Office of Science Statement of Commitment & other Guidance

- **SC Statement of Commitment** – SC is fully and unconditionally committed to fostering safe, diverse, equitable, inclusive, and accessible work, research, and funding environments that value mutual respect and personal integrity. https://science.osti.gov/SW-DEI/SC-Statement-of-Commitment

- **Expectations for Professional Behaviors** –SC's expectations of all participants to positively contribute to a professional, inclusive meeting that fosters a safe and welcoming environment for conducting scientific business, as well as outlines behaviors that are unacceptable and potential ramifications for unprofessional behavior. https://science.osti.gov/SW-DEI/DOE-Diversity-Equity-and-Inclusion-Policies/Harassment

- **How to Address or Report Behaviors of Concern**– Process on how and who to report issues, including the distinction between reporting on unprofessional, disrespectful, or disruptive behaviors, and behaviors that constitute a violation of Federal civil rights statutes. https://science.osti.gov/SW-DEI/DOE-Diversity-Equity-and-Inclusion-Policies/How-to-Report-a-Complaint

- **Implicit Bias** – Be aware of implicit bias, understand its nature – everyone has them - and implicit bias if not mitigated can negatively impact the quality and inclusiveness of scientific discussions that contribute to a successful meeting. https://kirwaninstitute.osu.edu/article/understanding-implicit-bias

Outline

- On March 13, 2024 we covered:
  - Broad overview of how particle accelerators are used
  - Specific overview of how particle accelerators are used in scientific research
  - How and why Office of Science funds accelerator science and technology
  - ARDAP's role in accelerator R&D
  - How can we engage? Who's eligible? What do you fund?
  - *Slides and a closed-captioned video recording are posted at* [*https://science.osti.gov/ardap/officehours*](https://science.osti.gov/ardap/officehours)

- Today (April 10, 2024) we plan to cover:
  - Funding Opportunity Announcements (FOAs)
    - General Information about FOAs
    - How to find Office of Science (and other) FOAs that support Accelerator Science & Technology
  - Facilities for Accelerator R&D
    - Overview of Office of Science accelerator facilities
    - Dedicated accelerator test facilities
    - How to gain access

- On May 8, 2024 we plan to cover:
  - How to write a strong proposal
  - How to manage an award

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FOAs: General Information

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What is a "FOA"? How do I get more information?

- FOA = Funding Opportunity Announcement
  - For DOE Office of Science, these are:
    - Solicitations for proposals to conduct basic R&D
    - The primary way for universities, foreign institutions, and private companies to get federal funding (DOE's Labs have a different mechanism)
    - Recurring, typically once a year
    - Requiring a proposal due 60-80 days after posting
    - Often requiring a pre-proposal or Letter of Intent 30 days after posting
    - Fund work for 1 to 5 years (3 years is most common)

- How do I learn about open FOAs?
  - DOE Office of Science FOAs
    - Sign up for "Stay Connected" email updates
  - ALL federal calls for proposals
    - Create an account at Grants.gov, then set up an alert based on keywords or Agency names

What's in a Funding Opportunity Announcement?

- A FOA is a legally-binding document defining
  - A funded activity,
  - A way to apply for the funding, and
  - The review/selection process used to make awards.
- Please follow the FOA instructions carefully
- Typical SC FOAs provide the following information:
  - Funding Opportunity Description – **what** topics are being funded and what are the aims?
  - Award Information – **how** awards are funded (e.g., Grant), amount & duration
  - Eligibility Information – **who** can apply
  - Application and Submission Information – **Required contents** of the proposal and any LOI or pre-proposal
  - Application Review Information – how **merit review** and award selection is done
  - Award Administration Information – details about reporting, IP, integrity
  - Questions/Agency Contacts – whom to **call with questions**
  - Supplementary Material – lots of useful **how-to information** for preparing your proposal

Finding FOAs:
Stay Connected (DOE Office of Science FOAs)

