



National Science Foundation – Nuclear Physics

DEIB Opportunities at NSF
Allena K. Opper
November, 2022



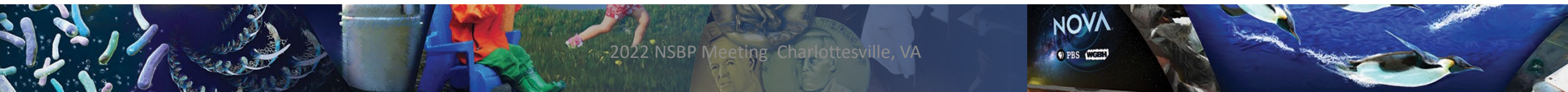


The Mission of NSF and Merit Review Criteria



Photo Credit: Maria Barnes, NSF

- Merit review criteria:
 - Intellectual Merit – the potential to advance knowledge
 - Broader Impacts – the potential to benefit society
- Broader Impacts \neq Broader Participation of URG in STEM



FY23 President's Budget Request = \$10,492M

Focused BP Programs: **NSF-wide & MPS Specific** = \$528M

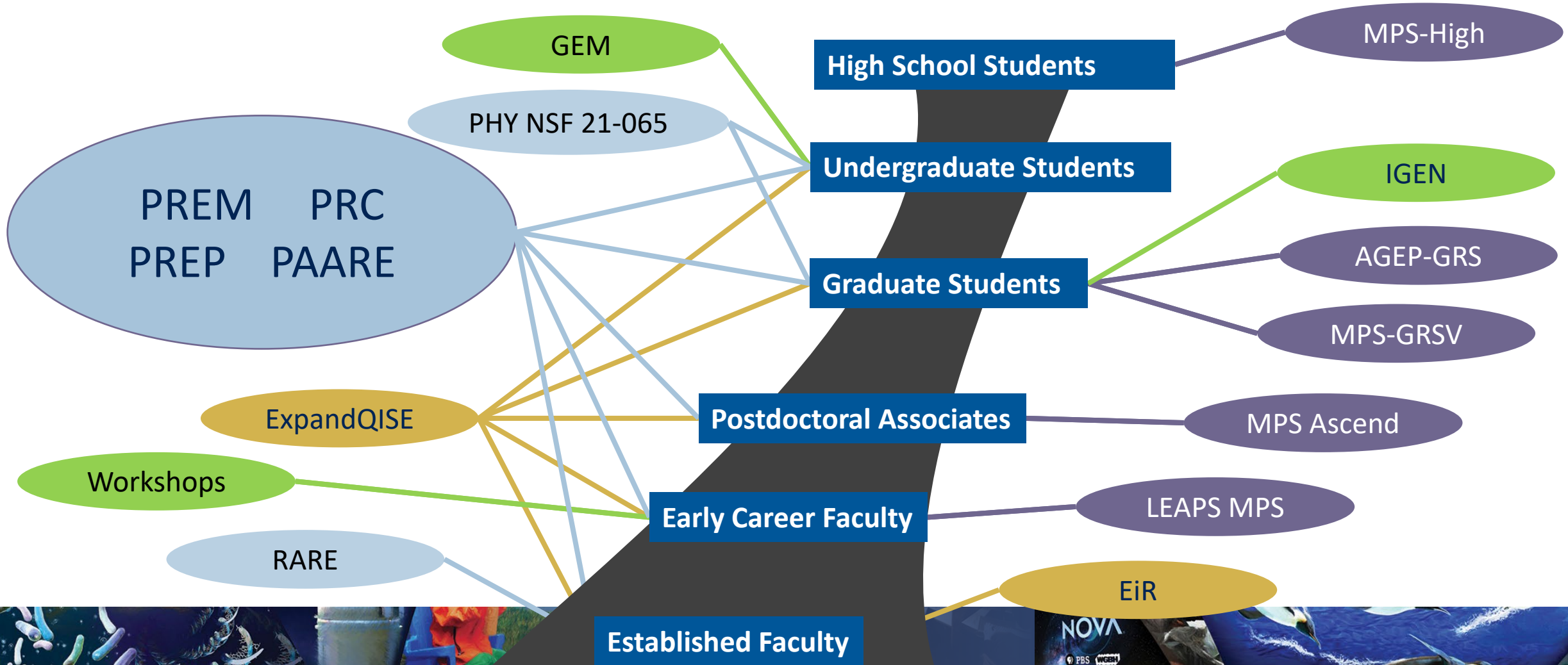


	FY 2021	2022	FY 2023	Delta (FY 2021 Actual)	
	(Dollars in Millions) Actual	(TBD)	Request	Amount	Percent
ADVANCE	\$18.13	-	\$20.50	\$2.37	13.1%
Alliances for Graduate Education & the Professoriate (AGEP)	8.00	-	14.00	6.00	75.0%
AGEP Graduate Research Supplements (AGEP-GRS)	8.20	-	4.64	-3.56	-43.4%
Centers of Research Excellence in Science & Tech. (CREST)	24.00	-	41.00	17.00	70.8%
Excellence Awards in Science & Engineering (EASE) ²	3.63	-	7.64	4.01	110.7%
Historically Black Colleges & Univ. Undergrad Program (HBCU-UP)	36.50	-	48.50	12.00	32.9%
HBCU Excellence in Research (HBCU-EiR)	21.25	-	37.93	16.68	78.5%
IUSE: Hispanic Serving Institutions (HSI) Program	46.50	-	60.50	14.00	30.1%
NSF INCLUDES	20.75	-	50.50	29.75	143.3%
Louis Stokes Alliances for Minority Participation (LSAMP)	49.51	-	70.50	20.99	42.4%
MPS Ascending Postdoctoral Research Fellowships (MPS-Acend)	9.26	-	20.00	10.74	115.9%
