

Overview of DEI Workforce Initiatives Efforts at NSF*

2023 NSAC Meeting



NSF/MPS/DMR
March 7th, 2023



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Mission of the National Science Foundation (NSF)

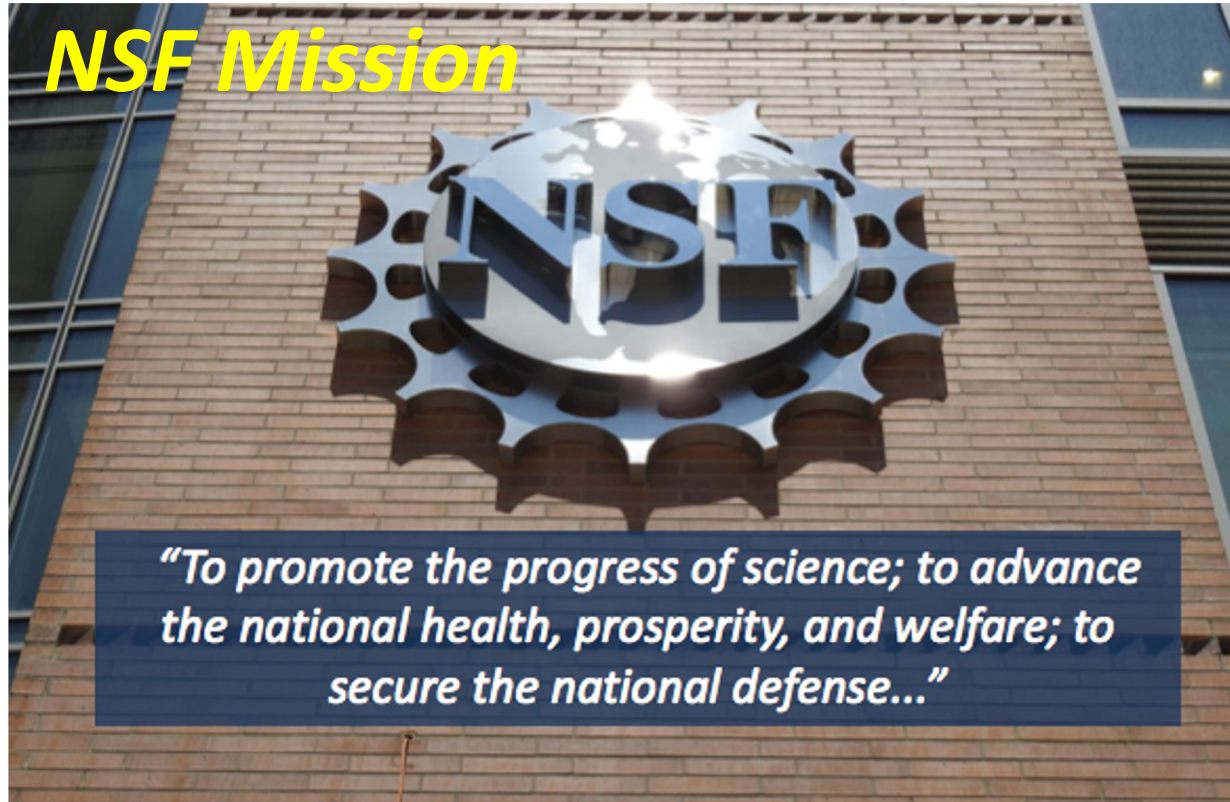


Photo Credit: Maria Barnes, NSF

Broadening participation investment is a **universal commitment across all NSF directorates** to “*advance the capability of the nation to meet current and future challenges.*”

