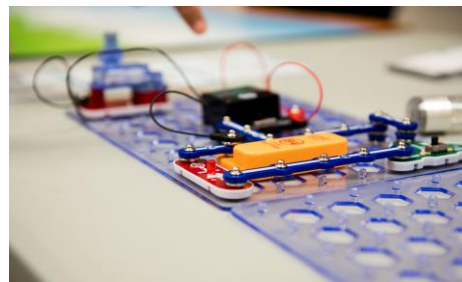# DOE Office of Science New MSI Initiatives

Dr. Julie Carruthers

Acting Director, Office of Scientific Workforce Diversity, Equity, and Inclusion
Senior Science and Technology Advisor, Office of the Principal Deputy Director
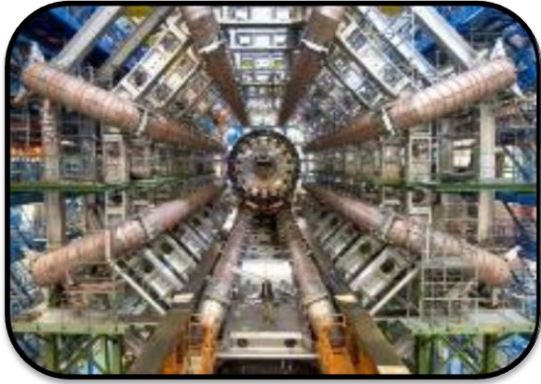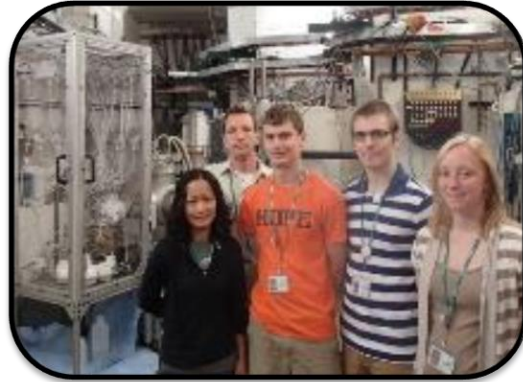*DOE Office of Science*

DOE Office of Science At-a-Glance - $7.5 Billion FY 2022

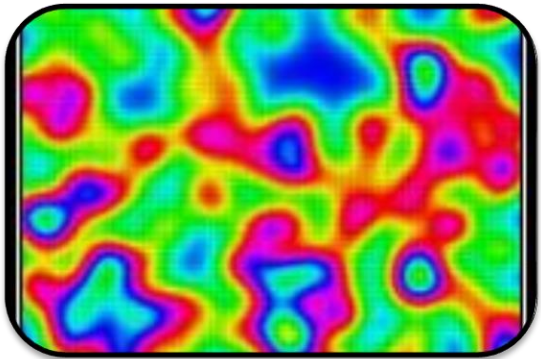Largest Supporter of Physical Sciences in the U.S.

Nearly 29,000 Researchers Supported

Funding at >300 Institutions, including 17 DOE Labs

Nearly 34,000 Users of 28 SC Scientific Facilities

Research: ~43%

~35% of Research to Colleges & Universities

Facility Operations: 34%

Projects/Other: ~23%

SC Scientific User Facilities

https://science.osti.gov/User-Facilities

28 scientific user facilities
>34,000 users

OLCF | ALCF | NERSC | ESnet | EMSL

ARM | JGI | SNS | HFIR | ALS | APS

LCLS | NSLS-II | SSRL | CFN | CINT | CNM

CNMS | TMF | DIII-D | NSTX-U | FACET | ATF

Fermilab AC | CEBAF | ATLAS | RHIC | FRIB

U.S. DEPARTMENT OF **ENERGY**
Office of Science
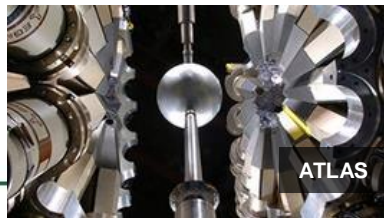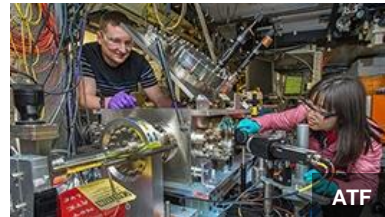
Office of Science's Research Program Offices

Advanced Scientific Computing Research	• Delivering world-leading computational and networking capabilities to extend the frontiers of science and technology
Basic Energy Sciences	• Understanding, predicting, and ultimately controlling matter and energy flow at the electronic, atomic, and molecular levels
Biological and Environmental Research	• Understanding complex biological, earth, and environmental systems
Fusion Energy Sciences	• Building the scientific foundations for a fusion energy source
High Energy Physics	• Understanding how the universe works at its most fundamental level
Nuclear Physics	• Discovering, exploring, and understanding all forms of nuclear matter
Isotope R&D and Production	• Supporting National Preparedness for isotope production and distribution
Accelerator R&D and Production	• Supporting new technologies for use in SC's scientific facilities and in commercial products

SC Funding Opportunity Announcements

The Office of Science supports research through open competition and merit review.