NSF Scholarships in STEM (S-STEM) ³	94.70	-	119.15	24.45	25.8%
Partnerships for Research & Ed. in Materials (PREM)	8.95	-	9.00	0.05	0.6%
Partnerships in Astronomy & Astrophysics Res. Ed. (PAARE)	-	-	1.50	1.50	N/A
Tribal Colleges & Universities Program (TCUP)	16.50	-	23.00	6.50	39.4%
Subtotal, Focused Programs: NSF-wide & MPS Specific	\$365.89	-	\$528.36	\$162.47	





MPS invests in people throughout the STEM pathway via DIV-specific, MPS-wide, NSF-wide, and partnership/funded activities





Inclusive Graduate Education Network

Professional Societies: The **American Physical Society**, the **American Chemical Society**, the **American Geophysical Union**, the **American Astronomical Society**, and the **Materials Research Society**

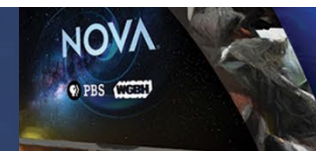
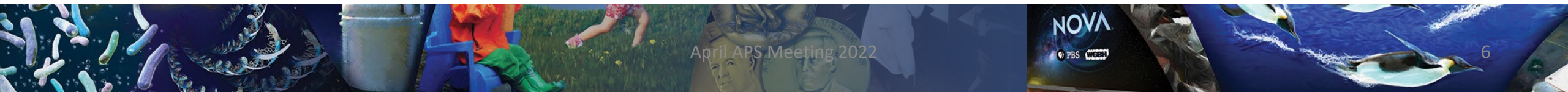
Other Major Players: CIMER, Rochester Institute of Technology, University of Southern California, WestEd

Bridge Program	Year 1	Year 2	Year 3	Total
APS (Since the inception of IGEN)	• 47 APS Bridge Students	• 53 APS Bridge Students	• 37 APS Bridge Students	• 137 APS Bridge Students
ACS	• 10 ACS Bridge Students	• 21 ACS Bridge Students	• 25 ACS Bridge Students	• 56 ACS Bridge Students
AGU	• 0 AGU Bridge Students	• 7 AGU Bridge Students	• 20 AGU Bridge Students	• 27 AGU Bridge Students
Total	• 57 IGEN Bridge Students	• 81 IGEN Bridge Students	• 83 IGEN Bridge Students	• 221 IGEN Bridge Students