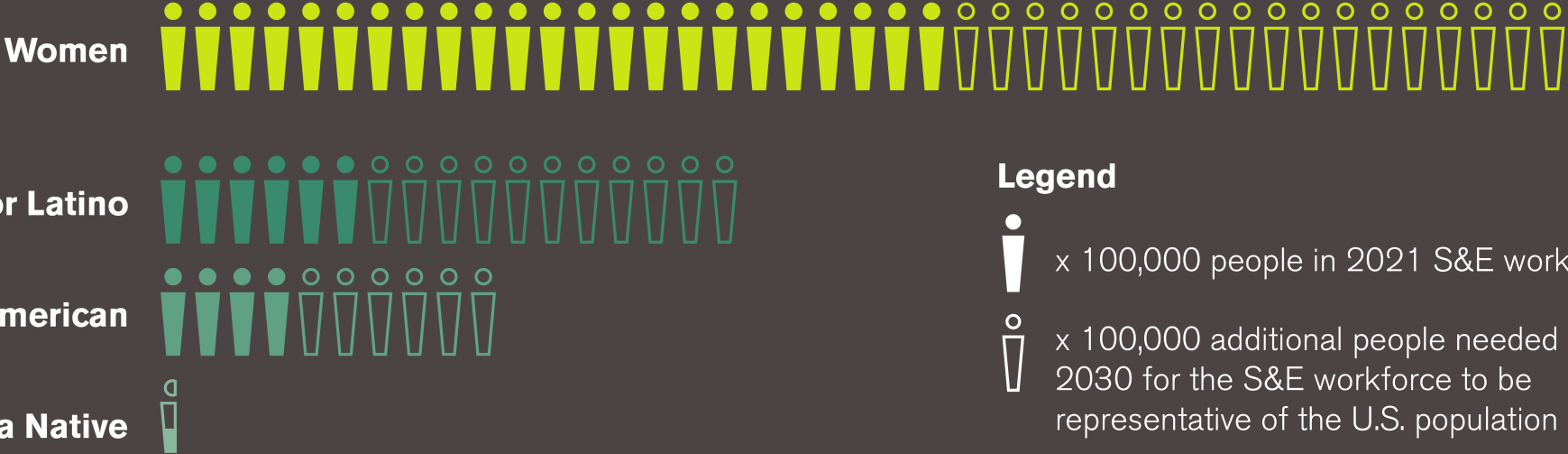
- **NSF Vision:** *A Nation that leads the world in science and engineering research and innovation, to the benefit of all, without barriers to participation.**

NSF Goals: Discovery, learning, research infrastructure and stewardship -- provide an integrated strategy to advance the frontiers of knowledge, cultivate a world-class, **broadly inclusive science and engineering workforce** and expand the **scientific literacy of all citizens**, build the nation's research capability through investments in advanced instrumentation and facilities, and support excellence in science and engineering research and education through a capable and responsive organization.

*NSF Strategic Plan for 2022 – 2026



Missing Millions: Faster Progress in Increasing Diversity Needed to Reduce Significant Talent Gap



While the number of people from under-represented groups in the S&E workforce has grown over the past decade, much faster increases will be needed for the S&E workforce to be representative of the U.S. population in 2030. To achieve that goal, the NSB estimates that the number of women must nearly double, Hispanic or Latinos must triple, Black or African Americans must more than double, and the number of American Indian or Alaska Native S&E workers needs to quadruple (from 15,000 to 60,000). The NSB estimates that the number of Native Hawaiian or Other Pacific Islanders will be slightly overrepresented in the S&E workforce in 2030.

These estimates are based on projections from the U.S. Census and Bureau of Labor Statistics, together with data from the 2021 Women, Minorities, and Persons with Disabilities in Science and Engineering report published by the National Center for Science and Engineering Statistics and assume that participation of these groups in the S&E workforce increases at current rates.



