

# 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>; contact Debasis Majumdar, [dmajumda@nsf.gov](mailto:dmajumda@nsf.gov)
  - See examples via NSF Advanced Awards Search: <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>; contact Kathleen McCloud, [kmcccloud@nsf.gov](mailto:kmcccloud@nsf.gov)
  - **Astronomy:** PAARE, Solicitation 13-566: <https://beta.nsf.gov/funding/opportunities/partnerships-astronomy-astrophysics-research-and-education-paare>; contact Hans Krimm, [hkrimm@nsf.gov](mailto: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



National  
Science  
Foundation

**University of Minnesota**



**University of Wisconsin**

The NSF Center for  
Sustainable Nanotechnology



Berkeley

**C-GEM**



Duke University

Center for the Chemistry of Molecularly Optimized Networks



**University of Utah**

Center For Synthetic Organic  
**ELECTROCHEMISTRY**

**University of Illinois at  
Urbana-Champaign**



MOLECULE  
MAKER LAB  
INSTITUTE



**University of Chicago  
Argonne National Lab**

**NSF's ChemMatCARS  
UCHICAGO**



**Virginia Tech**

**MOLLSSI**

# PREC Pathway

- Vision for the partnership simultaneously promotes inclusiveness and research excellence
- **Enhanced research** ...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.**
- **Excellent research** members of under-served in chemistry
- **MSIs and their** enabled at goals research
- **Enhance both** research and **education opportunities**
- **Demonstrably lead to increased diversity in chemistry research**
- **Impact may be at undergraduate, graduate, postdoctoral and/or faculty levels**

# 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/>, POC: Dr. Marc A. Hillmyer, email: [hillmyer@umn.edu](mailto:hillmyer@umn.edu)
- NSF Center for Sustainable Nanotechnology <https://susnano.wisc.edu/>, POC: Dr. Robert Hamers, email: [rjhamers@wisc.edu](mailto:rjhamers@wisc.edu)
- NSF Center for Genetically Encoded Materials <https://gem-net.net/>, POC: Dr. Sarah Smaga, email: [sarah.smaga@berkeley.edu](mailto:sarah.smaga@berkeley.edu)
- NSF Center for Synthetic Organic Electrochemistry <https://cci.utah.edu/>, POC: Dr. Shelley Minteer, email: [minteer@chem.utah.edu](mailto:minteer@chem.utah.edu).
- NSF Center for the Chemistry of Molecularly Optimized Networks <https://monet.duke.edu/>, POC: Dr. Stephen Craig, email: [monet-cci@duke.edu](mailto:monet-cci@duke.edu)
- NSF Molecular Sciences Software Institute <https://molssi.org/>, POC: Dr. T. Daniel Crawford, email: [crawdada@vt.edu](mailto:crawdada@vt.edu)
- NSF's ChemMatCARS <https://chemmatcars.uchicago.edu/>, POC: Dr. Binhua Lin, email: [blin@uchicago.edu](mailto:blin@uchicago.edu)
- NSF Molecule Maker Lab Institute <https://moleculemaker.org/>, POC: Dr. Huimin Zhao, email: [zhao5@illinois.edu](mailto: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=TGdqaUtWc056U0JTcVZJZ2VEV1Vldz09>
- 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.*

**QUESTIONS?**