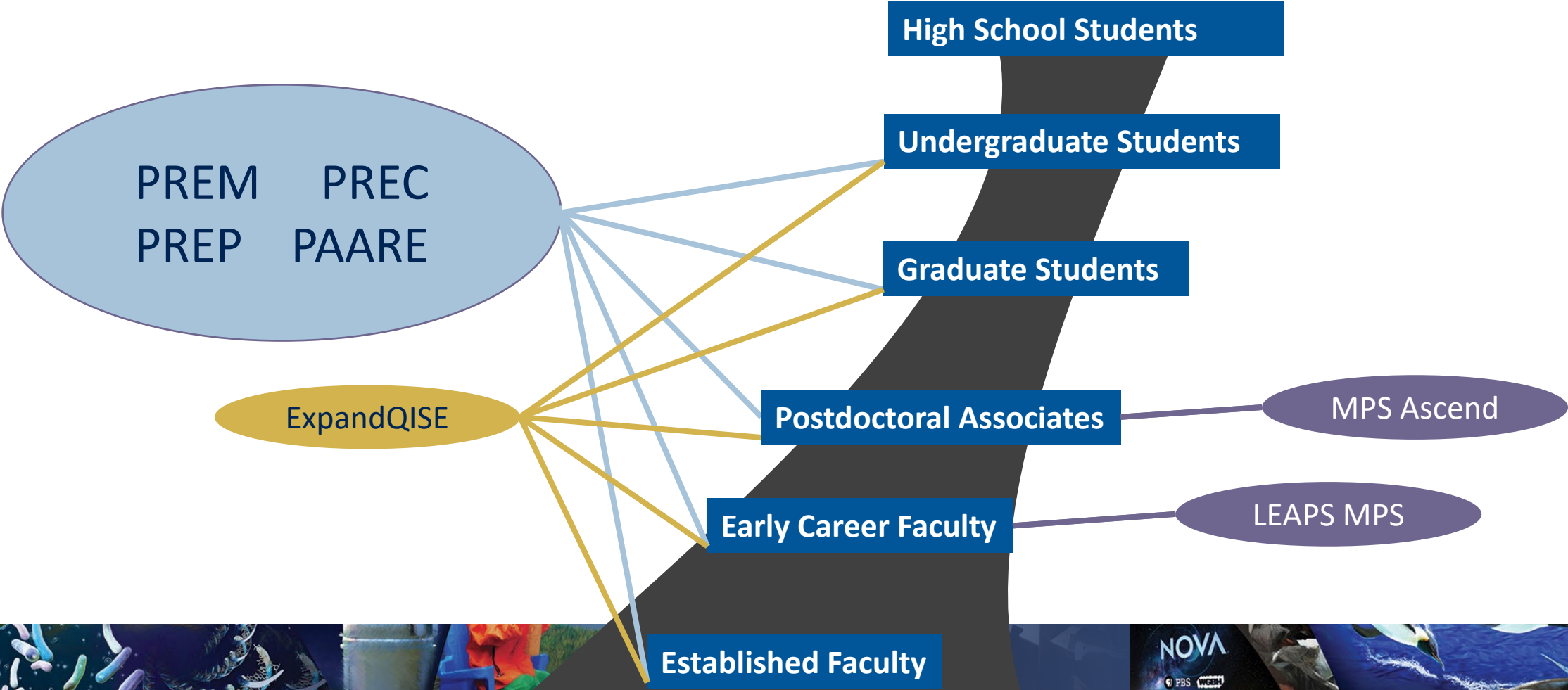
Main Goals:

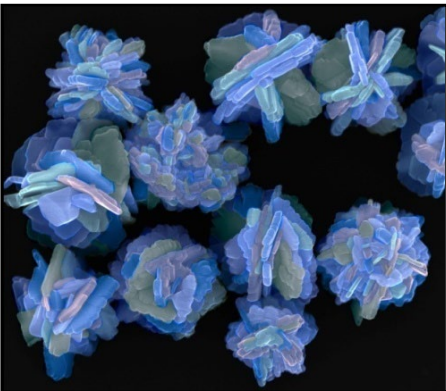
- catalyzing graduate enrollment through new application and holistic review processes
- supporting programs to create more inclusive graduate education environments
- improving the mentoring of students.