- Science.osti.gov
  - Receive Office of Science news by email or text
  - Sign up for topics of interest at science.osti.gov → click "Stay Connected"
    - FOAs
    - Press releases
    - Meetings
    - Scientific topics
    - Program office news
  - science.osti.gov
    - Stay Connected
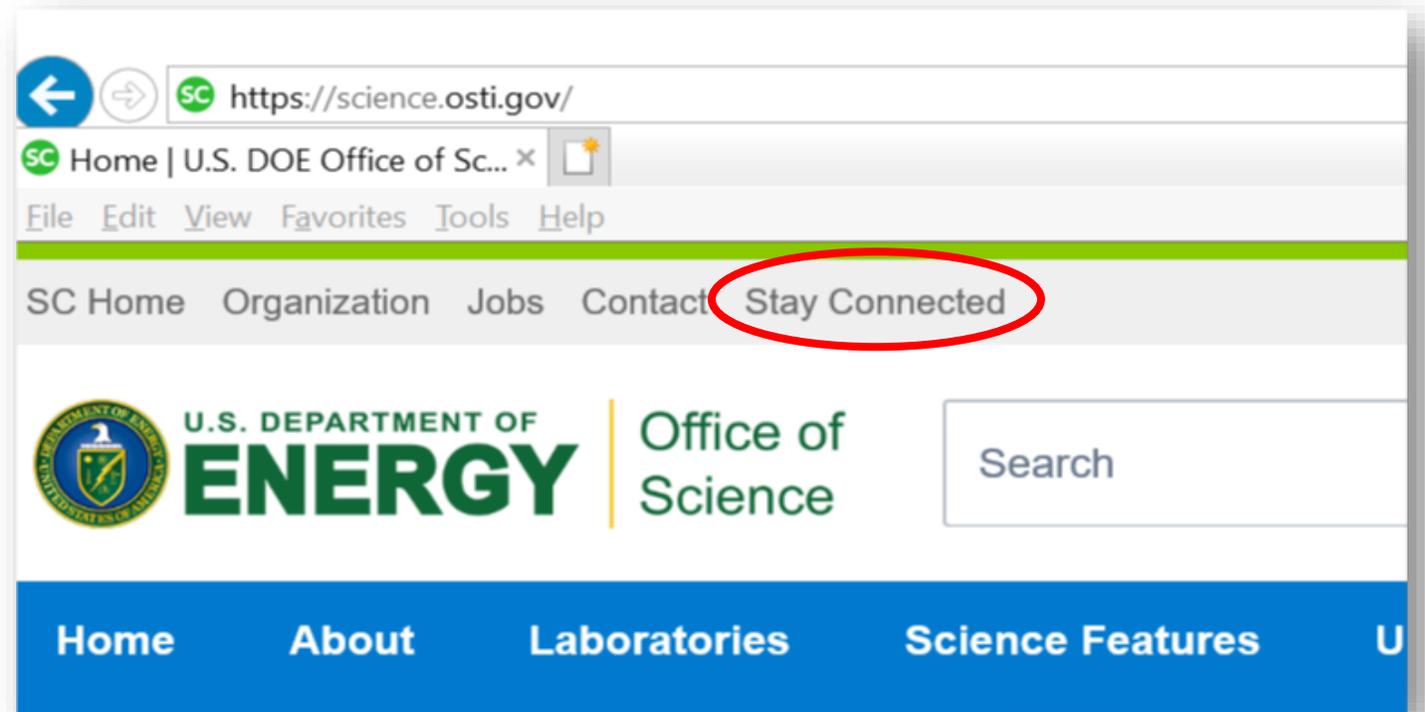
Finding FOAs:
Grants.Gov (ALL federal solicitations)

- Grants.gov

  ◦ Create an account

  ◦ Search for Grants

  ◦ Define an alert! (=automatic email sent to you with information when new/updated FOAs meeting your search criteria appear)

FOAs: SC programs that support Accelerator R&D

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Office of Science FOAs that can support Accelerator R&D

R&D and Technology Transfer in Accelerator Science & Technology

- **Accelerator Stewardship & Development** – basic and translation R&D in accelerator science & technology
  - https://science.osti.gov/ardap/Funding-Opportunities

Developing a New Research Capability Development

- **EPSCoR** – enhance R&D capabilities of institutions in designated states
  - https://science.osti.gov/bes/epscor
- **FAIR** – enhance R&D capabilities of MSIs and ERIs
  - https://science.osti.gov/Initiatives/FAIR

Career Development, Internships, and Traineeships

- **Early Career Research Program** – for high-potential candidates ≤10 yrs post-PhD
  - https://science.osti.gov/early-career
- **RENEW** – internships at MSIs and ERIs
  - https://science.osti.gov/Initiatives/RENEW
- **SC-GSR** – 1 year of graduate support at a DOE lab
  - https://science.osti.gov/wdts/scgsr
- **SULI** – summer undergraduate DOE laboratory internships
  - https://science.osti.gov/wdts/suli

