

**MISSISSIPPI NSF EPSCoR PROGRAM
MODELING AND SIMULATION OF COMPLEX SYSTEMS
SEED RESEARCH GRANT PROGRAM**

2010

Deadline: October 8, 2010

BACKGROUND

The 2009-2015 Mississippi EPSCoR award promotes research in Modeling and Simulation of Complex Systems. The three research focus areas within this grant are computational chemistry (CompChem), computational biology (CompBio) and biosystems simulation (BioSim). **The grant provides support for up to six seed grants per year for innovative research in or between the three focus areas. Additional money is available for Seed Grants in 2010 and therefore up to ten grants may be funded.** The current research programs within each focus area are:

- Modeling and Simulation of Nanoscale Chemistry (CompChem)
- Modeling of Biological Systems (CompBio)
- Multi-Scale Simulation Framework for Biological Systems (BioSim)

SEED RESEARCH GRANT OBJECTIVES

The NSF Mississippi EPSCoR Research Seed Grants are designed to strengthen competitiveness in the focus areas of computational chemistry, computational biology, and biosystems simulation in the partnering institutions as defined in the EPSCoR proposal. The partnering institutions are Jackson State University, Mississippi State University, the University of Mississippi (including the University of Mississippi Medical Center), and the University of Southern Mississippi. The seed grants are targeted for research that builds on the foundation of existing research focus areas, that extends the breadth of research in the three research areas, and that establishes bridges between the focus areas. The intent is to promote a stronger interdisciplinary research network in Mississippi and to make Mississippi researchers more nationally competitive in research in each of the three focus areas and in research that cuts across focus areas. The proposals must be for new unfunded research **or a continuation of a previously funded seed grant.**

The grants are targeted to less experienced investigators initiating research in one of these areas or to experienced faculty changing fields and/or initiating a project in a new area that will strengthen research in modeling and simulation of complex systems. **Although the budget can remain entirely at a single institution, grants promoting multi-university collaborations and research that involves more than one focus area will be a priority. Preference will be given to projects that integrate research across institutions and across the three focus areas of computational chemistry, computational biology, and biosystems simulation. All research must be tightly integrated with core goals of the current project. Proposals that involve investigators from predominantly undergraduate institutions are also strongly encouraged.** Applicants are encouraged to read the description of the 2009-2015 NSF EPSCoR project at: <http://www.msepscor.msstate.edu/> prior to submission to ensure that the proposed project is consistent with the objectives of the NSF EPSCoR grant. Applicants are also encouraged to contact the Science Coordinator to discuss the proposed research prior to submission (see contact information below).

These seed grants are intended to stimulate new research leading to grant proposal submissions in the near future and to the rapid growth of the research network targeted by the EPSCoR proposal. They are not intended for additional support for established research.

ELIGIBILITY

Faculty members at any of the four partnering institutions are eligible to apply. **Faculty members at other Mississippi institutions of higher learning can also apply for seed grants if their research is tightly integrated with EPSCoR research at one of the partnering institutions.** The proposed research must be integrated with the goals of the project as described at <http://www.msepscor.msstate.edu/>. **Researchers who received seed grant funding in 2009 are eligible to apply for a continuation. Proposals for continuing grants will compete with new grant proposals and will be evaluated based on results from the first year of**

research and publications and proposals generated during the first year in addition to the criteria used to evaluate other proposals.

FUNDING AMOUNT

Funding for each proposal is for one year and will not exceed **\$75,000** including F & A. Proposers should use the appropriate F & A rate for their institution. Linked proposals from two or more of the partnering institutions are also permitted with a maximum of **\$75,000** per institution. In linked proposals, a single proposal is submitted, but separate budgets are submitted for each institution. Linked proposals will be reviewed based on the scientific merit of the single submitted proposal and must represent a single, integrated research effort.