IGEN Bridge programs have supported 221 students (95% retention)



Full proposal/new opportunities centered on Broadening Participation for MPS Researchers

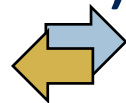




Partnerships for Research and Education in Materials (PREM)



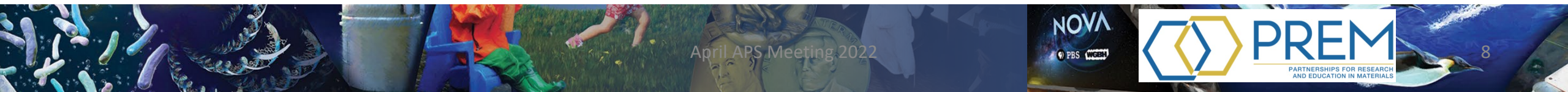
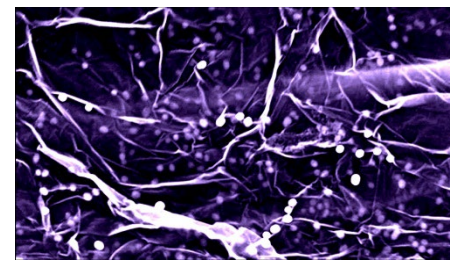
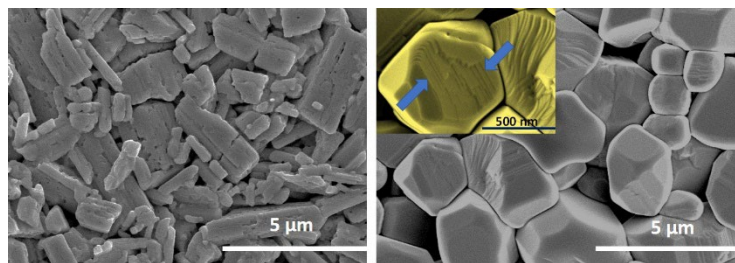
Minority-Serving Colleges & Universities



DMR-Supported Centers & Facilities

- Hispanic Serving/High Hispanic Enrollment Institutions (HSI/HHE)
- Historically Black Colleges and Universities (HBCUs)
- Minority Serving Institutions (MSI)
- Alaska Native Serving Institutions (ANSI)
- Native American-serving non-Tribal Institutions and Tribal Colleges and Universities (TCU)
- Native Hawaiian Serving Institutions (NHSI)

- Materials Research Science and Engineering Centers (MRSECs)
- DMR supported Science and Technology Centers (STCs)
- DMR supported Materials Innovation Platforms (MIP)
- National High Magnetic Field Laboratory (NHMFL)
- Cornell High Energy Synchrotron Source (CHESS)
- Center for High Resolution Neutron Scattering (CHRNS)



PREM in Numbers & Charts



☐ Since inception (2004) 7 competitions have been held (1 every 3 years)

