U.S. DEPARTMENT OF ENERGY | Office of Science

Office of Science Programs and Initiatives

Public Webinar

December 15, 2022

OFFICE OF SCIENCE BY THE NUMBERS

Delivering scientific discoveries and major scientific tools to transform our understanding of nature and advance the energy, economic, and national security of the United States

FY21

6 CORE SCIENCE PROGRAMS

- Advanced Scientific Computing Research
- Basic Energy Sciences
- Biological and Environmental Research
- Fusion Energy Sciences
- High Energy Physics
- Nuclear Physics

3 ENGINEERING AND TECHNOLOGY OFFICES

- Accelerator Research and Development and Production
- Isotope Research and Development and Production
- Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR)

5 NATIONAL QUANTUM INFORMATION SCIENCE RESEARCH CENTERS

ACROSS ITS 10 NATIONAL LABS, OFFICE OF SCIENCE MAINTAINS APPROXIMATELY

24 MILLION SQUARE FEET OF SPACE

1,600 BUILDINGS

38,000 ACRES OF LAND OWNED

SUPPORTS RESEARCH SPANNING

17 DOE NATIONAL LABS

50 STATES, PUERTO RICO, AND WASHINGTON, D.C.

>300 UNIVERSITIES AND HIGHER-LEARNING INSTITUTIONS

4 BIOENERGY RESEARCH CENTERS

2 ENERGY INNOVATION HUB PROGRAMS

41 ENERGY FRONTIER RESEARCH CENTERS

STEWARDS 10 DOE NATIONAL LABORATORIES

ESTIMATED RESEARCHERS SUPPORTED

- **9,600** Permanent PhDs
- **2,900** Postdoctoral Associates
- **4,500** Graduate Students
- **8,800** Other Scientific Personnel

OVER 32,500 USERS AT 28 OFFICE OF SCIENCE FACILITIES

9 SITE OFFICES

1 CONSOLIDATED SERVICE CENTER

OVER 100 NOBEL PRIZES

$7 BILLION OVERALL OFFICE OF SCIENCE BUDGET

$1.3 BILLION USER FACILITY CONSTRUCTION

$240 MILLION SCIENCE LABORATORY INFRASTRUCTURE

DOE's Office of Science:
Meeting the Nation's Challenges Today and into the Future

The DOE Office of Science (SC) mission is to deliver the scientific discoveries and major scientific tools to transform our understanding of nature and advance the energy, economic, and national security of the United States.

Advancing the frontiers of science

Largest Federal supporter of basic research in the physical sciences

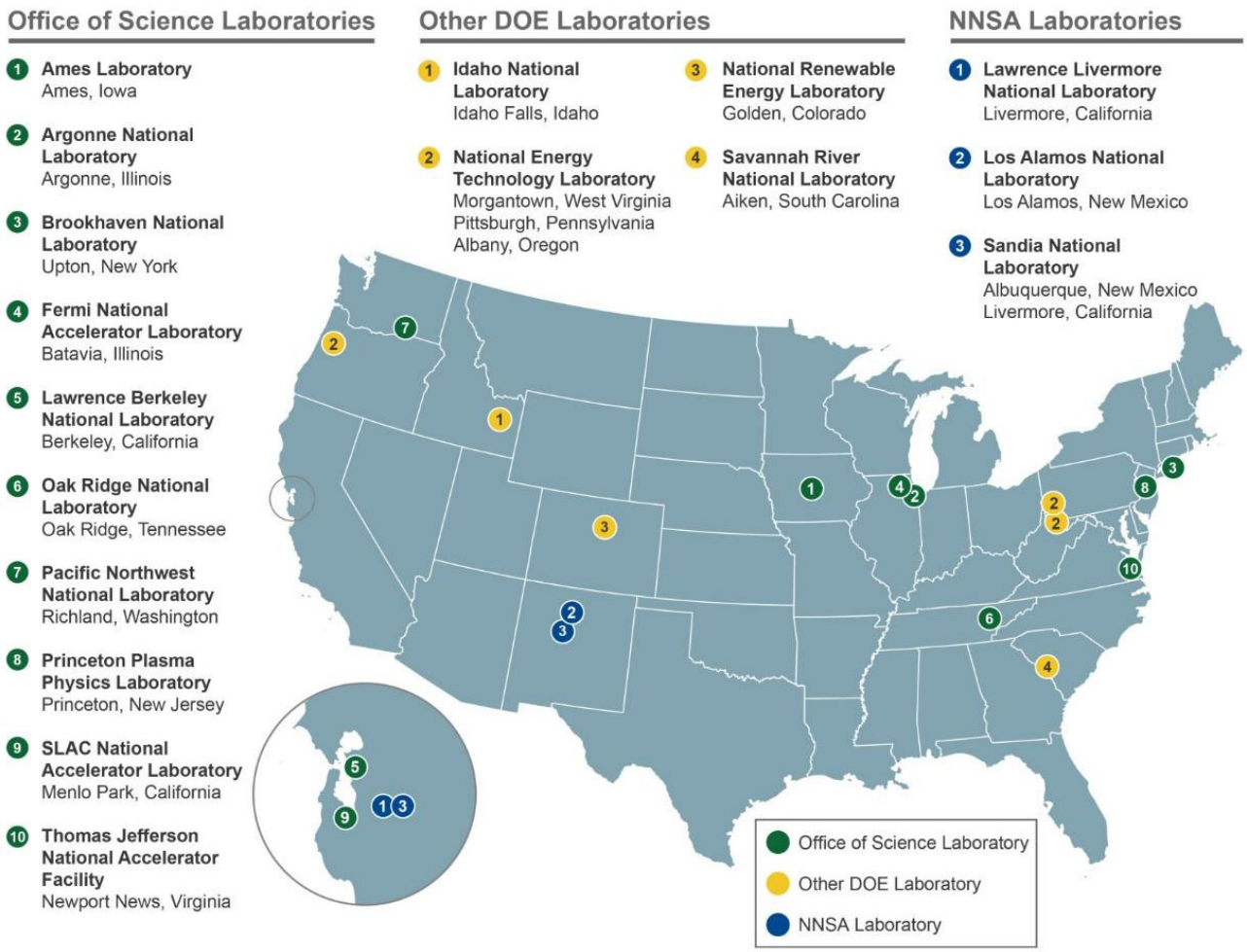
Research activities support nearly 29,000 PhDs, scientific and engineering professionals, support staff, and graduate/undergraduate students at more than 300 universities and at all 17 DOE laboratories