National Science Foundation (NSF)



NSF Director
Dr. Sethuraman Panchanathan
(Panch)



National Science Foundation
(NSF)

Office of Integrative
Activities (OIA)

*Coordinate Mid-scale
RI, MRI, STC, ...*

Directorates

Biological Sciences
(BIO)

Computer and
Information Science &
Engineering (CISE)

Education and
Human Resources
(EHR)

Engineering
(ENG)

Translation,
Innovation &
Partnership (TIP)

Geosciences
(GEO)

Mathematical and
Physical Sciences
(MPS)

Social, Behavioral
and Economic
Sciences (SBE)

Astronomical Sciences
(AST)

Chemistry
(CHE)

Materials Research
(DMR)

Mathematical Sciences
(DMS)

Physics.
(PHY)



MPS AD
DR. SEAN
JONES

How is NSF Broadening Participation?



“World-class science is shaped by a wide range of perspectives. Our nation needs every person who is interested in pursuing a STEM career to be able to do so.” — Dr. Sethuraman Panchanathan, Director of the U.S. National Science Foundation.

NSF’s commitment to broadening participation in STEM through Diversity Equity and Inclusion is imbedded in its **strategic plans through a variety of investment** priorities, including:

- Preparing a diverse, globally engaged science, technology, engineering, and mathematics workforce;
- Integrating research with education, and building capacity;
- Expanding efforts to broaden participation from underrepresented groups and diverse institutions across all geographical regions in all NSF activities;
- Improving processes to recruit and select highly qualified reviewers and panelists that reflect the Nation’s diversity.

How is NSF Broadening Participation?