Number of Awards: **46 Full + 12 Seed**

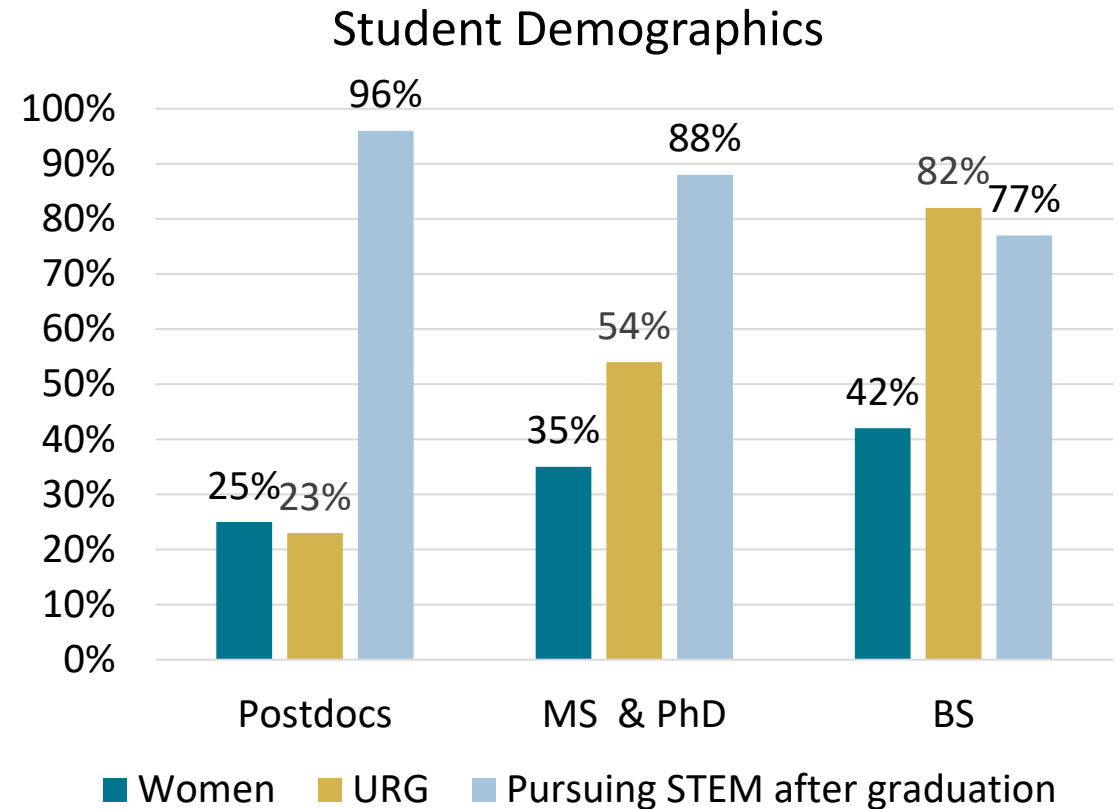
Postdocs trained: **133**

PhD and MS degrees awarded: **540**

BS degrees awarded: **1105**

Number of publications: **2405**

Number of presentations: **5407**



Partnerships for Research and Education in MPS

- PREP: Partnerships for Research and Education in Physics
- **Partners:** 11 Physics Frontiers Centers
- **Funding structure:** \$300,000/yr for 3 years
- **Anticipated awards:** 3-6 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
- **Funding structure:** *Track 1:* \$300,000/yr for 3 years; *Track 2:* \$600,000/yr for 3 years
- **Anticipated awards:** 2-4 awards

Includes: 2 HSIs, 1
AANAPSI, 1 R2 institution

- PAARE: Partnerships in Astronomy & Astrophysics Research and Education
- **Eligibility Changes:** Lead institution *not* required to be an MSI, collaborative proposals allowed
- **Funding structure:** Range of budgets
- **Anticipated awards:** 5-10 awards

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





MPS – ASCEND

ASCEND - Postdoctoral Research Fellowships NSF 23-501

- Goal: support Postdoctoral Fellows who **will broaden the participation of groups who are underrepresented in Mathematical and Physical Sciences (MPS) fields in the U.S.**
- Prepare PD Fellows to transition from a postdoctoral position into the first few years of an academic faculty position
- Fellowships **to individuals**, not institutions
- \$100k/year for up to 3 years
- **Due date: January 25, 2023**





MPS – LEAPS

Launching Early-Career Academic Pathways in MPS NSF 22-604

- Designed to launch research careers of pre-tenure faculty in MPS fields, emphasis on *minority-serving institutions (MSIs)*, *predominantly undergraduate institutions (PUIs)*, and *Carnegie Research 2 (R2) universities* while promoting the participation of the entire MPS scientific community
- Awards = 24 months, up to \$250k





MPS Junior Investigator Workshop

Goals:

1. provide prospective Principal Investigators with valuable information and advice on the policies, procedures, and opportunities available at NSF,
2. train a pool of future reviewers and encourage volunteering to review as a way to learn about NSF process.

New researchers, assistant professors, and exceptional postdocs considering academic career are encouraged to apply.

In addition to informational presentations on various topics relevant to the future PI's, each participant will write a mock proposal in advance and will go through full panel review processes in breakout sessions.

Participant Support Available!

