FEEDING AND POWERING THE WORLD:
SOLAR WATER SPLITTING / CATALYSIS FOR SOLAR FUELS AND FERTILIZERS
2016 SEED RESEARCH GRANT PROGRAM

Proposal submission deadline: September 15, 2016

Suggested project start date by the program: October 1, 2016

BACKGROUND

The 2015-2019 collaborative Mississippi, Louisiana, and Alabama EPSCoR Track II award (OIA-1539035) from the National Science Foundation (NSF) promotes research in the use of solar energy to drive multi-electron redox processes. Year 2 seed grants (this solicitation) will be ten-month projects (Oct 1 to July 31). Four seed grants of $7,500 each will be awarded to perform innovative research in or among the three focus areas. The three research focus areas of the program are:

- Development of efficient solar cells for fuel production, including dye synthesis and combined photo- catalytic systems for efficient light energy harvesting and conversion;
- Development of catalysts for efficient light energy chemical transformation and storage, such as water reduction/oxidation, CO_2 reduction, and N_2 reduction; and
- Computational approaches to development of chromophores and catalysts for solar fuels.

More information on this EPSCoR program can be found at:

http://www.feeding-and-powering-the-world.org

SEED RESEARCH GRANT MISSION AND GOALS

The seed research grants are designed to strengthen competitiveness in the focus areas of solar energy research and catalysis and energy related computational research in the partnering jurisdictions as defined in the funded proposal. The partnering EPSCoR jurisdictions are Mississippi, Alabama, and Louisiana. The seed research grants **are targeted for research by beginning assistant professors** that builds on the foundation of the research focus areas, that extends the breadth of research in the three research areas, and that establishes bridges between focus areas. Proposals from more senior faculty who have re-located to a new faculty appointment will also be considered.

All proposals must include a method for measuring the success of the project. All proposed research must be tightly linked to the core goals of the overall project. Applicants are encouraged to read the summary of the 2015-2019 project on the program website prior to preparing proposals to ensure that the proposed project is consistent with the objectives of the award. Applicants are also encouraged to contact Program Director Dr. Nathan I. Hammer (nhammer@olemiss.edu) directly for question regarding this proposal submission.

These seed research grants are intended to stimulate new research by junior assistant professors leading to grant proposal submissions in the near future and to the rapid growth of the research network targeted by the EPSCoR proposal. Innovative, high-risk-high-reward projects that couple tightly to the funded project are particularly encouraged. These grants are not intended for additional support for established research.

ELIGIBILITY

Faculty members at participating institutions in the partnering jurisdictions are eligible to apply. These include the University of Mississippi, Mississippi State University, Tulane University, and the University of Alabama. The seed proposals must be for new and unfunded research or a continuation of a previously funded seed grant supported by this program. Award selection priority will be given to new assistant professors in their first three years as an assistant professor. Experienced faculty members that have recently relocated or who are changing fields and/or initiating a project in a new area that will strengthen research in solar energy and/or catalysis are also eligible to apply.

The proposed research must be integrated with the goals of the project as described at http://www.feeding-and-powering-the-world.org. Researchers who were supported in a previous year are eligible to apply for a continuation. Proposals for continuing seed grants will compete with new seed grant proposals and will be evaluated based on results from the first year of research, and publications and proposals generated during previous years, in addition to the criteria used to evaluate other proposals.

FUNDING AMOUNT

Funding for each proposal is for one year and will not exceed $7,500 per proposal including Facilities and Administration (F&A), pending availability of funds from NSF. Funds for the support of PI salary are not allowed. Proposers should calculate and include F&A in their $7,500 budget, using their own institution's federally negotiated F&A rate. Collaborative proposals from two or more of the partnering institutions are allowed. In such linked proposals, a single proposal is submitted, but separate budgets are submitted for each institution if needed with a total budget not exceeding $7,500. Linked proposals will be reviewed based on the scientific merit of the single submitted proposal and must represent a single and integrated research effort. Each researcher can only be a PI or co-PI on one proposal but may be listed as unfunded collaborator on up to two additional proposals. Remember, however, that these grants are primarily designed to support junior assistant professors in the first three years of their first appointment. If less than four seed grant proposals are received awards larger than $7,500 will be made.

