

BES Office Hours: Chemical Sciences, Geosciences and Biosciences Division

May 16, 2024

Gail McLean

Director, Chemical Sciences, Geosciences and Biosciences Division
Office of Basic Energy Sciences

Slides Posted here: <https://science.osti.gov/bes/officehours>



U.S. DEPARTMENT OF
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[Energy.gov/science](https://science.osti.gov/science)

<https://science.osti.gov/bes/csgb/>

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>

Outline

- Introduction
 - DOE and the Office of Science
 - Office of Basic Energy Sciences
 - Chemical Sciences, Geosciences and Biosciences Division
- Funding Opportunity Announcements
- Where to find more information
- Q&A and Discussion – Three Zoom Breakout Rooms
 - FI – Fundamental Interactions
 - CT – Chemical Transformations
 - PB – Photochemistry and Biochemistry



U.S. DEPARTMENT OF
ENERGY

Office of
Science

Our Mission:

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



More than **34,000** researchers supported at more than **300** institutions and **17** DOE national laboratories



Steward **10** of the 17 DOE national laboratories



More than **37,000** users of **28** Office of Science scientific user facilities



\$8.1B
(FY 23 enacted)

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

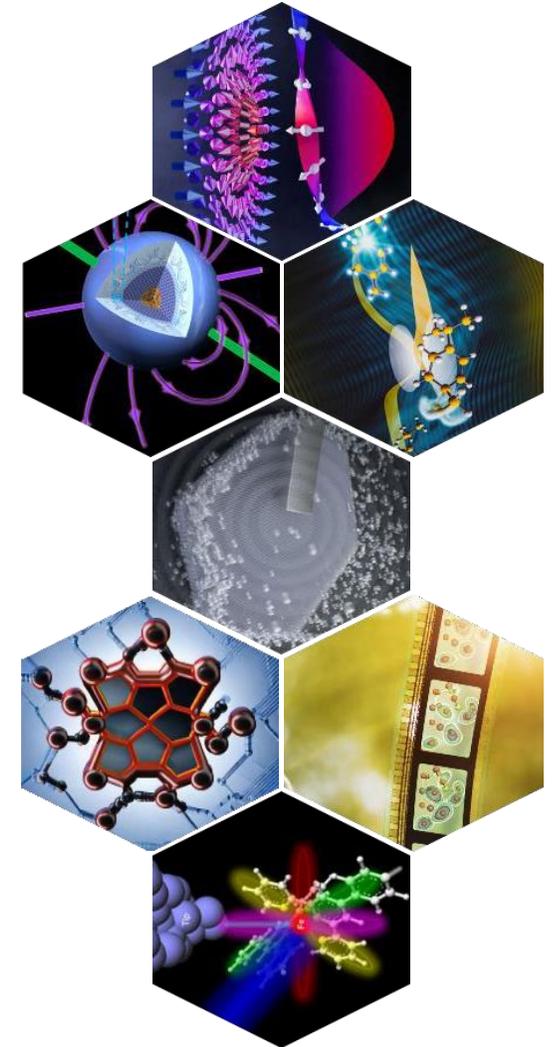
Accelerator R&D and Production

- Supporting new technologies for use in SC's scientific facilities and in commercial products

Basic Energy Sciences: Understanding Matter and Energy at Electronic, Atomic, and Molecular Levels

BES fulfills its mission through:

- Supporting **basic research in Materials Sciences, Chemical Sciences, Geosciences, and Biosciences**
 - “Grand Challenge” science
 - Discovery and design of materials and chemical processes that underpin a broad range of energy technologies
- Operating **world-class scientific user facilities** in X-ray, neutron, and nanoscale science
- Managing **construction and upgrade projects** to maintain **world-leading** scientific user facilities
- Ensuring **broad participation** in the research portfolio and user communities



Fundamental Research is Supported in Each of the Major BES Research Modalities

Core Research (>1500 awards)