- Hotel room for up to 3 nights
- Coffee breaks & most meals
- Networking reception
- Travel reimbursement up to \$200

June 2023 in Alexandria, VA

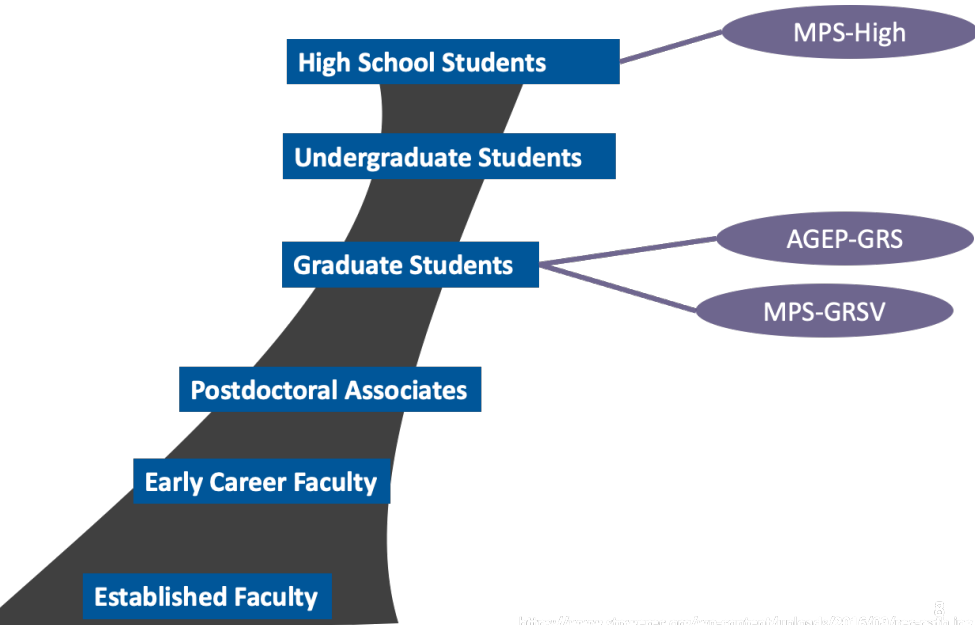




Targeted Support through Supplements to Existing MPS Awards



Supplements for Student Support on MPS Awards



High School Student Research Assistantships (MPS-HIGH): Support for up to **two high school students** (DCL: [NSF 22-041](#)) to foster interested in pursuing studies in MPS and to broaden participation with an emphasis on those traditionally underrepresented and underserved.

AGEP: Alliances for Graduate Education and the Professoriate -Support for **one additional Ph.D. student per award** with *an emphasis* on increasing the involvement of members of underrepresented groups -- a key goal of the AGEP Program. The PI must be affiliated with an institution participating in an active AGEP project or a legacy **AGEP institution** (DCL: [NSF 20-083](#)).

Veterans (MPS-GRSV): Support for one additional Ph.D. student per award for students that are **United States Veterans** (DCL: [NSF 20-097](#)).

MPS High: <https://www.nsf.gov/pubs/2022/nsf22041/nsf22041.jsp>

AGEP: <https://www.nsf.gov/pubs/2020/nsf20083/nsf20083.jsp>

MPS GRSV: <https://www.nsf.gov/pubs/2020/nsf20097/nsf20097.jsp>





PHY DCL: Growing a Strong, Diverse Workforce NSF 21-065

PHY-GR Supplements – emphasis on URM's in STEM fields

- Graduate Student Eligibility
 - Not currently supported by federal government (NSF, DOE, NIH, ...)
 - US Citizen, US National, or US Permanent Resident
- Stipend, tuition, benefits, and IDC (~\$60k)
- Renewable up to two times, no deadline for submission however, early submission suggested

REU Supplements – emphasis on URM's in STEM fields

- US Citizen, US National, or US Permanent Resident





Thank You!

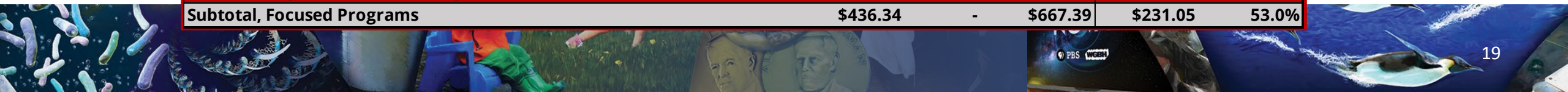
Questions?