An additional $6,000 for the support of a community college teacher and $4,000 for a summer Research Experience for Undergraduates (REU) student are also available through the outreach component of the program. Details are available at http://www.feeding-and-powering-the-world.org. Faculty wishing to incorporate these activities should mention them in their proposal but not include funds in their budget.

COST SHARING REQUIREMENT

No cost sharing is required and cost sharing is not part of the review criteria.

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).
2. Abstract (Maximum of 200 words): this should be suitable for general publication or dissemination to the general public
3. Proposal-Maximum of 2 pages for following items a-f. Longer proposals WILL NOT be reviewed. The proposed work should be described in sufficient detail for the review committee to evaluate its impact.
   a. Overview, objectives and significance
   b. Background and review of relevant literature
   c. Research plan—include a description of the nature of the proposed work, and plans on how to achieve the goals
   d. Expected results and timeline
   e. Potential for generating competitive funding and publications
   f. Outcomes from previous seed funding cycle if this is a renewal proposal. Include publication list, submitted and funded projects, student training results, patents, and conferences, etc.
   g. References with complete information of title, author list, year, issue, and page number (not included in the 2 page limit)
4. Budget and <= 1 page budget justification
   All budgets are to be submitted in NSF format. The seed grant **must be for exactly $7,500**. Budgets may include faculty salaries, postdoctoral salaries, graduate and undergraduate student salaries, fees and tuition, supplies, contractual services, equipment and travel. The budgets must include appropriate fringes on all personnel salary and must include F&A. No PI salary or subcontracts are allowed.
5. Appendices
   a. Curriculum vitae of all investigators (NSF biosketch format, 2 pages maximum for each investigator)
   b. Statement agreeing to provide a final report before its deadline and to present the research results at the Feeding and Powering the World EPSCoR annual meeting held each summer at the University of Mississippi. To address this, simply include a PDF of a signed letter directed to Dr. Nathan I. Hammer, indicating "*Upon the success of this seed grant application, I agree to provide a final report before its deadline and to present the research results at the annual meeting.*"

SUBMISSION PROCEDURE, DEADLINE, PERIOD OF SUPPORT, AND NOTIFICATION OF AWARD

Proposals should be contained in a single PDF file and sent as an email attachment to **nhammer@olemiss.edu**

Deadline: All proposals must be received by midnight, September 15, 2016.

Notification: September 25, 2016　　　　　　　**Start Date for Proposals: October 1, 2016**

Support Period: Funded applications must commence immediately. It is anticipated that the proposed work will be completed in a period not to exceed ten months; however, in certain circumstances, extensions of three months may be granted for the expenditure of the original award with the approval of by program director Dr. Nathan I. Hammer.

Proposers are strongly encouraged to contact Professor Nathan I. Hammer by email for feedback prior to submission.

REPORTING REQUIREMENTS

Grantees are required to submit a final report (1-3 pages) within three months of the end of the grant period. Progress reports will also be required to fulfill reporting requirements to NSF. Reports should detail the activities, conferences, publications, extramural grant application(s), patent, and/or extramural grant awards arising from support. Include names, degrees and demographic information for any personnel supported by the award. Reminders will be sent at least one month before each report is due.

PROPOSAL REVIEW

All submitted proposals will be reviewed by the seven senior personnel of the program and this review committee will make the final funding decisions. **Points the committee will consider during review include:**
—— Junior faculty status
—— Relevance to the program's mission and research goals
—— Multi-disciplinary collaboration
—— Potential to enhance scholarship or creative activity
—— Clear plan for the work
—— Justification of budget
—— Guided by a compelling question or creative idea
—— Be a project that has not already received funding from other resources
—— Has the potential for rapid success, including subsequent submissions of full proposals to external agencies
—— Interdisciplinary, if appropriate for the project
—— Is significantly assisted by this funding
—— Creates training opportunities for undergraduate and graduate students, especially those from underrepresented groups
—— Outcomes from previous seed grant support