Accelerating discovery with cutting-edge research tools

- Operate 28 scientific user facilities for nearly 34,000 users per year
  - High-performance computing
  - X-ray and neutron sources
  - Physics facilities
  - Nanoscience centers
  - Biocharacterization facilities
- Design and construction of next-generation facilities to support the scientific community

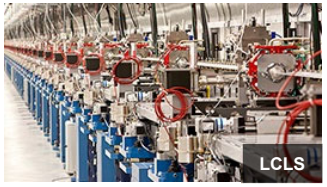
DOE National Laboratories

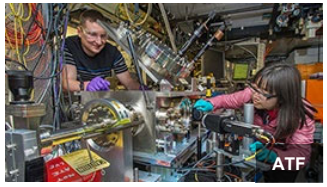
- The 17 DOE National Laboratories comprise a preeminent federal research system, providing the Nation with strategic scientific and technological capabilities
- SC stewards 10 DOE laboratories that provide essential support to the missions of the SC science programs

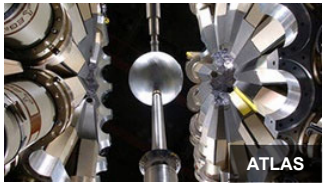


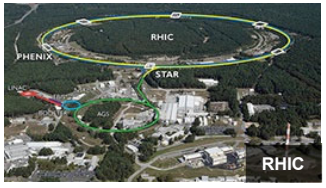
DOE SC Scientific User Facilities

FY 2023 Request
28 scientific user facilities
~34,000 users



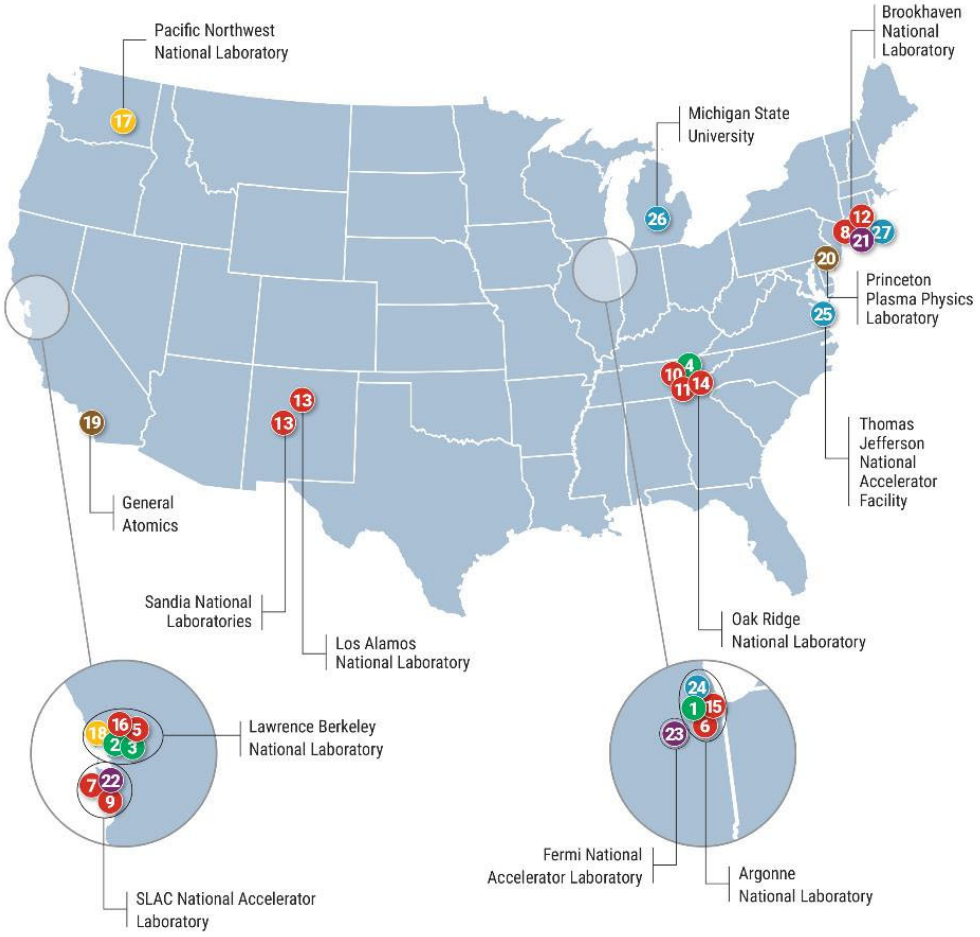






U.S. DEPARTMENT OF ENERGY
Office of Science

U.S. Department of Energy
Office of Science User Facilities



Advanced Scientific Computing Research (ASCR)

1. **Argonne Leadership Computing Facility (ALCF)**
   Argonne National Laboratory
2. **Energy Sciences Network (ESnet)**
   Lawrence Berkeley National Laboratory
3. **National Energy Research Scientific Computing Center (NERSC)**
   Lawrence Berkeley National Laboratory
4. **Oak Ridge Leadership Computing Facility (OLCF)**
   Oak Ridge National Laboratory

Basic Energy Sciences (BES)

LIGHT SOURCES

5. **Advanced Light Source (ALS)**
   Lawrence Berkeley National Laboratory
6. **Advanced Photon Source (APS)**
   Argonne National Laboratory
7. **Linac Coherent Light Source (LCLS)**
   SLAC National Accelerator Laboratory
8. **National Synchrotron Light Source II (NSLS-II)**
   Brookhaven National Laboratory
9. **Stanford Synchrotron Radiation Lightsource (SSRL)**
   SLAC National Accelerator Laboratory

NEUTRON SOURCES

10. **High Flux Isotope Reactor (HFIR)**
    Oak Ridge National Laboratory
11. **Spallation Neutron Source (SNS)**
    Oak Ridge National Laboratory

NANOSCALE SCIENCE RESEARCH CENTERS

12. **Center for Functional Nanomaterials (CFN)**
    Brookhaven National Laboratory
13. **Center for Integrated Nanotechnologies (CINT)**
    Sandia National Laboratories and Los Alamos National Laboratory
14. **Center for Nanophase Materials Sciences (CNMS)**
    Oak Ridge National Laboratory
15. **Center for Nanoscale Materials (CNM)**
    Argonne National Laboratory
16. **The Molecular Foundry (TMF)**
    Lawrence Berkeley National Laboratory

Biological and Environmental Research (BER)