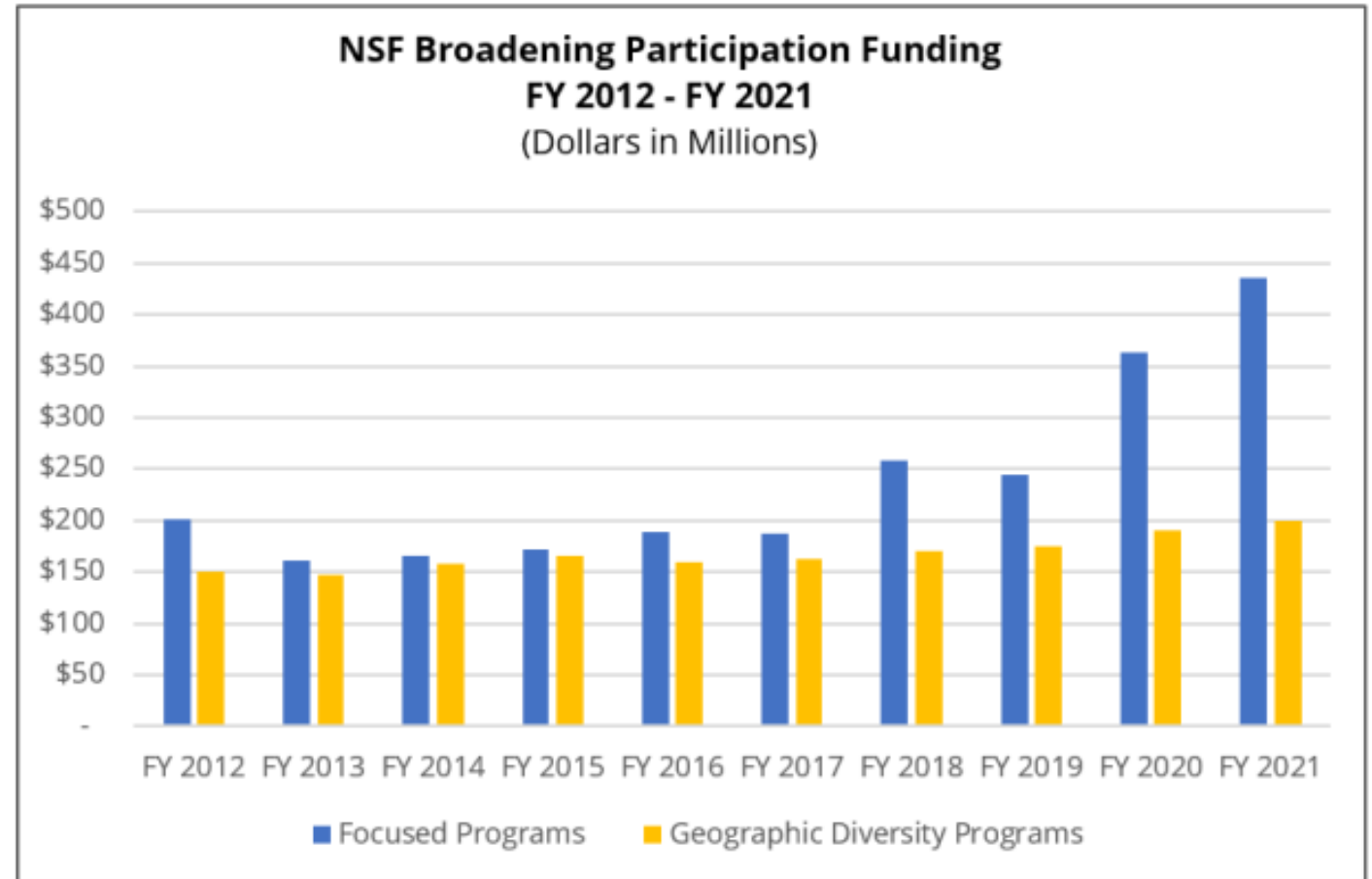


Focused programs have BP as an explicit goal

Emphasis programs have BP as one of several emphases, but not as explicitly.

- MSI
- At least 50% of its PIs from URG
- At least 50% of the students/postdoc reporting themselves as members URG

Geographic Diversity program
(EPSCoR)



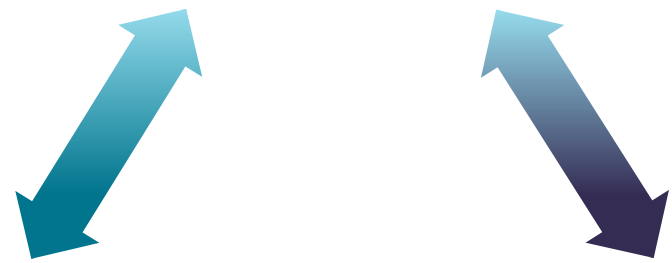
Funding over the last decade - Established Program to Stimulate Competitive Research (**EPSCoR**) – Geographic Diversity vs Focused Programs

NSF's Equity Ecosystem



Delivering on NSF's Mission

Broadening Participation
Funding Programs
Policies
Engagement and Outreach



Inclusive Practices
Executive Orders
Strategic Plans

Systemic Changes and Contributions

NSF Workforce – Care and Services

Programs
Services
Internal Policies



Directorate for Mathematical and Physical Sciences (MPS)



MPS AD
DR. SEAN JONES

DIRECTORATE FOR MATHEMATICAL AND PHYSICAL SCIENCES

Sean L. Jones, Assistant Director

Tie Luo, Deputy Assistant Director

MPS Mission: To harness the collective efforts of the mathematical and physical sciences communities to address the most compelling scientific questions, educate the future advanced high-tech workforce, and promote discoveries to meet the needs of the Nation.



Division of Astronomical Sciences (AST)

Debra Fischer, Division Director
James Neff, DDD



Division of Chemistry (CHE)

David Berkowitz, Division Director
Lin He, DDD



Division of Materials Research (DMR)

Germano Iannachonne, Division
Director
Alexios Klironomos, DDD



Division of Mathematical Sciences (DMS)

