support facilities (such as machine shops), that will be used during the project. List the most important equipment items already available for the project and their pertinent capabilities. Include this information for each subcontracting institution (if any).

### **3.10 Other Support of Investigators**

Other support is defined as all financial resources, whether Federal, non-Federal, commercial, or institutional, available in direct support of an individual's research endeavors. Information on active and pending other support is required for all senior personnel, including investigators at collaborating institutions to be funded by a subcontract. For each item of other support, give the organization or agency, inclusive dates of the project or proposed project, annual funding, and level of effort (months per year or percentage of the year) devoted to the project.

### **3.11 Appendix**

Information not easily accessible to a reviewer may be included in an appendix, but **do not use the appendix to circumvent the page limitations of the proposal**. Reviewers are not required to consider information in an appendix, and reviewers may not have time to read extensive appendix materials with the same care they would use with the proposal proper.

The appendix may contain the following items: up to five publications, manuscripts accepted for publication, abstracts, patents, or other printed materials directly relevant to this project, but not generally available to the scientific community; and letters from investigators at other institutions stating their agreement to participate in the project (do not include letters of endorsement of the project).

## **4. Detailed Instructions for the Budget** (DOE Form 4620.1 "Budget Page" may be used)

### **4.1 Salaries and Wages**

List the names of the principal investigator and other key personnel and the estimated number of person-months for which DOE funding is requested. Proposers should list the number of postdoctoral associates and other professional positions included in the proposal and indicate the number of full-time-equivalent (FTE) person-months and rate of pay (hourly, monthly or annually). For graduate and undergraduate students and all other personnel categories such as



secretarial, clerical, technical, etc., show the total number of people needed in each job title and total salaries needed. Salaries requested must be consistent with the institution's regular practices. The budget explanation should define concisely the role of each position in the overall project.

## **4.2 Equipment**

DOE defines equipment as "an item of tangible personal property that has a useful life of more than two years and an acquisition cost of \$25,000 or more." Special purpose equipment means equipment which is used only for research, scientific or other technical activities. Items of needed equipment should be individually listed by description and estimated cost, including tax, and adequately justified. Allowable items ordinarily will be limited to scientific equipment that is not already available for the conduct of the work. General purpose office equipment normally will not be considered eligible for support.

## **4.3 Domestic Travel**

The type and extent of travel and its relation to the research should be specified. Funds may be requested for attendance at meetings and conferences, other travel associated with the work and subsistence. In order to qualify for support, attendance at meetings or conferences must enhance the investigator's capability to perform the research, plan extensions of it, or disseminate its results. Consultant's travel costs also may be requested.

## **4.4 Foreign Travel**

Foreign travel is any travel outside Canada and the United States and its territories and possessions. Foreign travel may be approved only if it is directly related to project objectives.

## **4.5 Other Direct Costs**

The budget should itemize other anticipated direct costs not included under the headings above, including materials and supplies, publication costs, computer services, and consultant services (which are discussed below). Other examples are: aircraft rental, space rental at research establishments away from the institution, minor building alterations, service charges, and fabrication of equipment or systems not available off-the-shelf. Reference books and periodicals may be charged to the project only if they are specifically related to the research.

### **a. Materials and Supplies**

The budget should indicate in general terms the type of required expendable materials and supplies with their estimated costs. The breakdown should be more detailed when the cost is substantial.

### **b. Publication Costs/Page Charges**

The budget may request funds for the costs of preparing and publishing the results of research, including costs of reports, reprints page charges, or other journal costs (except costs for prior or early publication), and necessary illustrations.

#### **c. Consultant Services**

Anticipated consultant services should be justified and information furnished on each individual's expertise, primary organizational affiliation, daily compensation rate and number of days expected service. Consultant's travel costs should be listed separately under travel in the budget.

#### **d. Computer Services**

The cost of computer services, including computer-based retrieval of scientific and technical information, may be requested. A justification based on the established computer service rates should be included.

#### **e. Subcontracts**

Subcontracts should be listed so that they can be properly evaluated. There should be an anticipated cost and an explanation of that cost for each subcontract. The total amount of each subcontract should also appear as a budget item.

### **4.6 Indirect Costs**

Explain the basis for each overhead and indirect cost. Include the current rates.