



# News from NSF Physics

C. Denise Caldwell

Division Director, Division of Physics

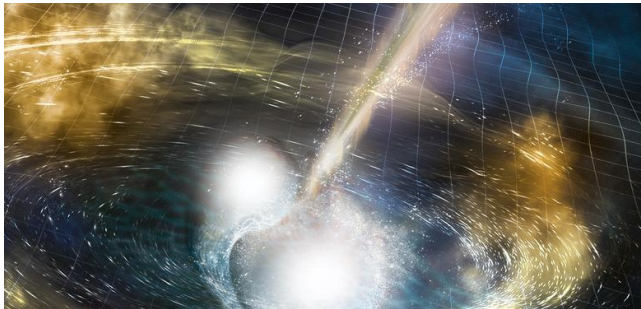
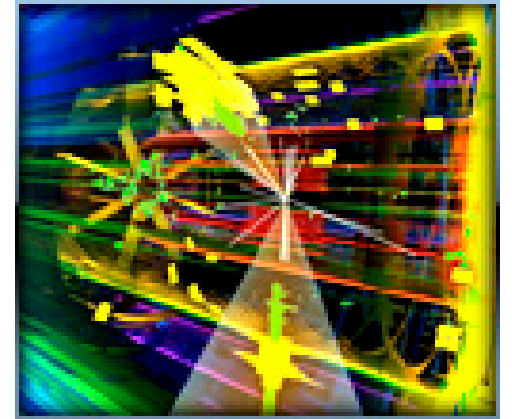
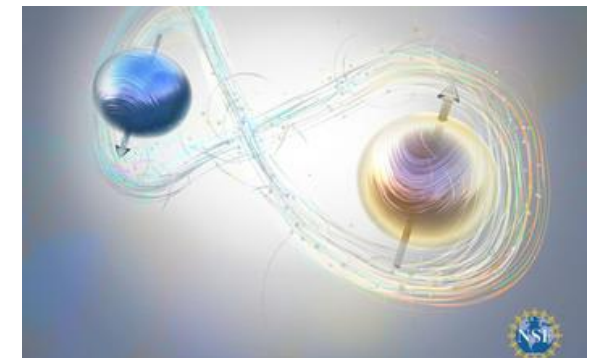
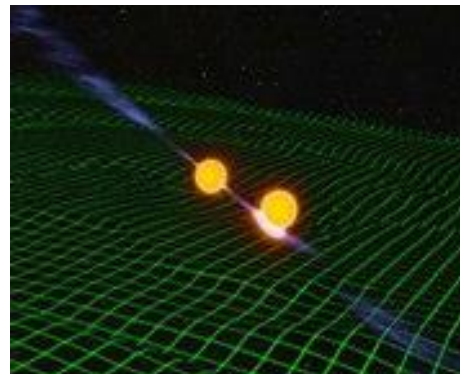
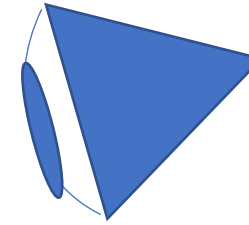


Image credit: NSF/LIGO/Sonoma State University/A. Simonnet





## NSF/PHY Budget Status



FY 2021 Actual  
FY 2022 Appropriation  
FY 2022 Current Plan  
FY 2023 Request

Not Yet Released  
Not Yet Voted On – Under CR  
Needs Appropriation  
Under Development



# Current and Future

New in QIS:

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

Diversity and Inclusion (PHY only):

PHY-GRS: PHY Graduate Research Supplements DCL [NSF 21-065](#) **Continuous**

PREP: Partnerships for Research and Education in Physics (PFC Collaborations) Watch for revised

Diversity and Inclusion (MPS wide):

AGEP Supplements – MPS AGEP-GRS [NSF 20-083](#) **Continuous**

MPS-ASCEND – MPS Ascending Postdoctoral Research Fellowships [NSF 22-501](#)

LEAPS-MPS - Launching Early-Career Academic Pathways in the Mathematical and Physical Sciences [NSF 22-503](#)

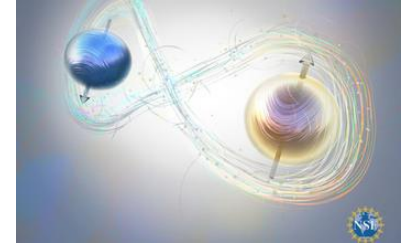
Upcoming Physics Frontiers Centers FY 2023 Competition – Watch for new posting of **NSF 19-578**

Position Available: Program Director for Physics Frontiers Centers – Closes 3/21/2022

<https://beta.nsf.gov/careers/openings/mps/phy/phy-2022-0001>



# Expanding Capacity in Quantum Information Science and Engineering



## GOALS:

Enable institutions not currently engaged in QISE research to establish a program

Build up faculty at the institution to engage in the National research effort

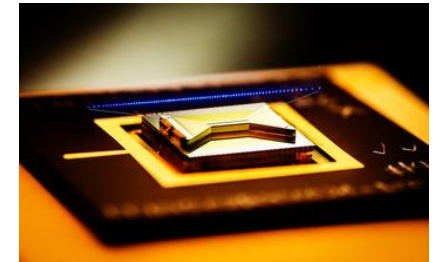
Recruit diverse workforce to implement National investment