- Funding Opportunity Announcements (FOAs) provide:
    - A technical description of the type of work to be funded
    - Information about the type, size, number, and duration of awards expected
    - Eligibility criteria; instructions for submission of letters of intent (if required), preapplications or prepoposals (if required), and applications or proposals; due dates and times
    - Application review and selection information, including merit review criteria
    - SC points of contact for technical or administrative questions

- The *Continuation of Solicitation for SC Financial Assistance Program Solicitation* is open all year.
    - Includes technical research topics that span all SC program areas
    - PIs are encouraged to discuss proposal ideas with topic area program managers before submitting a proposal.

Reaching a New Energy Sciences Workforce (RENEW)

> **Building foundations through undergraduate and graduate training opportunities for students and institutions historically underrepresented in the SC research portfolio**

- RENEW aims to build foundations for Office of Science (SC) research and training at institutions historically underrepresented in the SC research portfolio; and expands pathways and opportunities for STEM training for students not currently well represented in the U.S. science and technology (S&T) ecosystem.

- RENEW leverages DOE's national laboratories, SC's unique user facilities, and other research infrastructures to provide undergraduate and graduate training opportunities.

- The hands-on experiences gained through the RENEW initiative will open new career avenues for the participants, forming a nucleus for a future pool of talented young scientists, engineers, and technicians with the critical skills and expertise needed for the full breadth of SC research activities.

Reaching a New Energy Sciences Workforce (RENEW)

Building foundations through undergraduate and graduate training opportunities for students and institutions historically underrepresented in the SC research portfolio

- SC conducted outreach and listening sessions in 2021 on barriers to participation in SC opportunities to inform FY 2022 FOAs

- FY 2022 FOAs are piloting models of support that directly address barriers to participation in SC supported fields of research; models will be evaluated.

- FY 2023 doubles investment and commitment to advance discovery and innovation by increasing the diversity of individuals and institutions supported

FY 2022 RENEW FOAs — Announced May 25, 2022

SC Program Office	Scientific/Technical Focus Areas	Eligibility (lead/partnering)
Advanced Scientific Computing Research (ASCR)	Quantum Computing and Quantum Networking	Open to all Institutions; Multi-institution teams; emphasis on underrepresented institutions
Biological and Environmental Research (BER)	Earth and Environmental Systems Science	Open to all Institutions; emphasis on underrepresented institutions
Basic Energy Sciences (BES	Basic and Fundamental Science to Enable Clean Energy; Basic and Fundamental Science to Transform Low-Carbon Manufacturing	Minority Serving Institutions (MSIs) and non-R1 institutions
DOE Isotope Program (DOE IP)	Isotope R&D and Production	MSIs
Fusion Energy Sciences (FES)	Fusion Energy Sciences Research Topics	Multi-institutional teams that must include an MSI or a non-R1 institution
High Energy Physics (HEP)	High Energy Physics Research Topics	Open to all Institutions; emphasis on underrepresented institutions

Office of Workforce Development for Teachers and Scientists

SC's WDTS supports over 1,400 research opportunities for undergraduates, graduate students, and faculty at DOE National Laboratories each year.

WDTS RENEW Efforts:

- Significantly expand outreach to students and faculty from Minority Serving Institutions (MSIs), Community Colleges, and underrepresented groups.

- Develop new pathways for students and faculty from non-R1 MSIs and Community Colleges, and individuals from underrepresented groups into STEM training programs. Including pathways through technical summer schools for high school and early undergraduate students, and extended engagement of faculty in research collaborations with DOE national labs.

- Support the assessment and evaluation for the SC RENEW initiative.

Funding for Accelerated, Inclusive Research (FAIR): FY 2023 $36M

> **Enhancing research on clean energy, climate, and related topics at minority serving institutions (MSIs), including underserved and environmental justice regions**

- Builds research capacity, infrastructure, and expertise at MSIs

- Develops mutually beneficial relationships between MSIs and DOE national laboratories and scientific user facilities

- Complements the RENEW initiative (traineeships and internships at national laboratories for workforce development)

- Provides support of single PI or research teams, and *includes an equipment or infrastructure element*