- **Atmospheric Radiation Measurement (ARM) User Facility**
  Multi-Site Global Network
17. **Environmental Molecular Sciences Laboratory (EMSL)**
    Pacific Northwest National Laboratory
18. **Joint Genome Institute (JGI)**
    Lawrence Berkeley National Laboratory

Fusion Energy Sciences (FES)

19. **DIII-D National Fusion Facility**
    General Atomics
20. **National Spherical Torus Experiment Upgrade (NSTX-U)**
    Princeton Plasma Physics Laboratory

High Energy Physics (HEP)

21. **Accelerator Test Facility (ATF)**
    Brookhaven National Laboratory
22. **Facility for Advanced Accelerator Experimental Tests (FACET)**
    SLAC National Accelerator Laboratory
23. **Fermilab Accelerator Complex**
    Fermi National Accelerator Laboratory

Nuclear Physics (NP)

24. **Argonne Tandem Linac Accelerator System (ATLAS)**
    Argonne National Laboratory
25. **Continuous Electron Beam Accelerator Facility (CEBAF)**
    Thomas Jefferson National Accelerator Facility
26. **Facility for Rare Isotope Beams (FRIB)**
    Michigan State University
27. **Relativistic Heavy Ion Collider (RHIC)**
    Brookhaven National Laboratory

Office of Science User Facilities

- Open to all interested potential users without regard to nationality or institutional affiliation
- Each facility manages the allocation of facility resources through merit-based peer review of research proposals
- User fees are not charged for non-proprietary work if the user intends to publish the research results in the open literature
- Full cost recovery is required for proprietary work

Research Portfolio

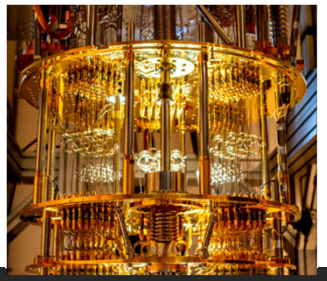
The Office of Science Research Portfolio

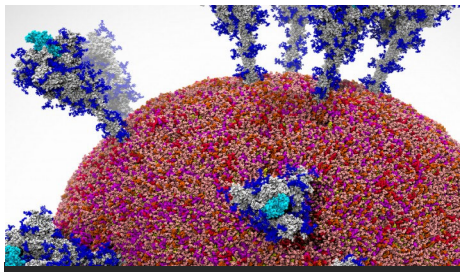
Advanced Scientific Computing Research	• Delivering world leading computational and networking capabilities to extend the frontiers of science and technology
Basic Energy Sciences	• Understanding, predicting, and ultimately controlling matter and energy flow at the electronic, atomic, and molecular levels
Biological and Environmental Research	• Understanding complex biological, earth, and environmental systems
Fusion Energy Sciences	• Supporting the development of a fusion energy source and supporting research in plasma science
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 isotope research, development, production, processing and distribution to meet the needs of the Nation
Accelerator R&D and Production	• Supporting new technologies for use in SC's scientific facilities and in commercial products

Advanced Scientific Computing Research (ASCR)

- ASCR research lays the groundwork for scientific discoveries
  - **Applied Mathematics and Computer Science foundations** to advance the understanding of natural and engineered systems and to reveal scientific insight from high end simulations, models, and data.
  - **Advanced Computing** to prepare for the future of science based on emerging advanced computing technologies and microelectronics.
- ASCR facilities drive American global leadership in computing, data and networking
  - As we deploy the world's first **exascale supercomputers** and the Nation's most **advanced scientific network**, we continue to build a more integrated and open national research infrastructure for all.
- ASCR's investments and strategic partnerships enable scientific breakthroughs and advance America's economic competitiveness
  - ASCR's world-leading programs in **interdisciplinary research** enable scientific applications take full advantage of computing and networking capabilities that push the frontiers.
  - Unique models of partnerships accelerate the competitiveness of **American computing technologies, advanced manufacturing,** and **high-tech companies -** large and small**.**
- ASCR invests in people
  - **Computational Science Graduate Fellowship** – producing computational leaders since 1991.

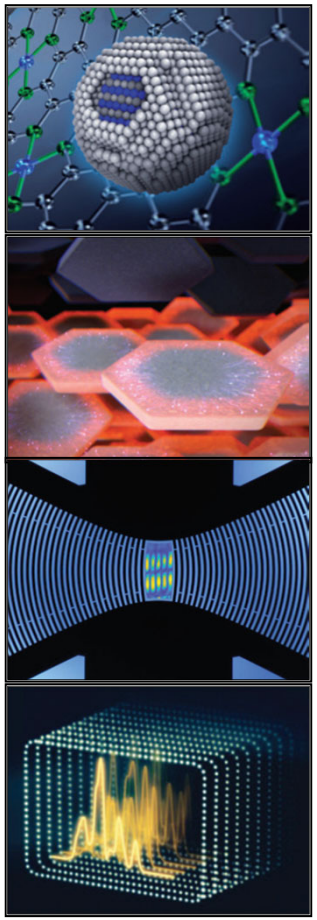
Leadership Computing


Quantum Testbeds


Gordon Bell Prize researchers leverage modeling and AI to understand COVID mutations

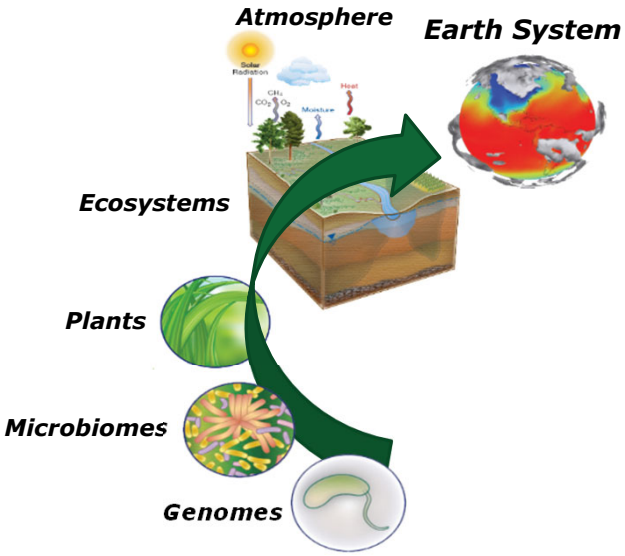
Basic Energy Sciences (BES)

