NATIONAL SCIENCE FOUNDATION
2415 EISENHOWER AVENUE
ALEXANDRIA, VIRGINIA 22314

NSF 21-036

Dear Colleague Letter: Catalyzing Industry-University Collaboration in Chemical Research through Industry/University Cooperative Research Centers (IUCRCs)

December 30, 2020

Dear Colleagues:

Chemistry, as a "central science," plays a pivotal role not only in generating new knowledge and technologies, but also in propelling a large portion of the US economy. Strong partnerships among academic scientists, national laboratory researchers, and industrial practitioners enable more efficient technology transfer that helps to maintain global economic competitiveness, improves the sustainability of the chemical industry, and better prepares the chemical workforce.

The Industry/University Cooperative Research Centers (IUCRC) program strives to build long-term partnerships among industry, academe, and government. Leveraging the IUCRC model, the Mathematical and Physical Sciences (MPS) Directorate through the Division of Chemistry (CHE) and the Engineering Directorate (ENG) through the Division of Industrial Innovation and Partnerships (IIP) at NSF are coordinating efforts to promote productive research in cutting-edge areas of chemistry of particular interest to a cadre of allied industrial partners.

With this DCL, CHE is encouraging submissions of Planning or Phase I proposals to build a portfolio of CHE-centered IUCRCs in response to the recent release of the new IUCRC solicitation (NSF 20-570). All CHE-supported research areas are encouraged, with special emphasis on research foci that align with the Industries of the Future (IotF) topics, such as Advanced Manufacturing (including Sustainable Chemistry), Artificial Intelligence, Biotechnology, and Quantum Information Science.

IUCRC PROGRAM OVERVIEW:

IUCRCs are public-private partnerships that catalyze breakthrough, cutting-edge, pre-competitive research by enabling close and sustained engagement between industry,

academic teams, and government agencies. These Centers have three primary goals: (1) conducting high-impact research to meet the critical and shared needs of commercial and governmental entities that require better fundamental understandings of processes, mechanisms, and problems that they are unable to carry out internally; (2) moving fundamental research results to society and/or the marketplace via innovation and technology development; and (3) mentoring and developing a diverse, highly skilled, science and engineering workforce that understands how to work with industry and translate research results into understandings, products, and technologies that benefit society and the economy.

The IUCRC program provides a structure for academic researchers to constructively interact with industry and government organizations who pay membership fees to the Center. These program funds are used to support faculty consortia who propose cutting-edge fundamental research projects designed to address their collective member's needs. Dues paying Center members consider proposals initiated by faculty and students and provide resources to target those they feel are most critical to addressing their collective needs.

Successful CHE-centered IUCRCs require:

- A capable, dedicated, research/management team with an entrepreneurial mindset.
- Universities, faculty, and students interested in engaging in chemical research of interest to industry.
- A community of industry partners seeking pre-competitive, use-inspired, chemical research projects.

Each CHE-centered IUCRC is expected to expand their respective research activities and become independently sustainable by the end of the NSF support period (i.e., up to 10 years).

STARTING AN IUCRC

To start an IUCRC, a group of faculty from one or more institutions who want to conduct cutting edge research publishable in the peer-reviewed literature; have knowledge of the fundamental needs of a commercial sector; and have an interest in addressing those needs, convene along with their university administrators to organize an IUCRC. The first formal step consists of submitting an IUCRC Planning Grant proposal which, if awarded, provides up to one year for Center planning. This period includes training on member discovery, interacting with NSF, and setting aside time for Center faculty to identify and engage potential members from the private sector and other areas with the potential to become dues paying members of their Center. After a successful planning phase, a Phase I Center proposal is submitted. A potential IUCRC consortium that has already completed planning activities and achieved the Planning Grant Workshop outcomes outlined in the new IUCRC solicitation (NSF 20-570) may seek a Planning Grant waiver (subject to NSF approval) to accelerate Center formation

and bypass the NSF-funded Planning Grant stage.

Planning Grant proposals require the submission of a preliminary proposal. For the purposes of this DCL, the deadlines for Planning Grant preliminary proposals are March 10, 2021 for FY 2021 funding consideration (see NSF 20-570 for more details on the IUCRC Program, its structure, and requirements). Please begin the proposal title with the special tag of "IUCRC-CHE Preliminary Proposal:" and then follow the remaining guidance for the project title format specified in the IUCRC program solicitation.

Interested parties are encouraged to contact Ken Moloy (kmoloy@nsf.gov, 703-292-8441) in the Division of Chemistry or Prakash Balan (pbalan@nsf.gov, 703-292-5341) in the Division of Industrial Innovation and Partnerships.

Sincerely,

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