Technology Transfer

- **SBIR/STTR** – 1+2 years of funding to launch a new product
  - https://science.osti.gov/sbir/Funding-Opportunities
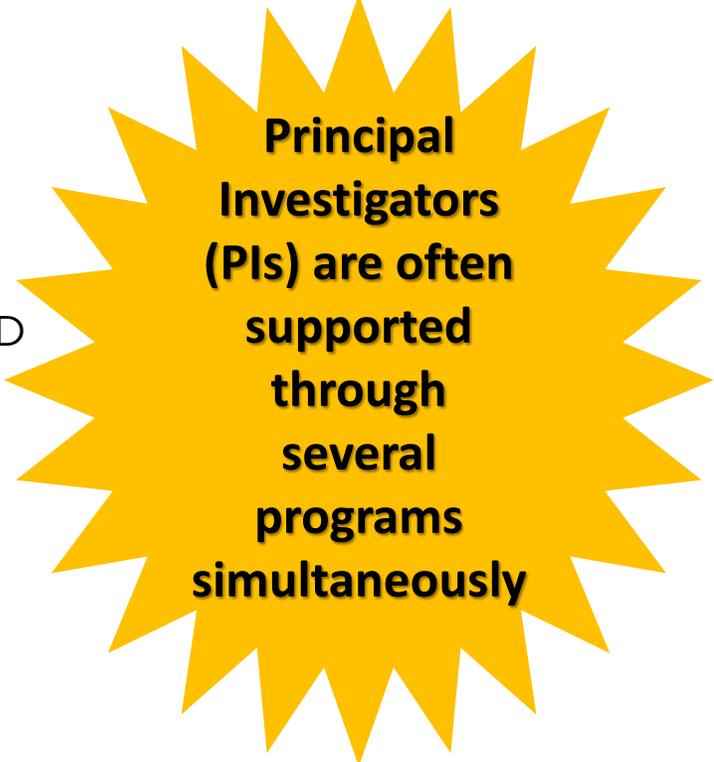
Principal Investigators (PIs) are often supported through several programs simultaneously

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Research Opportunities in Accelerator Stewardship and Accelerator Development

Accelerator Stewardship

- **Track 1: Use-Inspired Basic R&D** – aimed at transitioning accelerator technology into medical, security, environmental, and industrial applications
- **Track 2: Cross-cutting Basic Accelerator R&D** – aimed at developing the foundations and new concepts of next-generation accelerator technology
- **Track 3: Accelerator Test Facility Program** – providing support for non-DOE institutions to use a DOE SC accelerator R&D capability

TRL≤4

Accelerator Development

- **Track 4a: Accelerator Technology Sector Business Plans** – funded studies of specific sectors of the accelerator technology ecosystem
- **Track 4b: Accelerator Technology Partnerships** – public-private partnerships to strengthen domestic suppliers of accelerator technology

TRL≤6, MRL≤7

Principal areas of R&D interest in Accelerator R&D

1. Advances in **superconducting accelerator systems**, including SRF, SC magnets, and cryogenic engineering.

2. **Beam physics** and **high-fidelity computer modeling & control**, including better diagnostics, (AI/ML-based) control systems, advanced focusing, and beam cooling techniques.

3. Advances in high intensity **electron, proton,** and **ion sources,** also including **megawatt-class targets** for secondary particle sources.

4. Higher average power **radiofrequency** and **ultrafast laser sources,** including **power handling devices**, and **high accuracy x-ray optics**.

5. **High-risk high-reward R&D** in advanced materials, particle sources, beam dynamics, acceleration techniques, and other advanced topics.

Facilities: Overview of SC accelerator facilities

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Office of Science User Facilities

FY 2023
15 accelerator-based facilities
>16,800 users
(43%)

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

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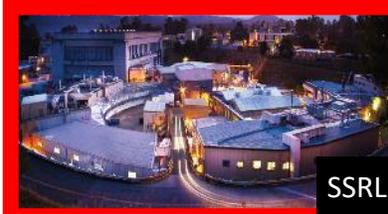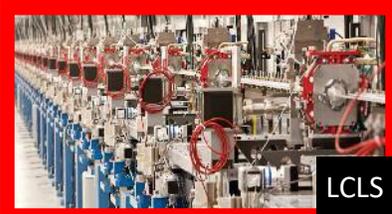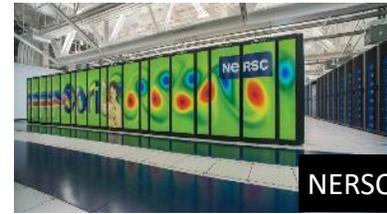
Office of Science User Facilities

