

Proposals for Group Activities at DOE Laboratories in the Area of Nanoscale Science, Engineering, and Technology:

Funds up to \$8 M have been set aside in fiscal year (FY) 2002 for the purpose of supporting activities that address research in the area of nanoscale science, engineering, and technology (NSET). This work represents DOE's contribution to the National Nanotechnology Initiative (NNI). The BES program has worked with the National Science and Technology Council's Interagency Working Group on Nanoscale Science, Engineering, and Technology (IWGNSET), 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 and to determine how best to implement a program of research within the NNI.

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) obtain an integrated structural and dynamic view of nanoassemblies in biological systems, through the development of enhanced imaging tools and nanoscale probes.

Two reports prepared under BES sponsorship, 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 form the basis for DOE's participation in the National Nanotechnology Initiative (NNI).

This call is for proposals for (group) activities at DOE laboratories.

Types of Proposals Considered:

Proposals must have an emphasis in materials sciences and engineering, in chemical sciences, or in instrumentation development and may include aspects of nanobiosciences or geosciences within the scope of NSET, as described above. These proposals can extend ongoing research in a core program. However, proposals should not supplement programs that have been identified for normal termination. Proposals for extended core program research must describe both a new opportunity and a new direction for the core program and must represent work that could not otherwise be funded within existing support levels.

Please contact Iran Thomas (301-903-3427; iran.thomas@science.doe.gov) or William Millman (301-903-5804; william.millman@science.doe.gov), respectively, for additional information on suitability of proposals in materials sciences and engineering or in chemical sciences. Proposals can include aspects of nanobiosciences or geosciences; please contact William Millman for additional information on these areas.

Proposals for beamlines or major instrumentation associated with user facilities will be accepted in this competition only if they relate to a Nanoscale Science Research Center.

Eligibility of PI's:

No individual may be the lead principal investigator of more than one proposal. The lead principal investigator must be an employee of the Laboratory.

Estimated Award Size/Limitation on Number of Proposals:

The total dollar amount for all proposals submitted from a laboratory must not exceed \$2.5M. It is expected that proposals will be substantial, strategic, and supportive of core competencies within the laboratory. Proposals in the range of \$750K and up are envisioned. Please note that this year proposals will be accepted or rejected in their entirety. If any substantive part of the proposal does not review well, the entire proposal will be rejected. Proposals should be for an initial duration of four years beginning in FY 2002. Support beyond the initial period will be contingent upon a favorable review of progress and impact.

Award Selection Criteria:

All proposals will be peer reviewed by at least three external reviewers. The award selection criteria will include the standard measures used both for laboratory and university proposals. These are:

- Scientific and/or technical merit of the project,
- Appropriateness of the proposed method or approach,
- Competency of applicant's personnel and adequacy of proposed resources,
- Reasonableness and appropriateness of the proposed budget.

Additional criteria for proposals submitted by laboratories under this call are:

- Innovativeness and originality,
- Alignment with the themes described in *Complex Systems: Science for the 21st Century* and in *Nanoscale Science, Engineering and Technology Research Directions*,
- Alignment with the Laboratory's core competencies in areas of BES facilities or programs and with its strategic vision,
- Alignment with focus areas of Nanoscale Science Research Centers for those laboratories having an approved or proposed Center.
- Relevance to BES missions. See <http://www.sc.doe.gov/production/bes/bes.html>.

Other factors that may be taken into consideration include multi-disciplinary research, multi-investigator proposals, incorporation of academic and/or industrial partnerships, and diversity and outreach.

Proposal Preparation Guidelines:

Proposals should be submitted through the FWP process with the usual concise wording and format. In addition to the FWP, a proposal support document of no more than 30 pages suitable for peer review should be submitted. The support document should be prepared in accordance with the guidelines for submission of proposals (see: <http://www.science.doe.gov/production/grants/guide.html> for details) and should address the selection criteria given above and should contain pertinent management details and, if appropriate, information on subcontracts.

Proposal Submission:

The proposal and the FWP (25 copies each) should arrive at BES Headquarters Germantown by COB, January 17, 2002. Submit proposals to either:

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