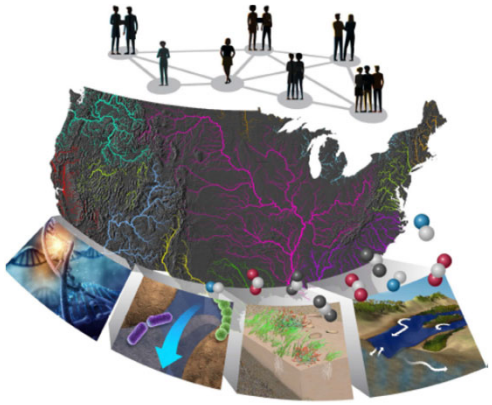
- BES supports discovery science and use-inspired research to solve the challenges facing today's advanced technologies for energy, manufacturing, medicine, and national priorities. BES provides:
  - A **vibrant community of academic and national laboratory researchers** who focus on understanding materials and chemical sciences at the atomic and molecular scales
  - **Cutting-edge scientific facilities** with specialized, state-of-the-art instrumentation such as advanced x-ray light sources, neutron scattering sources, and nanoscale science research centers that are used by **thousands of scientists from many fields**
- BES-supported discoveries drive U.S. leadership in science, sustain innovation across diverse technologies and improve economic and national security.
  - **Foundational scientific understanding** of chemical and materials processes starting at the level of electrons is essential for advancing energy, transportation, chemical, manufacturing, quantum information science, and microelectronics technologies.
  - Continuous progress in basic science is critical to **sustaining U.S. innovation and competitiveness**.
  - Some of the toughest challenges are being tackled by **collaborative teams with diverse skills** at the BES-supported Energy Innovation Hubs and Energy Frontier Research Centers.



Biological and Environmental Research (BER)

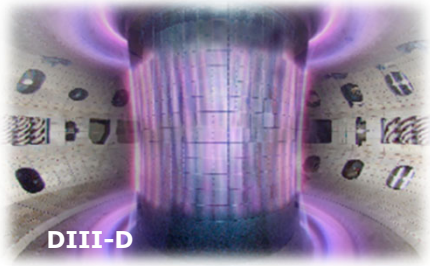
- BER research initiated the human genome project and pioneered research that led to climate and Earth system models.
  - The biology portfolio is using genomics to lay the groundwork for a **thriving bioeconomy** based on sustainable biofuels and bioproducts.
  - The Earth and environment portfolios are adopting AI, machine learning, and exascale-class computing to enhance predictability from local urban scales that include disadvantaged communities, to global scales, for a variety of **energy and environmental issues** of national importance.
- The better we understand how complex Earth and environmental systems work, and can predict their behavior, the more we can harness that knowledge to transform our lives.
  - Through insights gained from genome-enabled research of plants and microbes, BER is advancing the **understanding and design** of new biological systems for sustainable bioenergy and bioproduct production.
  - BER Earth and environmental research explores the science of the atmosphere, oceans, land systems, and cryosphere, how they combine with advanced analytics and DOE's fastest computers to **accurately model the Earth system**.
  - Both efforts are integral to a broad-based effort to **sustain the Earth system** as a habitable environment for humanity into the future.
- To enable these efforts, BER supports three DOE Office of Science user facilities with unique **world-class scientific instruments and capabilities** that are available to the research community.
  - DOE Joint Genome Institute (JGI), Atmospheric Radiation Measurement (ARM) user facility, Environmental Molecular Science Laboratory (EMSL)

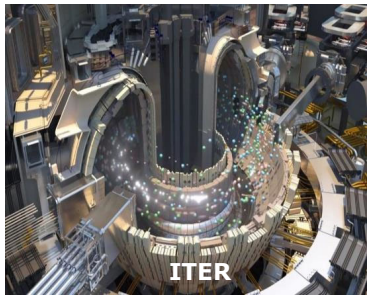


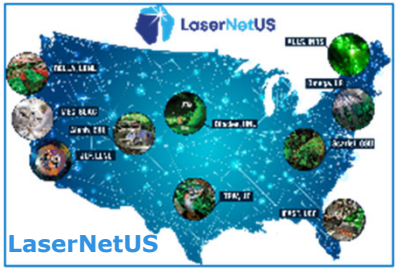


Fusion Energy Sciences (FES)

- Fusion research focuses on harnessing the energy released in fusion reactions to develop a carbon-free energy source
  - Once developed, fusion will provide an energy source well-suited for **on-demand electricity production**, supplementing intermittent renewables and fission.
  - Energy from fusion will be **carbon-free**, **inherently safe**, with a **virtually limitless fuel supply**, and **without the production of long-lived radioactive waste**.
- To enable this goal, FES invests in several research programs and partnerships:
  - **Partnerships with the private sector** to accelerate the development and deployment of fusion energy, consistent with the Administration's **Bold Decadal Vision** for commercializing fusion energy
  - Support of two FES SC **Scientific User Facilities** to resolve scientific challenges
  - Research in **fusion theory and simulation** to develop a predictive capability
  - Research in **fusion materials**, **fusion nuclear science**, and **enabling technologies to** address the performance, safety, and environmental attractiveness objectives of fusion energy
  - **International partnerships to** enable U.S. scientists to conduct research on overseas facilities with unique capabilities; The U.S. participation in **ITER**, a large-scale multi-national experiment being built in France, will enable the study of burning plasma science and technology at reactor scale
- The FES program also supports **discovery plasma science** in areas such as plasma astrophysics, high-energy-density laboratory plasmas (HEDLP), and low-temperature plasmas.
  - Discoveries in plasma science are leading to an ever-increasing array of practical applications, including fabrication of microelectronics.