- Majority of funds will go directly to HBCUs/MSIs, a portion will fund the partnering institution (Lab, university)
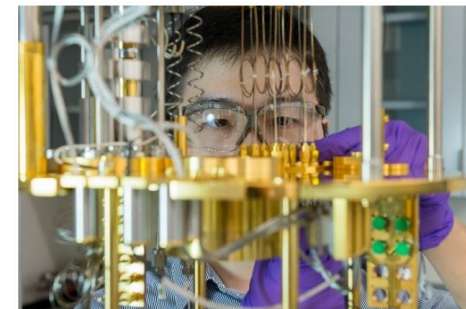
Reaching a New Energy Sciences Workforce (RENEW)
 https://science.osti.gov/Initiatives/RENEW

DOE SC Funding Announcements
https://science.osti.gov/grants/FOAs/

DOE SC New Subscription Service (GovDelivery)
Sign up HERE: https://public.govdelivery.com/accounts/USDOEOS/subscriber/new

Contact:

Julie Carruthers, julie.carruthers@science.doe.gov

Additional Background

FY 2022 RENEW Funding Opportunity Announcements

SC Program Office	Scientific/Technical Focus Areas	Eligibility (lead/partnering)	FOA/ webinar links
Advanced Scientific Computing Research (ASCR)	Quantum Computing and Quantum Networking	Open to all Institutions; Multi-institution teams; emphasis on underrepresented institutions	■ ASCR-RENEW FOA ■ Networking Events
Biological and Environmental Research (BER)	Earth and Environmental Systems Science	Open to all Institutions; emphasis on underrepresented institutions	■ RENEW-Earth and Environmental Sciences FOA ■ Webinar Slides
Basic Energy Sciences (BES	Basic and Fundamental Science to Enable Clean Energy; Basic and Fundamental Science to Transform Low-Carbon Manufacturing	Minority Serving Institutions (MSIs) and non-R1 institutions	■ BES-RENEW FOA ■ DOE Labs Points of Contact ■ Webinar Slides ■ Webinar Recording
DOE Isotope Program (DOE IP)	Isotope R&D and Production	MSIs	■ RENEW: Isotope Training, Research, and Development at MSIs FOA
Fusion Energy Sciences (FES)	Fusion Energy Sciences Research Topics	Multi-institutional teams that must include an MSI or a non-R1 institution	■ FES-RENEW FOA ■ Webinar Slides ■ Webinar Recording
High Energy Physics (HEP)	High Energy Physics Research Topics	Open to all Institutions; emphasis on underrepresented institutions	■ RENEW-HEP FOA ■ Webinar Slides

# Nuclear Physics (NP) RENEW Pilot Year - Traineeships

NP traineeship award recipients include:

- 18 MSIs,
- 10 other colleges/universities,
- 5 DOE laboratories

MSI award recipient distinctions:

- 9 Hispanic Serving Institutions (HSIs),
- 8 Historically Black Colleges & Universities (HBCUs),
- 5 Asian American, Native American, and Pacific Islander Serving Institutions (AANAPISI),
- 1 Predominantly Black Institution (PBI)

All other institutions on the map are involved in the traineeship program as recruitment sites (38), Co-PIs (9), and/or hosts (7).