COST SHARING REQUIREMENT

NSF EPSCoR funding requires cost sharing of 20% of total NSF costs (\$15,000 if the full \$75,000 is awarded). The cost share must meet NSF cost share requirements and cannot include any federal funds. Cost share will be the responsibility of the researcher's home institution.

REPORTING REQUIREMENTS

Grantees are required to submit a final report (1-3 pages) within 2 months of the end of the grant period. The report should detail the activities, publications, extramural grant application(s), and/or extramural grant awards arising from support. Include names, degrees and demographic information for any coworkers supported by the award. A reminder will be sent 1 month before the report is due.

FORMAT OF PROPOSAL

Applications should be prepared with the following specifications:

Page Size: 8 ½ x 11 inches, Spacing: Single, Font: Times New Roman or Arial, 12 point, Margins: 1".

1. Cover Page

- a. Proposal Title
- b. Principal Investigator and Co-Investigator(s) (Full name, Title, Primary Affiliation, Phone Numbers, Fax Number, E-mail Address)
- c. Type of Proposal: Regular or Linked

2. Abstract (Maximum of 200 words)

3. Proposal (Maximum of 5 pages)

- a. Overview, objectives and significance (~0.5 page)
- b. Background and review of relevant literature (~0.5 page).
- c. Research plan—include a description of the nature of the proposed work and a publication plan (~2 pages).
- d. Expected results (~0.5 page)
- e. Potential for generating competitive funding (~0.5 page)
- f. Describe the nature of proposed collaboration with ongoing EPSCoR research activities. (~0.5 page)
- g. Distinguish between current EPSCoR funding and the proposed seed grant (Only for investigators already receiving support through EPSCoR). (~0.25 pages)

4. Budget

All budgets are to be submitted in NSF format. Budgets may include faculty salaries, postdoctoral salaries, graduate and undergraduate student salaries, fees, and tuition, supplies, contractual, equipment and travel. The budgets must include appropriate fringes on all personnel salary and must include F&A. No subcontracts are allowed.

5. Appendices

- a. Literature cited
- b. Budget including cost share (NSF format, 1 page).
- c. Budget justification (1 page)

- d. Curriculum vitae of all investigators (NSF biosketch format, 2 pages maximum for each investigator)
- e. Statement agreeing to provide a final report and to present the research results at the Mississippi EPSCoR Annual Meeting.
- f. Up to three suggested reviewers (optional)

PROPOSAL REVIEW

Proposals will be reviewed by external reviewers for scientific merit, relevance to MS EPSCoR's aims, multi-disciplinary collaboration, justification of budget, potential for rapid success including subsequent submissions of full proposals to external agencies, and training opportunities for graduate students especially those from underrepresented groups. The reviewers will provide scientific review without funding recommendations and the Mississippi EPSCoR Steering Committee will make the final funding decisions.

SUBMISSION PROCEDURE, DEADLINE AND NOTIFICATION OF AWARD

Proposals should be contained in a single PDF file and sent as an email attachment to:

Dr. Susan Bridges
Science Coordinator
Modeling and Simulation of Complex Systems
Mississippi NSF EPSCoR Program
Mississippi State University
Email: bridges@cse.msstate.edu
Tel: 662-325-7505

Deadline: October 8, 2010.

Notification: November 15, 2010

Proposers are strongly encouraged to contact the Mississippi EPSCoR Science Coordinator or the Lead Investigator in each research area for additional information:

Computational Biology Lead Investigator
Dr. Raphael D. Isokpehi
Department of Biology
Jackson State University
Email: raphael.isokpehi@jsums.edu
Tel.: 601-979-1678

Biosystems Simulation Lead Investigator
Dr. Keith Walters
Department of Mechanical Engineering
Mississippi State University
Email: walters@me.msstate.edu
Tel.: 662-325-8231

Computational Chemistry Lead Investigator
Dr. Greg Tschumper
Department of Chemistry and Biochemistry
University of Mississippi
Email: tschumpr@olemiss.edu
Tel: 662-915-5331