THE UNIVERSITY OF NEW MEXICO

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From: Faculty Research Development Office
Office of the Vice President for Research

Subject: Limited Competition: NSF Partnerships for Research and Education in Materials (PREM), NSF 21-510

Date: November 9, 2020

The NSF Division of Materials Research (DMR) Partnerships for Research and Education in Materials Research (PREM) program aims to enable, build, and grow partnerships between minority-serving institutions and DMR-supported centers and/or facilities to increase recruitment, retention and degree attainment (which defines the PREM pathway) by members of those groups most underrepresented in materials research, and at the same time support excellent research and education endeavors that strengthen such partnerships.

Information about current PREMs and a description of the framework can be found at https://prem-dmr.org/.

Eligible partners include DMR-supported centers and facilities as listed below:

1. Materials Research Science and Engineering Centers (MRSEC). Please see https://mrsec.org for a list and information about currently funded centers.
2. Science and Technology Centers (STC). DMR currently supports two STCs: i) Center for Integrated Quantum Materials (CIQM) (http://ciqm.harvard.edu) and ii) Center on Real-Time Functional Imaging (STROBE) (http://strobe.colorado.edu).
3. Materials Innovation Platforms (MIP). DMR currently supports four MIPs: i) 2D Crystal Consortium (2DCC-MIP, http://mri.psu.edu/mip), ii) Platform for the Accelerated Realization, Analysis, and Discovery of Interface Materials (PARADIM, https://www.paradim.org), iii) BioPolymers, Automated Cellular Infrastructure, Flow, and Integrated Chemistry (BioPACIFIC MIP, https://biopacificmip.org/), and iv) GlycoMIP for Automating the Synthesis of Rationally Designed Glycomaterials (GlycoMIP, http://glycomip.org).
4. The National High Magnetic Field Laboratory (NHMFL). (https://nationalmaglab.org)
5. The Center for High-Energy X-ray Sciences at the Cornell High-Energy Synchrotron Source (CHEXS@CHESS). (https://www.chess.cornell.edu/partners/chexs)
6. The Center for High Resolution Neutron Scattering (CHRNS). (https://www.ncnr.nist.gov/programs/CHRNS/)
7. The NSF Quantum Foundry at the University of California at Santa Barbara (https://quantumfoundry.ucsb.edu)

The PREM program activity is expected to enhance both the quantity and quality of materials research and education opportunities for students and faculty members at minority-serving institutions, and to demonstrably lead to increased diversity in materials research. These opportunities result from long-term, multi-investigator, collaborative research and education partnerships that define a framework wherein a supportive and stable PREM pathway for promoting inclusiveness in STEM is designed and built. In this context, the framework includes the partnership, the pathway (i.e. the recruitment/retention/degree attainment paradigm), as well as essential research and education elements that collectively propel the participants' progression along the pathway. Additionally, the PREM activity may also contribute to and strengthen diversity efforts at partnering institutions (i.e. the DMR-supported centers and facilities).

A PREM typically encompasses research thrust(s) that involve several faculty members addressing materials research topic(s). Sustained support is developed through a collaborative effort by the participants from both partnering institutions that is based on common intellectual interests (either pre-existing or newly identified) and complementary backgrounds, skills, and knowledge. Ideally, a PREM proposal defines a vision for the partnership that simultaneously promotes inclusiveness and research excellence; the proposed research should be aligned with research supported by DMR. The role of each institutional partner should be explicit, and project goals to achieve the vision should be clearly defined and

addressed. Importantly, anticipated challenges and expected outcomes towards increasing diversity and research output must be identified and addressed. Plans for student/faculty reciprocal exchange between partnering institutions are required. Project assessment and evaluation plans are required and are designed to emphasize an increase in the quality and quantity in diversity, research, and education, measured relative to the beginning of the award.

A PREM may address any area of research supported by the NSF Division of Materials Research which includes 8 programs, known as Topical Materials Research Programs (TMRP): Biomaterials (BMAT), Ceramics (CER), Condensed Matter Physics (CMP), Condensed Matter and Materials Theory (CMMT), Electronic and Photonic Materials (EPM), Metals and Metallic Nanostructures (MMN), Polymers (POL), and Solid State and Materials Chemistry (SSMC). For a detailed description of the research supported by the 8 core programs visit https://www.nsf.gov/materials.

The proposed budget can range from $300,000 to $700,000/year for up to a period of 6 years. Full proposals are due February 5, 2021. For more information see the following link: https://www.nsf.gov/pubs/2021/nsf21510/nsf21510.pdf.

This is a limited competition. Only **one** PREM proposal may be submitted in response to this solicitation by an eligible organization as the lead**.**

***If you anticipate that you will be submitting a preproposal for this internal competition, please send a statement of interest including the prospective title, list of anticipated UNM senior personnel with their departments, DMR related program, and name of partnering DMR-supported center institution and PI via e-mail to limited@unm.edu by November 16, 2020. Note: The statement of interest is required in order for the preliminary proposal to be reviewed by the limited competitions committee.*

Please submit your 3-page pre-proposal plus coversheet, budget overview, NSF formatted biosketches, and references cited; all documents in a SINGLE PDF file, 11 point font) by NOON on Tuesday, December 1, 2020 to limited@unm.edu with the subject line indicating: PREM - your name. No late submissions will be considered.

The limited competition pre-proposal to UNM must include:

- A cover sheet that lists the project title, relevant DMR program, and all senior personnel with each person's institution and contact information
- 3-page project description (in NSF allowable format) that includes:
    - Goals of the proposed partnership that will enable the PREM pathway through increasing recruitment, retention and degree attainment by underrepresented minorities in materials research.
    - Description of the role of the DMR-supported center or facility.
    - Description of how the proposed research and education partnership will contribute to increase the quantity and quality of research and education at UNM.
    - Overview of how the partnership will be evaluated throughout the project
- Budget overview and 1-page budget justification
- Biosketches (NSF format) for PI and Co-PIs
- References cited (if applicable)