PREC: Partnerships for Research and Education in Chemistry

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NSF Chemistry
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Solicitation: 21-620
https://beta.nsf.gov/funding/opportunities/partnerships-research-and-education-chemistry-prec
PREC Aim

• **Enable, build, and grow partnerships** between minority-serving institutions and CHE-supported Centers, Facilities and Institutes...
  • Eight Partners for this solicitation

• **Increase recruitment, retention and degree attainment** by members of those groups most underrepresented in chemistry research
  • PREC Pathway

• **Support excellent research and education endeavors** that strengthen such partnerships
Partnership Programs Across MPS

• Programs **supporting broadening participation and strengthening research infrastructure at Minority Serving Institutions (MSI)** via partnerships between MSIs and designated NSF-funded Centers, Facilities and/or Institutes

• **ESTABLISHED example** (similar but not identical to PREC):
  • **Materials Research**: Partnerships for Research and Education in Materials (PREM), Solicitation 21-510: [https://beta.nsf.gov/funding/opportunities/partnerships-research-and-education-materials-prem](https://beta.nsf.gov/funding/opportunities/partnerships-research-and-education-materials-prem); contact Debasis Majumdar, dmajumda@nsf.gov
  
  • See examples via NSF Advanced Awards Search: [https://nsf.gov/awardsearch/advancedSearch.jsp](https://nsf.gov/awardsearch/advancedSearch.jsp) - enter “Program Element” = 7913

• **ALSO**:
  • **Physics**: PREP, Solicitation 21-610: [https://beta.nsf.gov/funding/opportunities/partnerships-research-and-education-physics-prep](https://beta.nsf.gov/funding/opportunities/partnerships-research-and-education-physics-prep); contact Kathleen McCloud, kmccloud@nsf.gov
  
  • **Astronomy**: PAARE, Solicitation 13-566: [https://beta.nsf.gov/funding/opportunities/partnerships-astronomy-astrophysics-research-and-education-paare](https://beta.nsf.gov/funding/opportunities/partnerships-astronomy-astrophysics-research-and-education-paare); contact Hans Krimm, hkrimm@nsf.gov
PREC Lead/PI Institutions - Eligibility

• **PI must be faculty at a Minority Serving Institution (MSI)**
  - Institution must have a Chemistry major
  - Additional faculty from PI’s institutions can be co-PIs
  - Any additional MSIs funded through sub-awards

• **Director of Center, Facility or Institute is non-co-PI Senior Personnel**
  - Not on cover sheet (no Partner Senior Personnel on cover sheet)

• MSI must have **50% or more students of groups underrepresented** among those holding advanced degrees in science and engineering fields
  - Blacks or African Americans, Hispanics or Latinos, American Indians, Alaska Natives, Native Hawaiians, and Other Pacific Islanders, and persons with disabilities

• Institutions of higher education that primarily serve populations of students with disabilities are also eligible

• Limits: 2 proposals/Partner; 1 proposal/MSI institution
FY22 PREC Partners

University of Minnesota

University of Wisconsin

Berkeley

C-GEM

University of Utah

University of Illinois at Urbana-Champaign

University of Chicago

Argonne National Lab

Virginia Tech

Duke University

Center for the Chemistry of Moleularly Optimized Networks

NSF's ChemMatCARS

UCHICAGO

MolSSI
PREC Pathway

• Vision for the partnership simultaneously promotes inclusiveness and research excellence

• Enhanced recruitment, retention, and degree attainment by members of groups that are historically excluded and under-served in chemistry

• Excellent research and education endeavors, that are enabled at MSIs and through collaborations that advance chemistry research goals

• Enhance both the quantity and quality of chemistry research and education opportunities

• Demonstrably lead to increased diversity in chemistry research

• Impact may be at undergraduate, graduate, postdoctoral and/or faculty levels

...Successfully promote inclusiveness and lead to equity and research excellence by increasing both diversity efforts and research output in chemistry research at all partnering institutions.
Track 1 vs. Track 2

• Track 1
  • Limited size and scope (1-2 MSI PIs)
  • Develop capacity in at least one segment of the PREC pathway within the duration of the award
  • $300,000/year for three years

• Track 2
  • More extensive team from one or more MSIs
  • Greater reliance on expanded research collaborations as well as education partnerships as mechanisms to support multiple components of the PREC pathway
  • $600,000/year for three years

• Ideally, Track 1 award positions team to apply for Track 2 upon renewal
  • Other options for continuation of projects: REU, RUI/ROA, HBCU-EiR, MRI, CHE DRP single-PI and/or collaborative submissions...
  • For either track: impact is measured relative to the starting point of the institutions involved
Successful PRECs Will...