FY23 President's Budget Request = \$10,492M

Focused Programs to Broaden Participation = \$667M



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AGEP Graduate Research Supplements (AGEP-GRS)	8.20	-	4.64	-3.56	-43.4%
Broadening Participation in Biology Fellowships	4.70	-	10.50	5.80	123.4%
Broadening Participation in Engineering (BPE)	6.55	-	9.00	2.45	37.4%
Career-Life Balance (CLB) ¹	2.03	-	0.28	-1.75	-86.2%
Centers of Research Excellence in Science & Tech. (CREST)	24.00	-	41.00	17.00	70.8%
CISE Education and Workforce	13.65	-	12.75	-0.90	-6.6%
CISE-MSI Research Expansion Program	-	-	7.00	7.00	N/A
Coastlines and People (CoPe)	32.59	-	28.00	-4.59	-14.1%
Disability and Rehabilitation Engineering (DARE)	-	-	6.00	6.00	N/A
Excellence Awards in Science & Engineering (EASE) ²	3.63	-	7.64	4.01	110.7%
Growing Resrch Access for Nationally Transformative Equity & Diversity	-	-	50.00	50.00	N/A
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Partnerships in Astronomy & Astrophysics Res. Ed. (PAARE)	-	-	1.50	1.50	N/A
SBE Build and Broaden	6.30	-	8.00	1.70	27.0%
SBE Postdoctoral Res. Fellowships-Broadening Participation (SPRF-BP)	3.13	-	6.00	2.87	91.5%
Science of Broadening Participation	1.50	-	1.50	-	-
Tribal Colleges & Universities Program (TCUP)	16.50	-	23.00	6.50	39.4%
Subtotal, Focused Programs	\$436.34	-	\$667.39	\$231.05	53.0%



Path to INCLUDES – IGEN (Inclusive Graduate Education Network) Fisk Vanderbilt Bridge Program



Keivan Stassun; Vanderbilt University

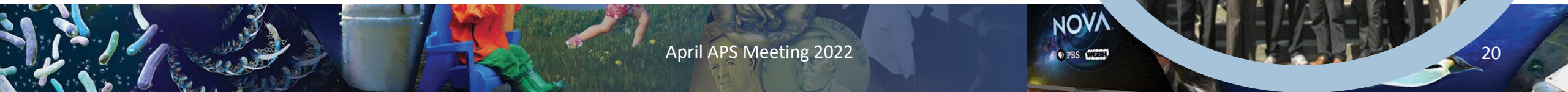
CAREER: Order-of-Magnitude Problems in Star Formation and Minority Representation
Vanderbilt University (Award AST – 0349075) **2003**

Goal 3: Train a cadre of minority undergraduate and Masters-level students for PhD study in astronomy and astrophysics: 4. Prepare graduate students for their future roles integrating research and education. This ambitious plan will be made possible by working in partnership with nearby Fisk University, an Historically Black University.” (Abstract)

Now:

Vanderbilt: ~3-5 PhDs a year

Fisk: #1 producer of Black Americans with
Master’s degrees

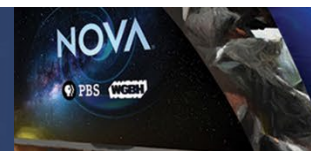
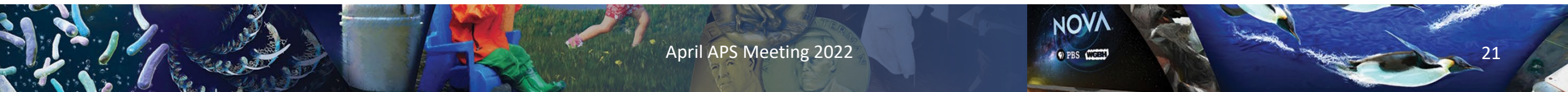


Alliances for Graduate Education and the Professoriate (AGEP) – increase the number of historically URM faculty in STEM disciplines by advancing knowledge about pathways to career success.