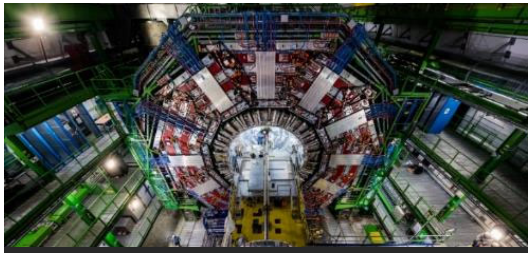




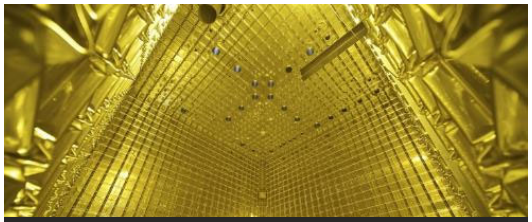


High Energy Physics (HEP)

- Particle physics explores what the world is made of and how it works at the smallest and largest scales.
  - It seeks new discoveries from the **tiniest particles** to the **outer reaches of space**: What is the Universe made of? What forces govern it? How did it become the way it is today?
  - Finding these answers requires the combined efforts some of the largest international **scientific collaborations** in the world, using some of the most sensitive detectors in the world, at some of the largest scientific machines in the world.
- The quest to understand our world inspires young minds, trains an expert workforce, and drives innovation that improves the nation's health, wealth, and security.
  - Particle physicists develop **new tools and technology** that in turn improve medical diagnosis, medicine development, national security, big data computing, and industrial manufacturing.
  - Advancing **microelectronics, accelerators, and detectors** together with **Quantum Information Science** provides opportunities for new insights and approaches.
- Five compelling, intertwined lines of inquiry show great promise for discovery over the next decade.
  - The **Higgs boson**, discovered in 2012, is a new tool for discovery.
  - The puzzling physics of ghostly, very low-mass **neutrinos** is being probed.
  - Experiments seek to identify the physics of **dark matter**.
  - Observations of the Universe aim to reveal the causes of **cosmic acceleration**, such as dark energy and inflation.
  - Experiments also **explore the unknown** for new particles, interactions, and physical principles.



CMS Experiment at the Large Hadron Collider

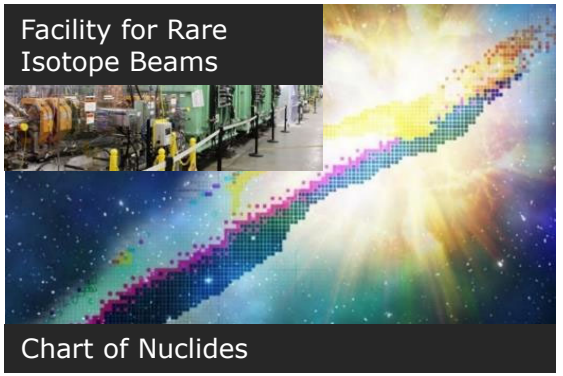


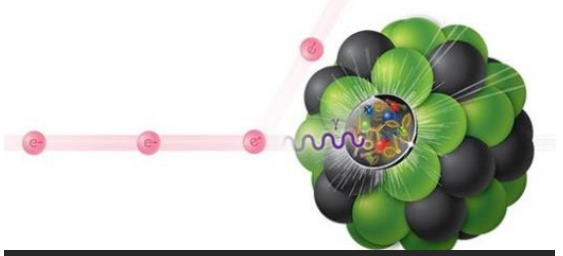
ProtoDUNE Neutrino Detector Cyostat

DESI Experiment at Kitt Peak

Nuclear Physics (NP)

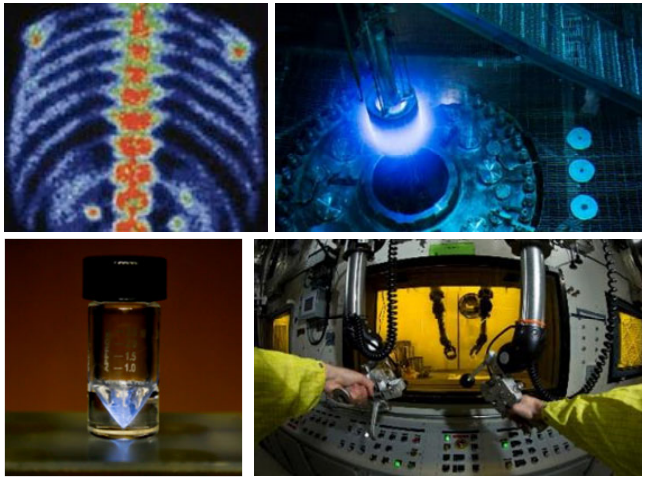
- Nuclear physics seeks to discover, explore, and understand all forms of nuclear matter.
  - The aim is to understand why matter takes on the specific forms observed in nature: How did **visible matter come into being** and how does it evolve? How does **subatomic matter organize** itself and what phenomena emerge? Are the fundamental interactions basic to the **structure of matter** fully understood?
  - To accomplish its mission, NP stewards operations at multiple national **accelerator user facilities**.
- The quest to understand all forms of nuclear matter inspires brilliant scientific minds and benefits society in the areas of energy, commerce, medicine, and national security.
  - Students trained in Nuclear Physics are in **high demand.**
  - They **bring expertise** in nuclear science, accelerator physics, real-time signal processing, high-performance computing, cryogenics, quantum simulators, quantum sensors, AI/ML, lasers, atomic traps, nuclear technology, and particle detection technologies.
- To maintain U.S. leadership, NP builds advanced instrumentation and new tools such as the Facility for Rare Isotope Beams (FRIB) and the future Electron-Ion Collider (EIC).
  - FRIB will uniquely afford access to eighty percent of all isotopes predicted to possibly exist in nature, including over 1,000 **never produced on Earth**.
  - The EIC will provide unprecedented ability discover how the **mass of everyday objects** is dynamically generated by the interaction of quarks and gluons inside protons and neutrons.

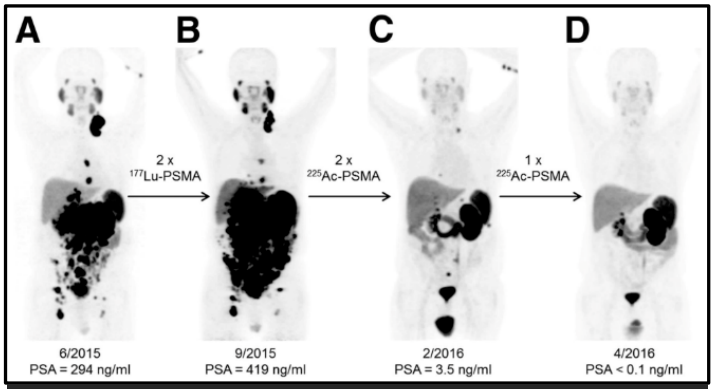




Isotope R&D and Production (DOE IP)

- **Isotopes** have unique properties that make them useful in medicine, nuclear batteries, clean energy, basic research, and national security.
  - Isotopes of an element have the same number of protons, electrons, and same chemical properties but **differ in the number of neutrons**.
  - Stable and very long-lived unstable isotopes exist in nature and can be **enriched**, or extracted and purified based on their mass. **Short-lived unstable (or radioactive) isotopes are created** in nuclear reactors and particle accelerators.
- DOE IP researches and develops **new isotope production techniques** of critical radioactive and stable isotopes for the nation.
  - Radioactive and stable isotopes are required for **advancement in basic research** (including QIS), **medical applications** (diagnostic imaging, cancer therapies, infectious diseases), **commercial applications** (energy exploration), **national security** (threat detection, nuclear forensics), **space exploration** (long lived power sources), and other applications.
  - As the only Mission Essential Function within the Office of Science, part of DOE IP's mission is to ensure robust domestic isotope supply chains to reduce U.S. dependency on foreign supply to maintain national preparedness.
- Leveraging the reactor, accelerator, enrichment and isotope processing expertise at the DOE national labs and universities, IP scientists are delivering isotopes for **medical research** on new **diagnostic and therapeutic applications**.
  - Applications include targeted cancer therapy research using short lived radioisotopes such as actinium-225, copper-67 and astatine-211.



