



NATIONAL SCIENCE FOUNDATION
2415 EISENHOWER AVENUE
ALEXANDRIA, VIRGINIA 22314

NSF 24-014

Dear Colleague Letter: Aligning Fundamental Research and Education in Advanced Manufacturing with the Objectives of the Manufacturing USA Institutes

October 12, 2023

Dear Colleagues:

[Manufacturing USA](#) is a national network of manufacturing institutes established in 2014 by the multi-agency collaboration that guided its formation. Each Institute focuses on a specific manufacturing technology and the education of a skilled workforce to advance it and has the corresponding expertise, facilities, infrastructure and university and industrial membership to undertake projects that transition manufacturing technologies from Manufacturing Readiness Level (MRL) 4 (laboratory demonstration) to MRL 7 (implementation in an environment representative of production). The objectives of the Manufacturing USA institutes are highly complementary to those of the National Science Foundation (NSF), which focus on MRL 1 (basic research) to MRL 3 (proof of concept), providing opportunities to speed the translation of NSF-sponsored research and educational innovations to use.

Manufacturing USA Institutes cover a wide range of topical areas that span the challenging and high-tech world of advanced manufacturing, from biopharmaceutical production and tissue printing to robotics and cybersecurity. NSF is interested in receiving proposals addressing critical fundamental research on and workforce development needs for advanced manufacturing that enable innovations in the technical focus areas of one or more of the Manufacturing USA Institutes.

This DCL encourages the submission of research and educational proposals that align with the technical focus areas of the Manufacturing USA Institutes **to established NSF programs in the Directorates for Engineering (ENG), STEM Education (EDU), and Technology Innovation and Partnerships (TIP)**. Proposal submissions should detail explicit collaborations with Institutes to facilitate the transition of promising research results and educational programs to them, leverage the programs, facilities, infrastructure, expertise, and member companies of one or more Institutes, and/or provide experiential learning

opportunities for students. Proposal submissions that include internship opportunities for student researchers in the institutes and their member companies are strongly encouraged.

SUBMISSION PROCESS

This is not a new program. Proposals must be submitted to established NSF programs in the ENG, EDU and TIP Directorates in accordance with the guidance contained in the *NSF Proposal and Award Policies and Procedures Guide (PAPPG)* and any program specific requirements, including deadlines.. Proposals submitted in response to this DCL should be clearly identified by including a proposal title that is prefixed by "Manufacturing USA:" after any program specific title requirements.

Special Note: AIM Photonics has provided a detailed protocol for collaboration, as specified in [NSF 23-054](#), Dear Colleague Letter: Research on Integrated Photonics Using AIM Photonics Capabilities. Proposals for collaboration with AIM Photonics must follow the procedures indicated in [NSF 23-054](#), and their titles must be prefixed by "PIC:" instead of "Manufacturing USA:"

Principal investigators are encouraged to think broadly about opportunities for proposal submission to the NSF. Examples include the following DCLs, program descriptions and program solicitations:

[Accelerating Innovations in Biomanufacturing Approaches \(NSF-DOE/ABF Collaboration\)](#)
[Advanced Manufacturing \(AM\)](#)
[Advanced Technological Education \(ATE\)](#)
[A New Supplemental Funding Opportunity for Skills Training in Advanced Research & Technology \(START\)](#)
[Cellular and Biochemical Engineering \(CBE\)](#)
[Computational and Data-Enabled Science and Engineering \(CDS&E\)](#)
[Critical Aspects of Sustainability \(CAS\)](#)
[Cyber Physical Systems \(CPS\)](#)
[Designing Materials to Revolutionize and Engineer our Future \(DMREF\)](#)
[Electronics, Photonics and Magnetic Devices \(EPMD\)](#)
[Engineering Design and Systems Engineering \(EDSE\)](#)
[Engineering Research Centers \(ERC\)](#)
[Environmental Sustainability](#)
[Foundational Research in Robotics \(FRR\)](#)
[Future of Semiconductors \(FuSe\)](#)
[Future Manufacturing \(FM\)](#)
[Industry-University Cooperative Research Centers \(IUCRC\)](#)
[Manufacturing Systems Integration \(MSI\)](#)
[Non-Academic Research Internships for Graduate Students \(INTERN\) Supplemental Funding](#)

Opportunity

Operations Engineering (OE)

Partnerships for Innovation (PFI)

Process Systems, Reaction Engineering and Molecular Thermodynamics

Research Experiences for Undergraduates (REU) Sites and Supplements

Research on Integrated Photonics Utilizing AIM Photonics Capabilities

Secure and Trustworthy Cyberspace (SaTC)

Contacts for assistance in identifying the most appropriate NSF program for proposal submission are:

Bruce Kramer (bkramer@nsf.gov, 703-292-5348)

Andrew Wells (awells@nsf.gov, 703-292-7225)

Sincerely,

Susan Margulies

Assistant Director for Engineering (ENG) and NSF Lead in the National Advanced

Manufacturing Program

National Science Foundation

Erwin Gianchandani

Assistant Director for Technology, Innovation and Partnerships

National Science Foundation

James L. Moore III

Assistant Director for STEM Education

National Science Foundation