## APPROACH:

Build off connections to existing NSF QISE centers

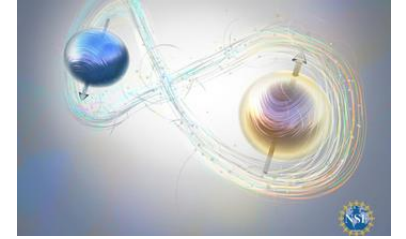
Provide resources to enable establishing an in-house program that will attract students

Build in focus on diversity as key component of the investment





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



## Two Tracks:

Track 1: Institutions with minimal current focus on research

Target individual PIs initiating planning for research program

Provide opportunity for institution to establish research-support infrastructure if needed

Support engagement with existing centers to build up expertise

Track 2: Institutions with strong research activity but no substantial investment in QISE

Target faculty heavily engaged in research but not in QISE

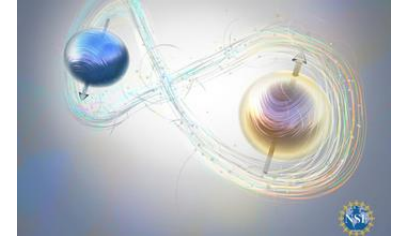
Focus on small teams of 2-3 investigators to build strong competitive program

Provide larger-scale resources to enable development of competitive research program in QISE

Support engagement with existing centers to build up expertise and get quick access to infrastructure



# Expanding Capacity in Quantum Information Science and Engineering



## Proposed Award Sizes:

Track 1: Up to \$800,000 per award for up to three years

Track 2: Up to \$5M per award for up to five years

## Requirements:

Institution must commit to developing faculty (Faculty Development Plan)

Institution must make commitment to sustaining research area (Sustainability Plan)

Only one award to primary institution, i.e. no collaborative awards



# Diversity and Inclusion

## Updated Physics Division Diversity Plan and Activities

### [US NSF - MPS - PHY - Broadening Participation Resources](#)

Links provide a sampling of information that may help Principal Investigators and others in broadening participation in their activities. The list is not meant to be exhaustive or to imply any special endorsement by PHY (or NSF).

#### [PHY-GRS:](#)

[NSF 21065 Dear Colleague Letter: PHY Supplements: Growing a Strong, Diverse Workforce | NSF - National Science Foundation](#)

Encourages meaningful actions that increase the awareness and participation by historically underrepresented groups in all fields of research supported by the Division of Physics.

**Division also participates in MPS-wide AGEP, LEAPS and ASCEND programs**



## Mathematical and Physical Sciences Ascending Postdoctoral Research Fellowships – MPS-Ascend (NSF 22-501)

- Purpose: To support postdoctoral Fellows who will broaden the participation of groups that are significantly underrepresented in MPS fields in the U.S., enabling them to develop as future leaders in science.
- Intent: To recognize and support beginning investigators of significant potential in research experiences that will broaden perspectives, facilitate interdisciplinary interactions, and help broaden participation within MPS fields.
- Awards will support research in any scientific area within the purview of the five MPS Divisions: the Divisions of Astronomical Sciences (AST), Chemistry (CHE), Materials Research (DMR), Mathematical Sciences (DMS), and Physics (PHY).
  - Fellowships are awards to individuals, not institutions, and are administered by the Fellows.
- Eligibility: US citizen or permanent resident; must have PhD before the start of the postdoctoral tenure (max 6 months after notification of the award) –see solicitation for details





# Launching Early-Career Academic Pathways in the Mathematical and Physical Sciences – LEAPS-MPS (NSF 22-503)

- Emphasis: helping to launch the careers of **pre-tenure faculty** in Mathematical and Physical Sciences (MPS) fields at **minority-serving institutions (MSIs)**, **predominantly undergraduate institutions (PUIs)**, and **Carnegie Research 2 (R2) universities**,
- Intent: initiating viable independent research programs for researchers attempting to launch their research careers in MPS supported fields.
- Goal: achieving excellence through diversity and broadening participation to include members from groups underrepresented in the Mathematical and Physical Sciences, including Blacks and African Americans, Hispanics, Native Americans, Alaska Natives, and Native Hawaiians, and other Pacific Islanders.
- Eligibility: US citizens or permanent residents; no past NSF research support (PI, co-PI, or senior personnel) – see solicitation for details



# Partnerships for Research and Education in Physics (PREP)



[The Center for Matter at Atomic Pressures \(CMAP\)](#)  
*University of Rochester*



North American Nanohertz Observatory for Gravitational Waves  
*University of Wisconsin - Milwaukee*



Center for the Physics of Biological Function

*Princeton University*



JILA Physics Frontiers Center  
*University of Colorado, NIST*



[Center for Theoretical Biological Physics](#)  
*Rice University*



Center for Ultracold Atoms  
*Massachusetts Institute of Technology*



[Institute for Quantum Information and Matter](#)  
*California Institute of Technology*



[The Network in Neutrinos, Nuclear Astrophysics and Symmetries](#)  
*University of California Berkeley*

## Goals:

- Enable and grow partnerships between minority-serving institutions and Division-supported Physics Frontiers Centers
- Increase the participation of members of underrepresented groups in physics through excellent research and education endeavors
- Full intellectual engagement on both sides

## Status:

- Solicitation 21-610 (Updated annually)
- Applications are under review