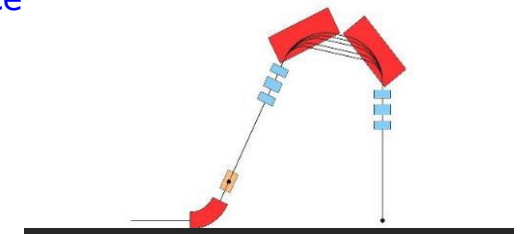


Effective response of a prostate cancer patient to ^{225}Ac-PSMA-617 treatment

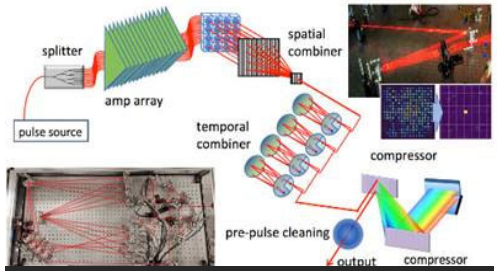
Accelerator R&D and Production (ARDAP)

- **ARDAP supports fundamental accelerator science and technology development of relevance to many fields**
  - Cross-cutting basic R&D for science
    - High power ultrafast laser technology
    - New accelerator technology for scientific facilities
  - Develop innovative solutions to critical problems outside of the DOE Office of Science
    - Compact accelerators for medicine and security
    - High power accelerators for environmental and industrial applications
  - Broaden and strengthen the community
    - Awards support multi-institutional R&D teams
    - Public-private partnerships to develop domestic technology companies
  - Facilitate access to national lab accelerator R&D capabilities
- **Annual call for proposals**
  - "FY 2023 Research Opportunities in Accelerator Stewardship and Accelerator Development"
    - Typically posts in January or February; proposals due typically March or April
- For more information, contact Eric.Colby@science.doe.gov, (301)-903-5475

Accelerator Test Facility II (ATF-II)



Superconducting gantry for proton therapy



High-Efficiency High Power Ultrafast Lasers

Research Initiatives

Climate Resilience Centers

VISION: A network of climate resilience centers affiliated with HBCUs, non-R1 MSIs, and Emerging Research Institutions (ERIs) to accelerate basic climate system science towards equitable solutions targeting under-represented and vulnerable communities

MISSION AND SCOPE:

- Planning began in FY 2022
- Intellectual home for local-level climate research
- Leverages ongoing foundational investments in BER research
- Provides outreach, community engagement, and collaboration opportunities involving HBCUs, MSIs, ERIs, National Laboratories and community level stakeholders
- Emphasis on climate and environmental justice
- Leadership roles for HBCUs, non-R1 MSIs, and ERIs

Climate Resilience Centers FOA ($5M)

- Issued on December 2, 2022
- Preapps due January 19, 2023
- Applications due March 30, 2023
- Lead institution must be non-R1 MSI, HBCU, or ERI
- 3-year grants: $100K to $1M total
- Expect 5-7 awards
- More information, including webinar recording and slides: https://science.osti.gov/ber/Funding-Opportunities

Early Career Research Program

- The SC **Early Career Research Program (ECRP)** was established in FY 2010, with subsequent annual solicitations since then
- The purpose of this program is to support outstanding scientists during their crucial early career years when many scientists do their most formative work, and to stimulate research careers in the areas supported by SC
- The ECRP invites applications in all areas supported by SC: ASCR, BER, BES, FES, HEP, NP, DOE IP, & ARDAP
- SC has made **868** ECRP awards since 2010
  - **564** to universities and **304** to DOE national laboratories
- Eligibility:
  - Academic Institutions: Assistant or untenured Associate Professors on the tenure track
  - DOE National Laboratories & SC Scientific User Facilities: Full-time, permanent, non-postdoctoral employees
- Program changes in FY 2023:
  - Eligibility window for FY23 and FY24 extended from **10 to 12 years** since the PhD to address COVID-19 challenges
  - Floor for academic institutions raised to **$875K** over 5 years to increase graduate student stipends
  - Researchers at **SC Scientific User Facilities** not at a DOE Lab are eligible
- For more information: https://science.osti.gov/early-career or contact SC.Early@science.doe.gov

Established Program to Stimulate Competitive Research (EPSCoR) Implementation Grants

- The DOE EPSCoR Program seeks to:
  - Promote institutional diversity and enhance the research capabilities in EPSCoR jurisdictions
  - Support competitive early-stage research in DOE science/technology areas
  - Develop science/engineering personnel to meet current/future needs in DOE-related topics
- Coordination Across DOE – Office of Science and Technology Offices
- FY 2023 ESPCoR Funding Opportunity Announcement (FOA) – Implementation Awards
  - Using NSF determinations (FY 2023 eligibility Table) - colleges/universities in 28 jurisdictions
  - Estimated award size/duration: Fully funded new and renewal awards. New: $1M–1.5M/yr; Renewal: $1.5M-2.5M/yr. Award duration of 2 years with a 6-year maximum period to promote transition to DOE core program support.
  - Preproposals will be required: limited to 1 pre-application per institution
- **Key Dates**: FOA Issued on 12/14/2022; Pre-applications due 01/25/2023; Encourage/discourage decisions by 03/01/2023; Applications due 04/04/2023.
- **FOA Webinar:** 01/05/23 at 2pm ET. Registration link at https://science.osti.gov/bes/Funding-Opportunities.

Funding for Accelerated, Inclusive Research (FAIR)

FAIR aims to build research capacity, infrastructure, and expertise at minority serving institutions (MSIs) and emerging research institutions (ERIs).