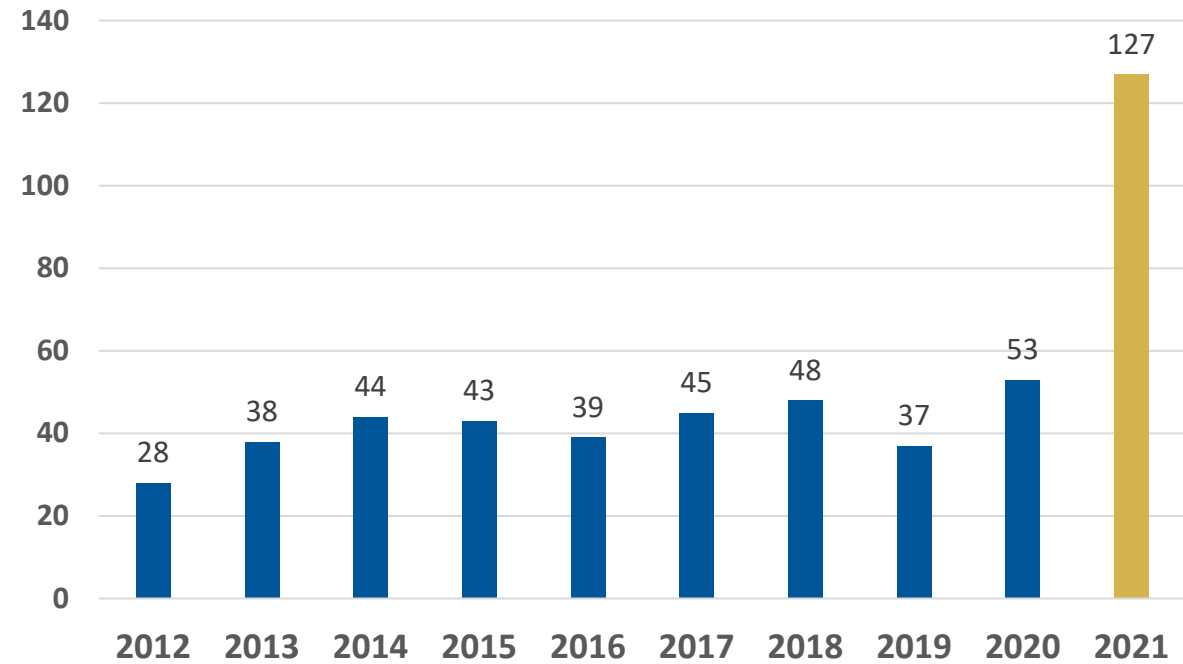


AGEP-GR Supplements to MPS awards NSF 20-083

- A mechanism by which current MPS PI supports one (additional) Ph.D. student in an ongoing MPS-funded research project.
- Available to PIs at AGEP or AGEP Legacy Institutions
 - https://www.nsf.gov/mps/broadening_participation/index.jsp
- Graduate Student Eligibility
 - Emphasis placed on under-represented groups in STEM fields
 - Not currently supported by federal government (NSF, DOE, NIH, ...)
 - US Citizen, US National, or US Permanent Resident
- Stipend, tuition, benefits, and IDC (~\$60k)
- Renewable up to two times, no deadline for submission



MPS AGEP Awards per fiscal year



MPS AGEP Graduate Research Supplements



- Collaboration between the NSF Alliances for Graduate Education and the Professoriate (AGEP) program in the Education and Human Resources (EHR) Directorate and the Directorate of Mathematics and Physical Sciences (MPS).
- **PIs requesting a supplement must be either at or collaborating with faculty at an institution that has received an EHR AGEP award.**
- Supplement for a **current MPS research** awardee for one (additional) Ph.D.
 - **Improve diversity and retention** at the doctoral level within the mathematical and physical sciences.
- MPS supported **206** students through AGEP-GRS supplements from FY2012 -2020. In 2021, we supported **127** (5 to Nuclear Physics Grad Students).





News Release 18-082

NSF announces new measures to protect research community from harassment

September 19, 2018

Without consequences for violating a code of conduct, the code may not be very useful.

New term and condition "Notification Requirements Regarding Findings of Sexual Harassment, Other Forms of Harassment, or Sexual Assault" requires awardee organizations to notify NSF of:

- Any findings or determinations that an NSF-funded principal investigator or co-principal investigator committed harassment, including sexual harassment or sexual assault.
- The placement of the principal investigator or co-principal investigator on administrative leave, or of the imposition of any administrative action relating to a harassment or sexual assault finding or investigation.
- *NSF will consult with the awardee organization, and determine what action is necessary under NSF's authority. NSF actions may include substituting or removing principal investigators or co-principal investigators, reducing award funding, and – where neither of those options is available or adequate – suspending or terminating awards.*

Effective October 22, 2018, new awards and funding amendments

https://www.nsf.gov/news/news_summ.jsp?cntn_id=296610