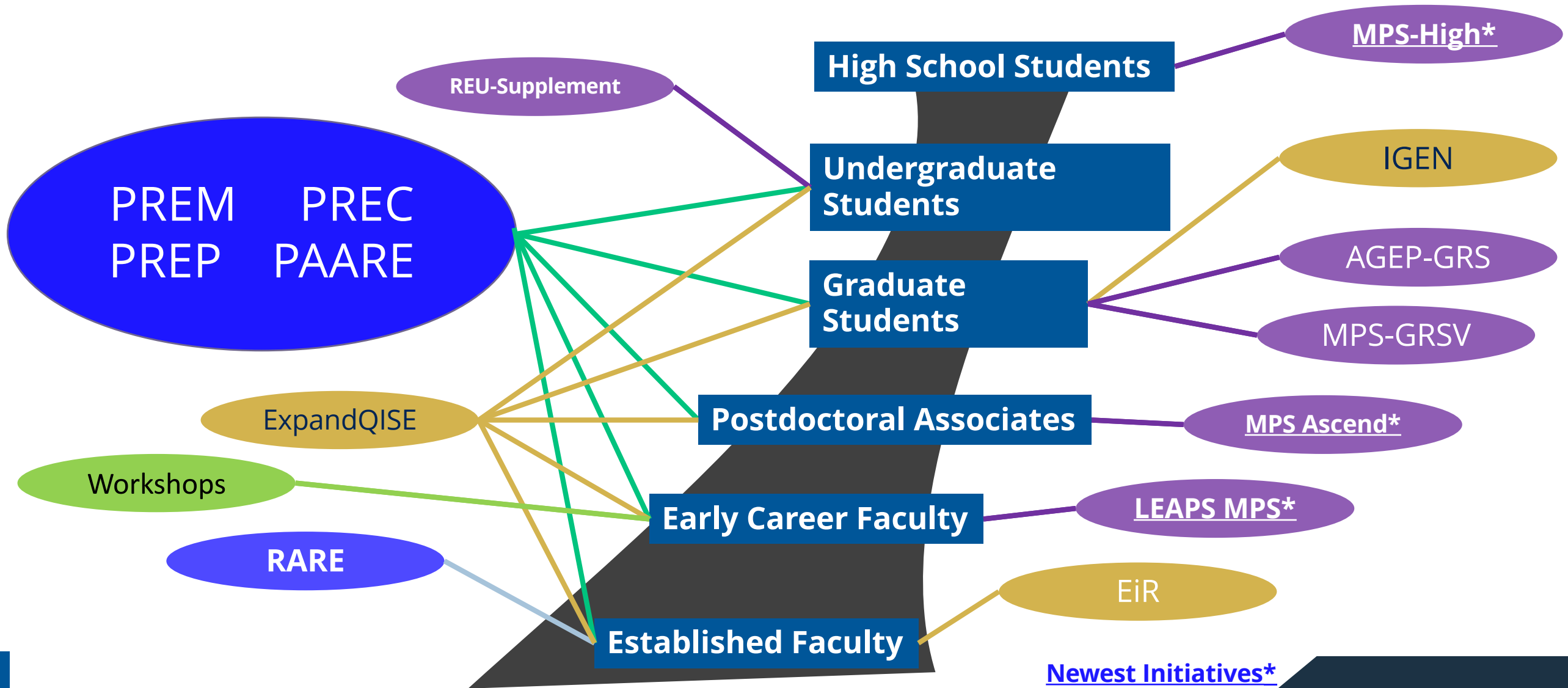
David Manderscheid, Division
Director
Junping Wang, DDD



Division of Physics (PHY)

Denise Caldwell, Division Director
Jean Cottam Allen, DDD

MPS invests in people throughout the STEM pathway via **DIV-specific, MPS-wide, NSF-wide, & partnership** activities