- 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

- https://science.osti.gov/User-Facilities/User-Facilities-at-a-Glance

- Two facilities are dedicated to accelerator R&D:

Brookhaven ATF Facility

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

FACET-II Facility

https://science.osti.gov/hep/Facilities/User-Facilities/FACET-II

High Performance Computing

Light and Neutron Sources

Environmental Facilities

Fusion Facilities

![BeamNetUS logo]

Facilities at 6 National Labs will form the network for the pilot scheme

- Argonne (AWA), Berkeley (BELLA, HiRes), Brookhaven (ATF, UED), Fermilab (IOTA/FAST), Jefferson Lab (UITF), SLAC (FACET-II, NLCTA)

Facilities in the network are united in a common mission

- Advance accelerator research and applications of accelerator technology
- Provide access to unique accelerator and accelerator component resources

The network coordinates efforts towards overcoming barriers to access the facilities

2024 **Coordinated outreach and web resources:** One-stop shop to discover capabilities and paths to work at the facilities: beamnetus.org
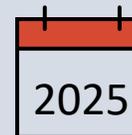
2025 **Competitive awards** for new Engagements at the facilities: beam time, support, travel and materials
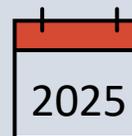
2025 **Mentorship organization** for skill transfer and promoting inclusion
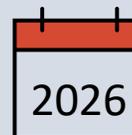
2026 **Expand network in 2026** with more award time available and with new facilities including facilities at universities

Facilities: How to gain access

- Each of the dedicated test facilities has its own proposal submission process:
  - Typically:
    - "Short" experiments (e.g., requiring a shift or two to complete)
      - Can be proposed at any time during the year directly to the Facility Director
      - Are run opportunistically when a break in the pre-planned run schedule occurs
    - Longer experiments (e.g., requiring many days to weeks of runtime)
      - Must complete and submit a proposal
      - Proposals are called for once per year and must be presented at an Annual User's Meeting
      - A Program Advisory Committee reviews the merit and feasibility and recommends a priority based on merit

- How to propose:
  - BNL-ATF (Brookhaven National Laboratory)
    - https://www.bnl.gov/atf/access.php
  - FACET-II (SLAC National Accelerator Laboratory)
    - https://facet-ii.slac.stanford.edu/user-resources/new-user-registration

Suggestion: discuss your experiment with the Facility Director prior to submitting anything

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Upcoming Office Hours

- **Please complete the exit survey!**

  - **Tell us what you'd like to discuss at future office hours!**

- **Future Office Hours**

  - Wednesday, March 13, 2024 at 3pm ET – Introduction to Accelerator Science and ARDAP
  - Wednesday, April 10, 2024 at 3pm ET – FOAs and Facilities for Accelerator Science
  - **Wednesday, May 8, 2024 at 3pm ET – Writing a strong proposal and managing an award**

- **Reach out!**

  - **Eric.Colby@science.doe.gov**
  - **Camille.Ginsburg@science.doe.gov**

FOAs = Funding Opportunity Announcements ('DOE-speak' for "solicitations for proposals")

Additional Slides

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Where can I learn about SC's accelerator technology needs?

- Each SC program maintains webpages with reports on its research needs and plans:
  - Basic Energy Sciences: **https://science.osti.gov/bes/Community-Resources/Reports**
  - Fusion Energy Science: **https://science.osti.gov/fes/Community-Resources/Workshop-Reports**
  - High Energy Physics: **https://science.osti.gov/hep/Community-Resources/Reports**
  - Nuclear Physics: **https://science.osti.gov/np/Community-Resources/Reports**
  - Accelerator R&D and Production: **https://science.osti.gov/hep/Research/Accelerator-Stewardship/Workshop-Reports**
  - Isotope Program: **https://science.osti.gov/Isotope-Research-Development-and-Production/Resources/Reports**

How can we find potential collaborators?

- For R&D partners of all types, search for authors of recent papers in your proposed topic area
- For DOE Lab partners specifically, there is the Lab Partnering Service
  https://www.energy.gov/technologytransitions/lab-partnering-service