- Technical scope spans the entire SC portfolio: ASCR, BES, BER, FES, HEP, NP, IP, ARDAP.
- Solicitation provides up to $35M over 3 years.
- Eligible Lead Institutions: non-R1 MSIs or ERIs
- Eligible Partner Institutions: DOE Labs, SC User Facilities, or R1 MSIs; single partner required
- Award size is up to $750K total. The partner is limited to between 15 and 25% of total funding.
- Applicant institutions are limited to one pre-application per PI and three pre-applications per program listed in the second bullet.
- Pre-applications are required and due on February 7, 2023.
- Informational webinar will be held on Friday, January 6, 2-3pm ET.
- More information: https://science.osti.gov/initiatives/FAIR

Reaching a New Energy Sciences Workforce (RENEW)
FY 2022 Awards: $32M across 6 Programs

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 FY21-22 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

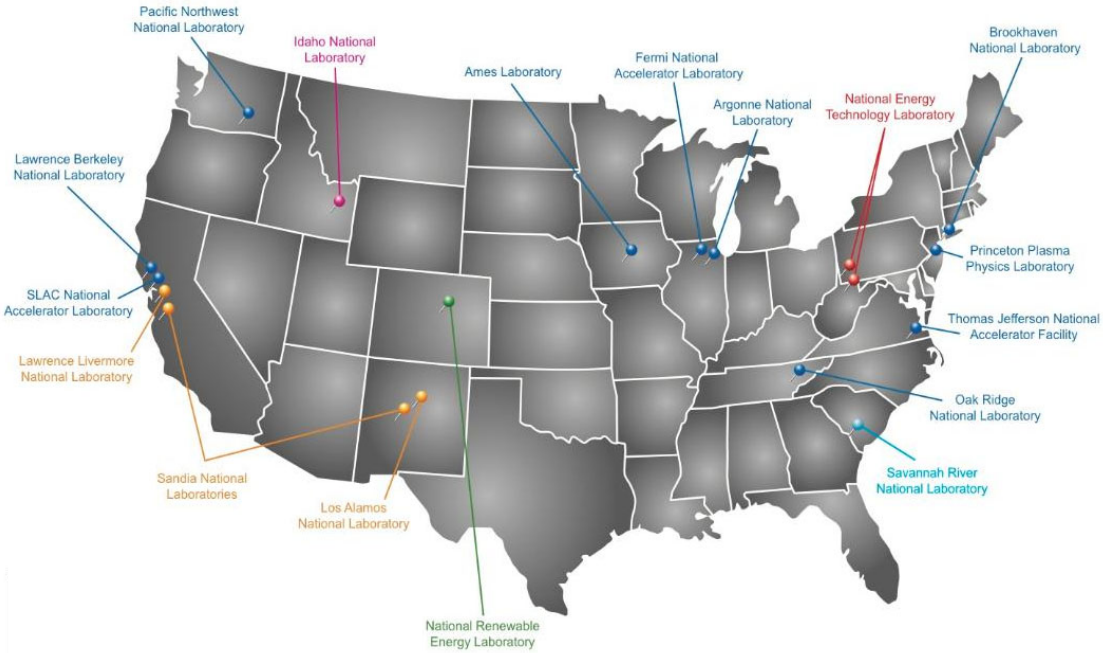
https://science.osti.gov/initiatives/RENEW

STEM Workforce Training Opportunities at DOE National Laboratories

WDTS manages the following programs via partnership with DOE national laboratories:

- **Science Undergraduate Laboratory Internships**
- **Community College Internships**
- **Visiting Faculty Program**
- **Office of Science Graduate Student Research Program**

https://science.osti.gov/wdts



The DOE system of National Laboratories is a unique asset for training and workforce development:

- DOE Labs employ >30,000 scientists and engineers
- World-class scientific user facilities, capabilities, and resources
- Culture of team science, mentoring, and learning through discovery

Visiting Faculty Program (VFP)

The Visiting Faculty Program (VFP) seeks to enhance the research competitiveness and strengthen the STEM teaching of faculty members from institutions of higher education that are historically underrepresented in the research community to expand the workforce that addresses DOE mission areas. Two Tracks: Research Collaboration and Teaching Initiative

- VFP appointees collaborate directly with research staff at DOE National laboratories on projects that are connected robustly to ongoing host lab research.
- Faculty must establish a collaboration with a laboratory scientist to co-develop a 6-page research proposal before applying to VFP.
- Participants develop skills that are applicable to programs and STEM workforce development at their home institutions.

Award Benefits:

- Appointments are for 10 weeks
- Faculty: $15,000 stipend; round-trip domestic travel to laboratory; housing covered; up to $15,000 of teaching buyout for a non-summer term.
- Undergraduates (Summer only): Same as for SULI
- Graduate students (Summer only): Travel and housing, but no stipend

Academic Institution Requirements:

- Schools may not have Carnegie Classifications of "Doctoral/Research Universities ratings of Very High or High Research Activity". However, all Historically Black Colleges and Universities (HBCU) are eligible.

Eligibility for Faculty:

- U.S. citizens or lawful permanent residents at time of application
- Must work full time at an accredited, degree-granting, postsecondary U.S. institution (including community colleges). Adjunct or visiting faculty are ineligible
- Must work in an area of physics, chemistry, non-medical biology, engineering, environmental sciences, geology or geosciences, mathematics, materials sciences, or computer or computational sciences

2023 Spring Term – Lab Placement ongoing; 2023 Summer Term – Application due January 10, 2023, 5PM ET

Full details, requirements, FAQs, and link to application at: https://science.osti.gov/wdts/VFP/

Program Contact : sc.vfp@science.doe.gov

Applying for Funding

Funding Opportunities: Merit Review Process

A proposal's Project Narrative should enable a reviewer to evaluate the merit review criteria

- Scientific merit review (peer review) is evaluated against the following criteria, listed in descending order of importance:
  - Scientific and/or Technical Merit of the Project
  - Appropriateness of the Proposed Method or Approach
  - Competency of Applicant's Personnel and Adequacy of Proposed Resources
  - Reasonableness and Appropriateness of the Proposed Budget
  - Quality and Efficacy of the Plan for Promoting Inclusive and Equitable Research
- Topical FOAs may include additional merit review criteria. A full list of merit review questions is provided in each FOA.