Partnerships for Research and Education in MPS

GOALS

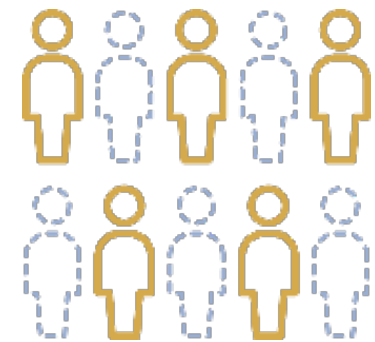
- **Increase recruitment, retention and degree attainment** by members of those groups most underrepresented in Mathematical and Physical Sciences research
- **Support excellent research and education endeavors** that strengthen such partnership
- **PREM, PREC, PREP, PAARE** (HBCU, HSI, AANAPSI, R2 Institutions)



Partnerships



**Expanding Geography
of Innovation**



Missing Millions

Partnerships for Research and Education in MPS

Over \$12.5 million invested total in FY22

PREP: Partnerships for Research and Education in Physics

- **Partners:** 11 Physics Frontiers Centers
- **Awards made:** 6 awards

Includes: 3 HSIs, 2 HBCUs, 1 AANAPSI, 3 R2 institutions

PREC: Partnerships for Research and Education in Chemistry

- **Partners:** 8 Centers for Chemical Innovation, Facilities, and Institutes
- **Awards made:** 3 awards

Includes: 2 HSIs, 1 AANAPSI, 1 R2 institution

PAARE: Partnerships in Astronomy & Astrophysics Research and Education

- **Awards made:** 11 awards

Includes: 5 HSIs, 3 AANAPSIs, 1 HBCU, 1 PBI, 4 R2 institutions

Launching Early-Career Academic Pathways in the Mathematical and Physical Sciences (LEAPS-MPS) FY22

A discussion of how activities will facilitate development of a subsequent research proposal.

A specific plan on broadening participation activities will increase (1) the participation of scientists from underrepresented groups and (2) the numbers of such individuals that serve as role models for the scientific workforce of the future.

LEAPS Impact Statement (3 pages): (1) impact on institutional research environment, (2) impact on career of PI and department's ability to prepare students to enter STEM careers, including provisions for increasing broader participation.

58 LEAPS- MPS Awards Made

LEAPS PI Meeting March 16-17, 2023



NSF 22-604 LEAPS-MPS, DEADLINE JAN. 26TH, 2023
WEBINAR NOV 14TH
ANTICIPATING 32-48 AWARDS

MPS Ascend Postdoctoral Fellows FY22

12 to 36 Months, \$100,000 per year

- A monthly stipend of \$5,833 (up to \$70,000 annually)
- An annual allowance of \$30,000 for:
 - a) expenses directly related to the conduct of the research and/or
 - b) support of fringe benefits, dependent care, and moving expenses.

31 MPS Ascend Awards Made

NSF 23-501 MPS-ASCEND: DEADLINE JAN. 25, 2023.

Anticipating 20-50 awards

Ascend External Mentoring Workshop : Nov 17, 2022





ExpandQISE

PURPOSE

TRACKS

FOCUS AREAS

Expanding Capacity in Quantum Information Science and Engineering ([NSF 22-561](#))

Next Deadlines:

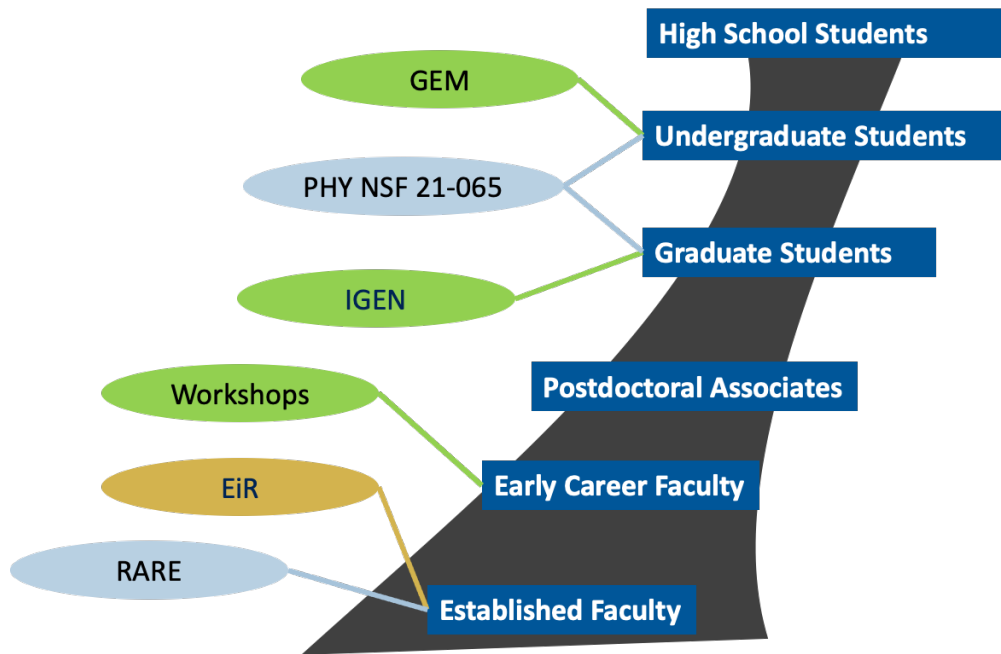
T1: 6/1/22 and 4/1/23 T1

T2: 2/3/23 Letter of Intent
Full Prop: 3/3/23 T2

Broaden participation of institutions contributing to QISE IHEs that in the last 5 calendar received **not more than \$5,000,000** from all federal funding sources for broad QISE research.

1. Individual PIs paired with an external co-PI. Up to **\$800,000** per award for up to **3 yrs.**
2. Small-to-medium teams of 2-5 collaborators, paired with one or more external co-PIs. Up to **\$5,000,000** per award for up to **5 yrs.**

- Quantum Fundamentals,
- Quantum Metrology and Control
- Co-Design and Quantum Systems
- Education and Workforce Development



[MPS main page](#), and Division pages, AST, CHE, DMR, DMS, PHY for specific details

- **RARE: CBET CHE: Re-entry to Active Research (NSF 20-586)** The primary objective of the RARE program is to catalyze the advancement along the academic tenure-track of highly meritorious individuals who are returning from a hiatus from active research.
- **PHY Dear Colleague Letter NSF 21-065, Growing a Strong, Diverse Workforce** Encourages REU supplements for undergrads and other supplements for grad students (not limited to AGEP eligibility).
- **HBCU- Excellence in Research (HBCU-EiR NSF 20-542)** Supports such capacity building by funding research projects aligned with NSF's research programs.

Other NSF/MPS Supported Programs:

- **IGEN** The Inclusive Graduate Education Network. Connects Black, Latinx, and indigenous students with Bridge programs.
- **GEM** National GEM Consortium. Fellowships for American Indian/Native, African American/Black, Hispanic/Latino students seeking MS or PhD degrees in STEM fields
- Early career faculty workshops, [Chemistry](#), [DMR](#), [MPS](#)

Multiple Training and Education Opportunities at NSF supported National Facilities



Growing Research Access for Nationally Transformative Equity and Diversity (Granted)



GRANTED, the newest initiative at NSF that focuses on:

- Reducing barriers in accessing resources to support competitive research and training programs and projects
- Developing and improving Research Enterprise functions, services and workforce
- Collaborations and partnerships across research and training communities, colleges, and universities, and professional societies with interest in a robust research enterprise
- Sharing and catalyzing solutions that lead to national transformation



Why GRANTED?

- Recognition of barriers to accessing resources in support of research and training programs and projects
- Focus on building and enhancing sustainable institutional resources in support of faculty and students pursuing research and training.
- Goals to increase proposals, participation in funding research and training from emerging research institutions, minority-serving institutions, HBCUs, community colleges, etc.
- Expansion of NSF to include greater resources on use-inspired research and products of research
- CHIPS and Science legislation alignment





Thank you for listening!

Questions?