



National Science Foundation
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NSF 13-013

Dear Colleague Letter: FY 2014 Sustainable Chemistry, Engineering, and Materials (SusChEM) Funding Opportunity

Date: July 11, 2013

In fiscal year (FY) 2013, NSF started an initiative to encourage and foster research in Sustainable Chemistry, Engineering, and Materials (SusChEM), partially in response to the mandate of the America COMPETES Reauthorization Act of 2010. The SusChEM initiative addresses the interrelated challenges of sustainable supply, engineering, production, and use of chemicals and materials.

In FY 2014, the participating divisions are Chemistry (CHE); Chemical, Bioengineering, Environmental, and Transport Systems (CBET); Materials Research (DMR); Earth Sciences (EAR); and the Materials Engineering and Processing program in the Division of Civil, Mechanical and Manufacturing Innovation (CMMI).

Fundamental research topics of interest in SusChEM include the replacement of rare, expensive, and/or toxic chemicals/materials with earth-abundant, inexpensive, and benign chemicals/materials; recycling of chemicals/materials that cannot be replaced; development of non-petroleum based sources of important raw materials; the elimination of waste products and enhancement in efficiencies of chemical reactions and processes; discovery of new separation science that will facilitate recycling and production of valuable chemicals/materials; and development and characterization of low cost, sustainable and scalable-manufactured materials with improved properties.

Within these general guidelines, CHE and CBET have no specific priorities and restrictions. Of interest to DMR are proposals that promote the preservation and extension of natural resources aimed at improved material usage and overall lifecycle management. Relevant topics include enhanced recyclability; materials designed to be reclaimed, reused or repurposed; and/or new approaches to extend the lifetime of materials. In addition, the replacement, substitution, or elimination of toxic or critical materials will also be considered. Because DMR already funds a great deal of energy-focused proposals, these are discouraged under SusChEM. DMR also discourages the submission of more than one proposal (SusChEM proposals included) from the same Principal Investigator during the same submission window. For CMMI, only proposals addressing sustainable materials processing are welcome. Of interest are processes with reduced use of toxic components, such as solvents, carbon emissions, and pollutants; processes under ambient conditions, as opposed to extreme temperatures, pressures or other harsh conditions; and increased conservation of natural resources, such as water, raw material, and energy. SusChEM proposals to CMMI must be submitted to the Materials Engineering and Processing program.

EAR welcomes projects concerning fundamental geoscience related (but not limited) to the following: environmental remediation; environmental impacts of resource use; the geochemistry of critical elements, including phosphorus, rare earths, and precious metals; sustainable agriculture, including soil geochemistry.

Proposals in response to this initiative should be submitted to the existing program of interest in the participating divisions within the existing submission window (deadline) of the program. The proposal title must begin with 'SusChEM:'. Other than the proposal title, the cover page should be prepared as a regular non-solicited proposal submission to the program. Principal Investigators must explicitly address how their project conceptually advances sustainability in the fundamental research topics of interest in SusChEM.

Proposals are welcome from either multiple or single investigators. Interdisciplinary proposals that involve principal investigators traditionally supported by the different participating divisions are strongly encouraged. Such proposals should be submitted to the most relevant program in one division while identifying possible co-review programs in the other divisions (by listing the appropriate NSF units on the cover page). Proposals may be submitted in combination with other solicitations. For example, if there are strong collaborations with industry, the Grant Opportunities for Academic Liaison with Industry (GOALI) solicitation can be used in conjunction with this effort. Similarly, proposals may be submitted in combination with the CAREER or the Research in Undergraduate Institutions (RUI) solicitation. These proposals should be submitted to the appropriate solicitation and add SusChEM to the title (For example, SusChEM: CAREER: Name of your proposal). Other mechanisms such as EAGER may also be appropriate, but principal investigators are urged to check with the cognizant program officers for additional guidance. For general questions about SusChEM, email the listed representative in the most closely relevant division.¹

To see examples of awards made under the SusChEM initiative in FY 2013, visit the NSF Award Abstracts Database (<http://nsf.gov/awardsearch/>), and enter 'SusChEM' in the 'Search Award for:' dialogue field. Alternatively, please visit the webpages of the disciplinary programs of interest in the participating divisions. Under each program, find the link to recent awards made in that program and look for those that contain 'SusChEM' in the proposal title.

SusChEM is a program under the umbrella of the NSF-wide Science, Engineering and Education for Sustainability (SEES) initiative.² SEES seeks to advance science, engineering, and education to inform the societal actions needed for environmental and economic sustainability and sustainable human well-being. There are many programs within the SEES initiative, all of which aim to address the need for a sustainable world through support for interdisciplinary research and education.

We are excited by the opportunities in the SusChEM area and encourage our communities to contribute to our sustainable future by participating in this important funding initiative.

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1. CHE: CHE-SusChEM@nsf.gov; CBET: CBET-SusChEM@nsf.gov; CMMI: CMMI-SusChEM@nsf.gov; DMR: DMR-SusChEM@nsf.gov; EAR: EAR-SusChEM@nsf.gov.

2. SEES: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504707