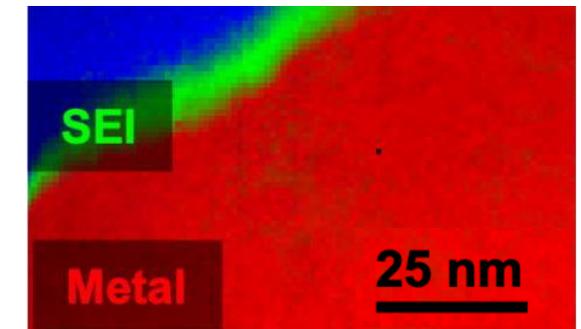
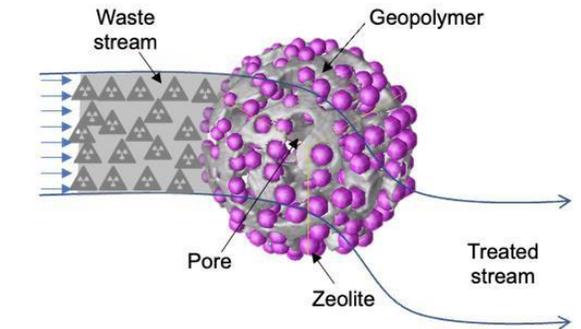
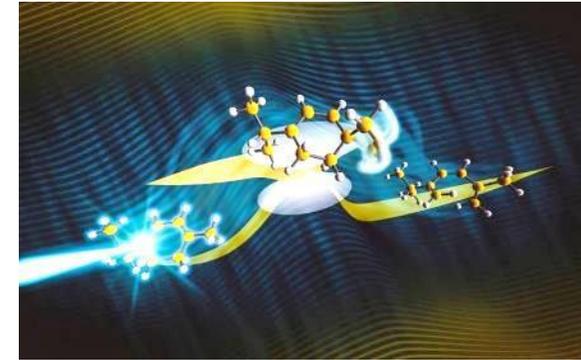
- Supports single investigators (~\$170K+/year) & small groups (\$500K-\$2M/yr, 3-yr).
- Fundamental materials & chemical sciences research.
- Includes SC Early Career Research Program awards (5-yr awards, separate FOA).

Energy Frontier (EFRC) & Energy Earthshot Research Centers (EERC), Computational Science Centers (CMS/CCS)

- Supports larger teams (\$2-5M/yr, 4-yr).
- Fundamental, use-inspired research per Basic Research Needs Workshop reports.

Energy Storage & Fuels from Sunlight Energy Innovation Hubs; Quantum Information Sciences Centers

- Large-team research awards (\$8-25M/yr, 5-yr).
- Fundamental research on topics that have proven challenging for traditional funding modalities.
- Defined research goals, milestones, and management.



Increasing scope and size

BES Participates in SC Programs to Broaden Participation



RENEW

Reaching a New Energy Sciences Workforce

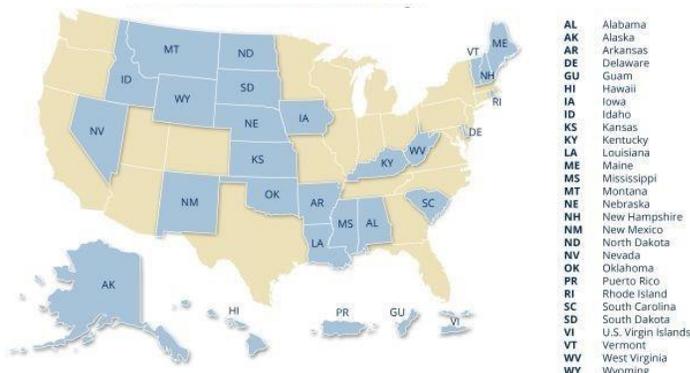
Preapps due
4/30/24



FAIR

Funding for Accelerated, Inclusive Research

Preapps due
4/30/24



EPSCoR

DOE Established Program to Stimulate Competitive Research (EPSCoR)

FOA closed

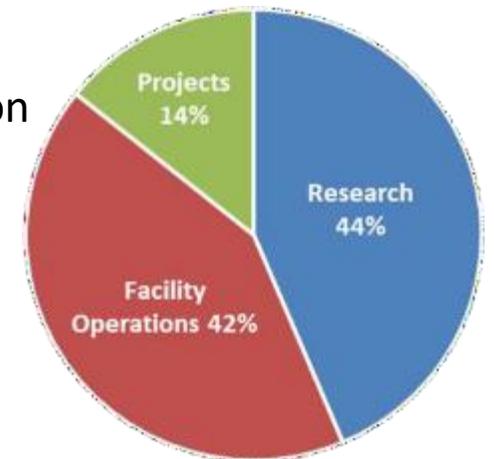
<https://science.osti.gov/bes/Funding-Opportunities>