• Engage in **compelling chemistry research**
  • Well-integrated research program with compelling intellectual merit
  • Clear benefits from a collaborative approach with *substantive intellectual engagement from all partners and well-defined research roles*

• **Promote increased diversity** in at least one segment of the recruitment, retention, degree-attaining (PREC) pathway
  • Through research, education, and/or training opportunities
  • Challenges and progress throughout the stages of the PREC pathway are anticipated and addressed

• Propose elements that will successfully **promote inclusiveness and lead to equity and research excellence**
  • *Increase both diversity efforts and research output at all partnering institutions*
  • Clearly define purpose, challenges, and expected outcomes towards increasing diversity and research output
Successful PRECs Will...

• Establish **faculty and student exchanges** as a core component

• PREC partners propose metrics with which the **activities in the partnership will be evaluated**
  
  • *Successful PRECs can be developed regardless of differences in starting research and capacity levels at the lead institution.*

• **Specify gains for each partner in impacts to the PREC pathway**
  
  • Emphasize *increase in diversity and research output as measured relative to the beginning of the award*
  
  • Expected outcomes and impacts will be different for Track 1 vs Track 2
Review Criteria – Solicitation Specific Criteria

• **Intellectual merit of the research and the potential impacts** of the research and education partnership for both the Lead Institution and the CHE-supported Partner center, institute or facility.

• Goals of the proposed partnership that enable the PREC pathway through increasing recruitment, retention, and degree-attainment by underrepresented minorities in chemistry.

• **Roles** of the MSI and the CHE-supported center, institute, or facility in the partnership.

• Student/faculty **exchange plan** between partners as well as student mentoring.

• Adequacy of **budget** to the proposed activities.

• For Track 2: **Assessment and evaluation** plans of the partnership.
Forming Partnerships

- NSF is leaving the specific process of selecting with whom to partner to the Partners to decide
  - Only 2-4 proposals with high impact on PREC pathway will be funded

- Lead/MSI institutions have already started contacting and discussing potential proposals with Partners
  - MSI PIs should contact potential Partner institutions as soon as possible
  - Be ready to discuss your view and ideas for a potential partnership
  - Be open to advice and feedback from Partners
  - Not all partners will follow the same process for selecting partnerships
  - Partners include selected NSF/CHE CCI Centers, NSF/CHE research Facilities, and NSF/CHE research Institutes – all are different, with different science, support staff, infrastructure, and partnership capabilities
Web pages/contacts

• Contacts **listed in the solicitation**:  
  
  • NSF Center for Sustainable Polymers [https://csp.umn.edu/](https://csp.umn.edu/), POC: Dr. Marc A. Hillmyer, email: hillmyer@umn.edu  
  • NSF Center for Sustainable Nanotechnology [https://susnano.wisc.edu/](https://susnano.wisc.edu/), POC: Dr. Robert Hamers, email: rjhamers@wisc.edu  
  • NSF Center for Genetically Encoded Materials [https://gem-net.net/](https://gem-net.net/), POC: Dr. Sarah Smaga, email: sarah.smaga@berkeley.edu  
  • NSF Center for Synthetic Organic Electrochemistry [https://cci.utah.edu/](https://cci.utah.edu/), POC: Dr. Shelley Minteer, email: minteer@chem.utah.edu.  
  • NSF Center for the Chemistry of Molecularly Optimized Networks [https://monet.duke.edu/](https://monet.duke.edu/), POC: Dr. Stephen Craig, email: monet-cci@duke.edu  
  • NSF Molecular Sciences Software Institute [https://molssi.org/](https://molssi.org/), POC: Dr. T. Daniel Crawford, email: crawdad@vt.edu  
  • NSF's ChemMatCARS [https://chemmatcars.uchicago.edu/](https://chemmatcars.uchicago.edu/), POC: Dr. Binhua Lin, email: blin@uchicago.edu  
  • NSF Molecule Maker Lab Institute [https://moleculemaker.org/](https://moleculemaker.org/), POC: Dr. Huimin Zhao, email: zhao5@illinois.edu
Upcoming NSF/CHE Office Hour:

• Please join NSF/CHE for a discussion centering around Broadening Participation, Diversity, Equity and Inclusion in the Chemistry Community

• Friday, October 29, 4pm Eastern time
  • https://nsf.zoomgov.com/j/1607222357?pwd=TGdqaUtWc056U0JTcVZJJ2VEV1VIdz09

• The CHE Division will host community discussion of the following two topics:
  A. What type of critical resources and structures are needed for both faculty and students so that they thrive in STEM at HBCUs, Minority Serving Institutions (MSIs) and under-resourced schools? What is inhibiting retention at all levels?
  B. What are some of the best practices that would increase retention of students from historically underrepresented groups in STEM at graduate schools?
PLEASE keep sending us your questions.
We are also glad to meet with MSI PIs, Partner organizations and/or PI+Partner teams individually.