Legend:
- ● MSI
- ○ MSI w/ award
- ▲ Lab/CoE
- △ Lab/CoE w/ award
- ■ Other
- ☐ Other w/award
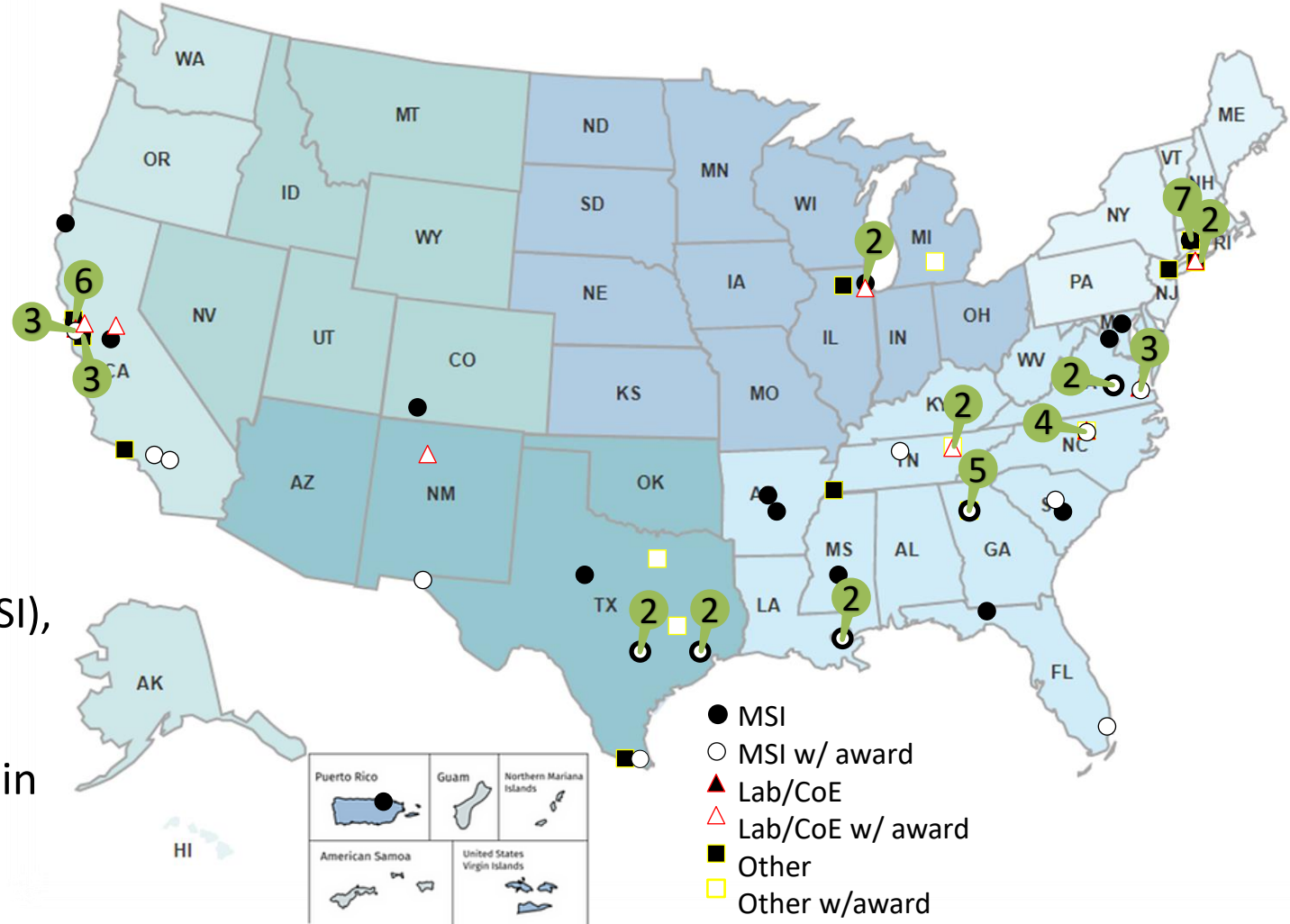
Public Reusable Research (PuRe) Data Resources

PuRe Data Resource designations highlight and improve stewardship of SC-supported community data efforts with strategic impact on the SC mission. They are:

- data repositories,
- knowledge bases,
- analysis platforms,
- and other activities

that aim to make data publicly available in order to advance scientific or technical knowledge.

https://www.energy.gov/science/office-science-pure-data-resources
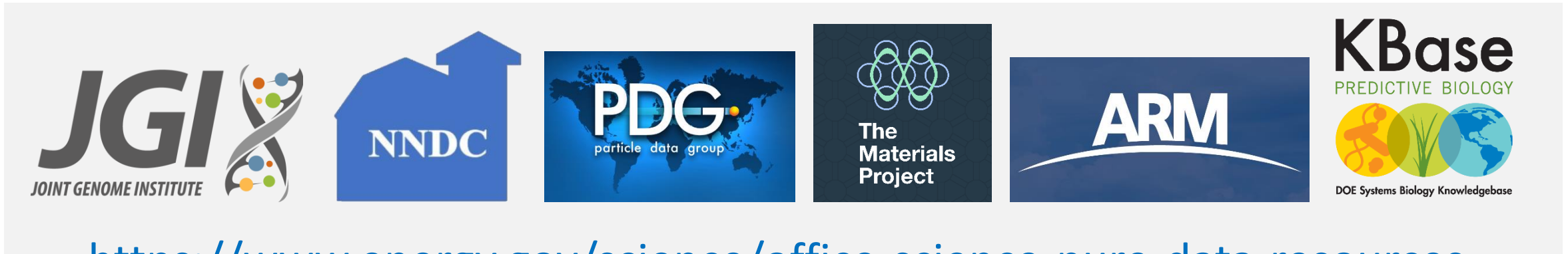
Equitable Access to DOE R&D Results

SC's Office of Scientific and Technical Information (OSTI) provides web-based access to DOE scientific publications, datasets, software, patents and multimedia through these resources.

OSTI.GOV

Primary search tool for all DOE-funded R&D results
3.29M metadata records; 960K full-text/resource available

DEPARTMENT OF ENERGY DOE PAGES — Public Access Gateway for Energy & Science

https://www.osti.gov/pages
156K accepted manuscripts/journal articles

DOE Patents

https://www.osti.gov/doepatents
43K patents from 1940s to present

DOE Data Explorer

https://www.osti.gov/dataexplorer
Metadata and links for 152K datasets

DOE ScienceCinema

https://www.osti.gov/sciencecinema
4K videos

DOE CODE

https://www.osti.gov/doecode
3.9K software projects