Promoting Inclusive and Equitable Research (PIER) Plan

- Beginning in FY 2023, Office of Science solicitations require applicants to submit a plan for **Promoting Inclusive and Equitable Research, or PIER Plan**, along with their research proposals.
  - This is a requirement for proposals submitted to all Office of Science solicitations, as well as invited proposals from the DOE national laboratories.
- PIER Plans are limited to 3 pages should describe the activities and strategies that investigators and research personnel will incorporate to promote diversity, equity, inclusion, and accessibility in their research projects.
  - The complexity and detail of a PIER Plan is expected to increase with the size of the research team and the number of personnel to be supported.
  - The PIER Plans will be evaluated under a new merit review criterion as part of the peer review process.
- Additional information and FAQs: https://science.osti.gov/grants/Applicant-and-Awardee-Resources/PIER-Plans

Funding Opportunities: FAQs

How do I get DOE/Office of Science support?

- Respond to Funding Opportunity Announcement (FOA) posted at https://science.osti.gov/Funding-Opportunities
- **Read all FOAs carefully** for eligibility, topics, deadlines, requirements, points of contact, and more…
- Hypothesis driven, fundamental science with energy relevance; discovery science and use-inspired basic research
- All eligible/responsive proposals are peer reviewed; non-responsive proposals may be declined without review
- Applications must be submitted through Grants.gov; start working with your Sponsored Research Office as soon as practical

Can I contact/visit a program manager?

- Initial contact by email and phone is encouraged – contact information is on the science.osti.gov website for every program manager
- White papers/pre-proposals are encouraged and may be required – Can be sent to program manager, but may need to be submitted through the PAMS system; see FOA for details
- Program offices located in Germantown, MD – secure facility, requires planning and additional information from foreign nationals

Funding Opportunities: FAQs (continued)

How much support can I get?

- FOAs will include "ceiling/floor" amounts for funding individual projects
- Peer review will assess requested budget versus research needs
- Typically supports summer salary plus graduate student/postdoc
- Multi-PI grants are also supported – talk with the program manager

How long will it take for me to find out if my project is funded?

- Reviews typically take 4 – 6 months to complete, awards are made based on strength of the merit review, programmatic priorities, and available resources
- Proposals can be held up to one year for consideration

I want to support my research group with multiple federal grants – what are the requirements?

- You must have separate research proposals that can "stand alone" with respect to research performed and research output

Working with the Office of Science
Issues With Submissions

Applications cannot be changed after a FOA deadline

- Applications may be withdrawn before they are released to reviewers
- Applications may be withdrawn by written request after they are released to reviewers
- SC has no policy limiting the number of resubmissions (before a FOA deadline)

Budget Justifications

- All costs on a budget need to be justified
  - "Based on prior experience with similar projects" is acceptable
  - Indicate estimates vs. quotes
- Use the negotiated fringe benefit rates and explain deviations
  - Explain the choice of using off-campus F&A rates

Working with the Office of Science
Checklist

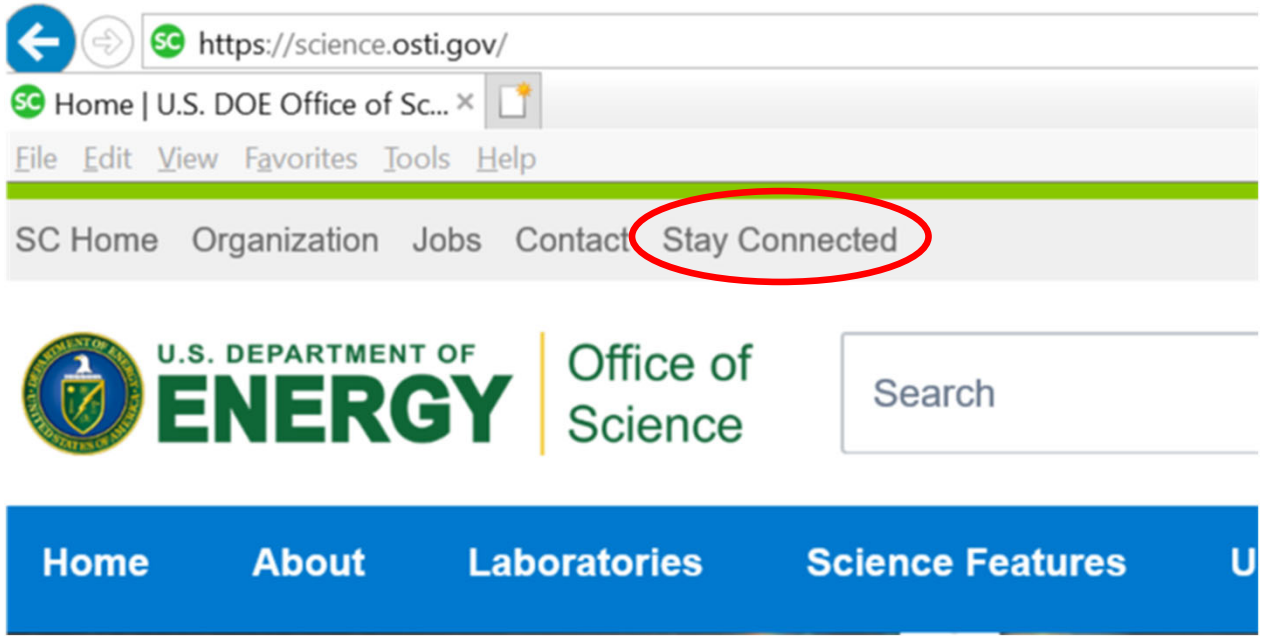
- Review the Updates and Reminders and Checklist at the beginning of each FOA
- Use one PDF file for the research narrative and all appendices (do not use a PDF binder)
- Verify math in the budget
  - New Grants.gov forms will auto-calculate
  - Ensure use of the correct indirect cost rate
  - Ensure use of negotiated fringe rate
- For renewals and supplements, make sure the application is from the same institutional profile that currently holds the award
  - We cannot renew or supplement an award to a different institution

Broadening Participation

- Applications are always encouraged from:
  - New institutions
  - Institutions without current SC awards
  - Minority-serving institutions
  - Predominantly-undergraduate institutions
  - New investigators
  - Investigators from populations underrepresented in the SC portfolio
- Program managers are always available to discuss research concepts, opportunities to submit proposals, or opportunities to form new collaborations

Stay Connected

- Receive Office of Science news by email or text
- Sign up for topics of interest
  - FOAs
  - Press releases
  - Meetings
  - Scientific topics
  - Program office news
- science.osti.gov
  - Stay Connected



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