National Science Foundation
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Dear Colleague Letter: for Assessing and Enhancing the Impact of Science R&D in the United States: Chemical Sciences

Directorate for Social, Behavioral, and Economic Sciences (SBE)
Directorate for Mathematical and Physical Sciences (MPS)

Dear Colleague:

Evidence has an increasingly important role as the basis for decision-making in Washington. Federal science agencies are being asked to manage their portfolios by using sound science: developing data sets, measuring outcomes, and evaluating performance. Indeed, a recent memo from the Office of Management and Budget and the Office of Science and Technology Policy regarding Science and Technology Priorities for FY 2011 Budget urged science agencies to develop "science of science policy tools" and "datasets to better document Federal science and technology investments".

But narrow or biased measures of scientific achievement and scientific outcomes can lead to narrow and biased science. Farsighted action, based in sound science, can ensure that the evidence that is gathered to inform policy captures the essence of science and what it means to be a good scientist.

This action needs to be grounded in answering important scientific questions, such as:

1. How can we measure the broad (economic, social, and scientific) impact of scientific research?
2. What is the nexus between industrial and federal investments in science R&D?
3. How can an optimal portfolio of (public and private) science R&D investments be characterized?
4. How can the social, behavioral, and economic sciences inform federal R&D investments?

These questions were discussed by participants at a recent workshop on "Assessing and Enhancing the Impact of Science R&D in the United States: Chemical Sciences", sponsored by the NSF Divisions of Chemistry, of Chemical, Bioengineering , Environmental and Transport Systems and the Directorate of Social, Behavioral, and Economic Sciences. The workshop report (available at http://www.ccrhq.org/economicimpact) discusses the need for and value in a multi-disciplinary, multi-sector, multi-perspective investigation to inform our understanding about the impact of research investments in all sectors – questions that lie at the core of NSF's Science of Science & Innovation Policy (SciSIP) Program.

Chemistry provides an exemplary test bed upon which to base such an investigation. The long history, structure and diversity of the discipline - which touches areas as wide-ranging as electronics materials, pharmaceuticals, and bulk commodity chemicals – has engendered a rich range of data, outcome measures, and institutional variety that create a rich scientific basis that can be studied by teams of social and domain scientists.

The purpose of this Dear Colleague Letter is to advise you about funding opportunities at the National Science Foundation to develop a better understanding of these issues as applied to the Chemical Sciences. Research of interest can range from the innovative application of existing technologies through the creation of new approaches, and possible combinations that could create a transformative, interdisciplinary research agenda. Proposals with the following features are particularly encouraged.

- Contrasts between public and private research investments,
- Examinations of the perspectives of public, private, academic, industrial, and government labs
- Examinations of the impact of differences in levels and modes of research investment
- Collaborations involving domain scientists in the mathematical and physical sciences and engineering as well as SciSIP researchers.

Investigators are encouraged to e-mail a SciSIP program officer to discuss prospective proposal topics, and to review the SciSIP program description at: (http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=501084&org=SES&from=home) to ensure that eligibility requirements are met. Proposals are to be submitted to and evaluated by SciSIP, which has a September 9 deadline annually. Awards will be co-funded by SciSIP and the relevant MPS program upon the approval of the associated MPS Program Officer.

Sincerely,

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