Office of Science FAIR and RENEW Initiatives

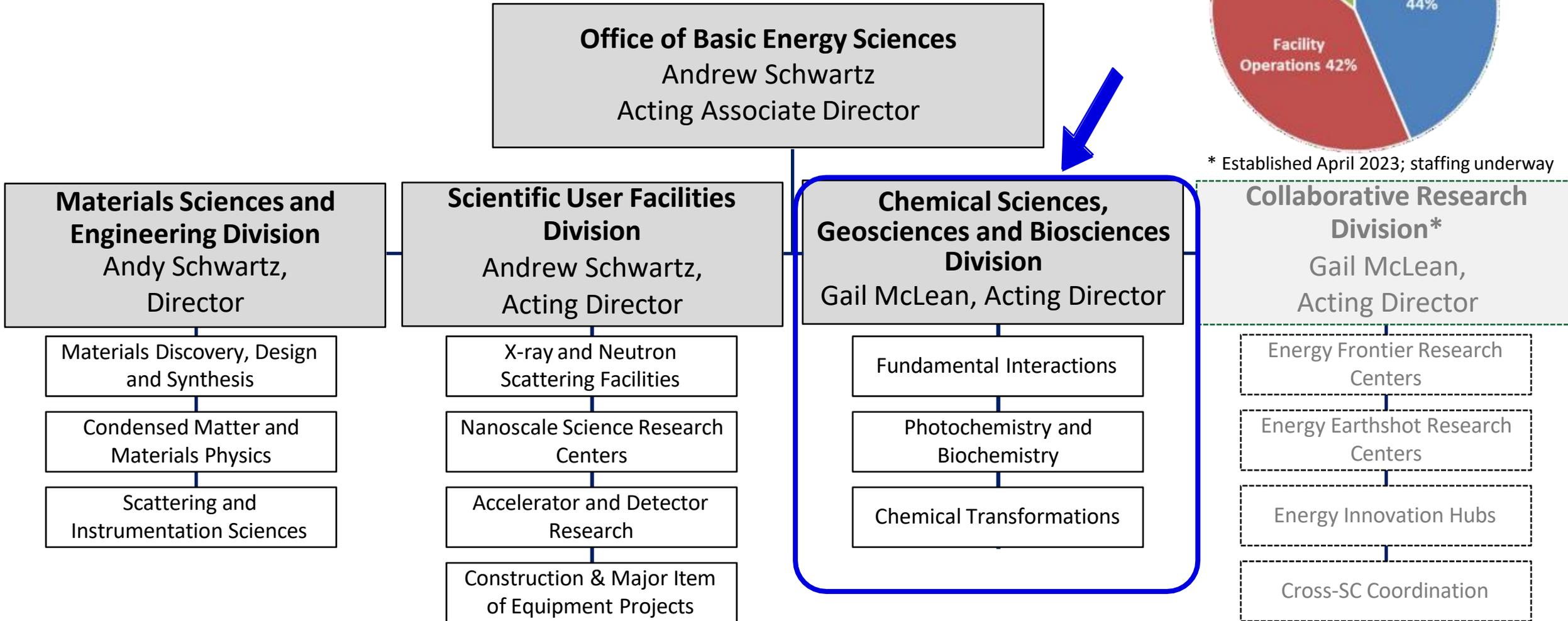
- Funding for Accelerated, Inclusive Research (FAIR)
 - Build research capacity, infrastructure, and expertise at institutions historically underrepresented in the SC portfolio by funding fundamental research relevant to the SC mission.
- Reaching a New Energy Sciences Workforce (RENEW)
 - Leverage SC's national laboratories, user facilities, and other research infrastructures to support traineeships for students and postdoctoral researchers at institutions underrepresented in the SC portfolio.
 - Applications to RENEW must include training activities beyond conduct of research.
- Both initiatives aim to:
 - Increase the diversity of institutions participating in SC research (focus on non-R1 minority serving institutions and non-R1 emerging research institutions).
 - Build relationships with institutions historically underrepresented in the SC research portfolio.

Basic Energy Sciences – Organization

FY 2023
Appropriation
\$2.5B

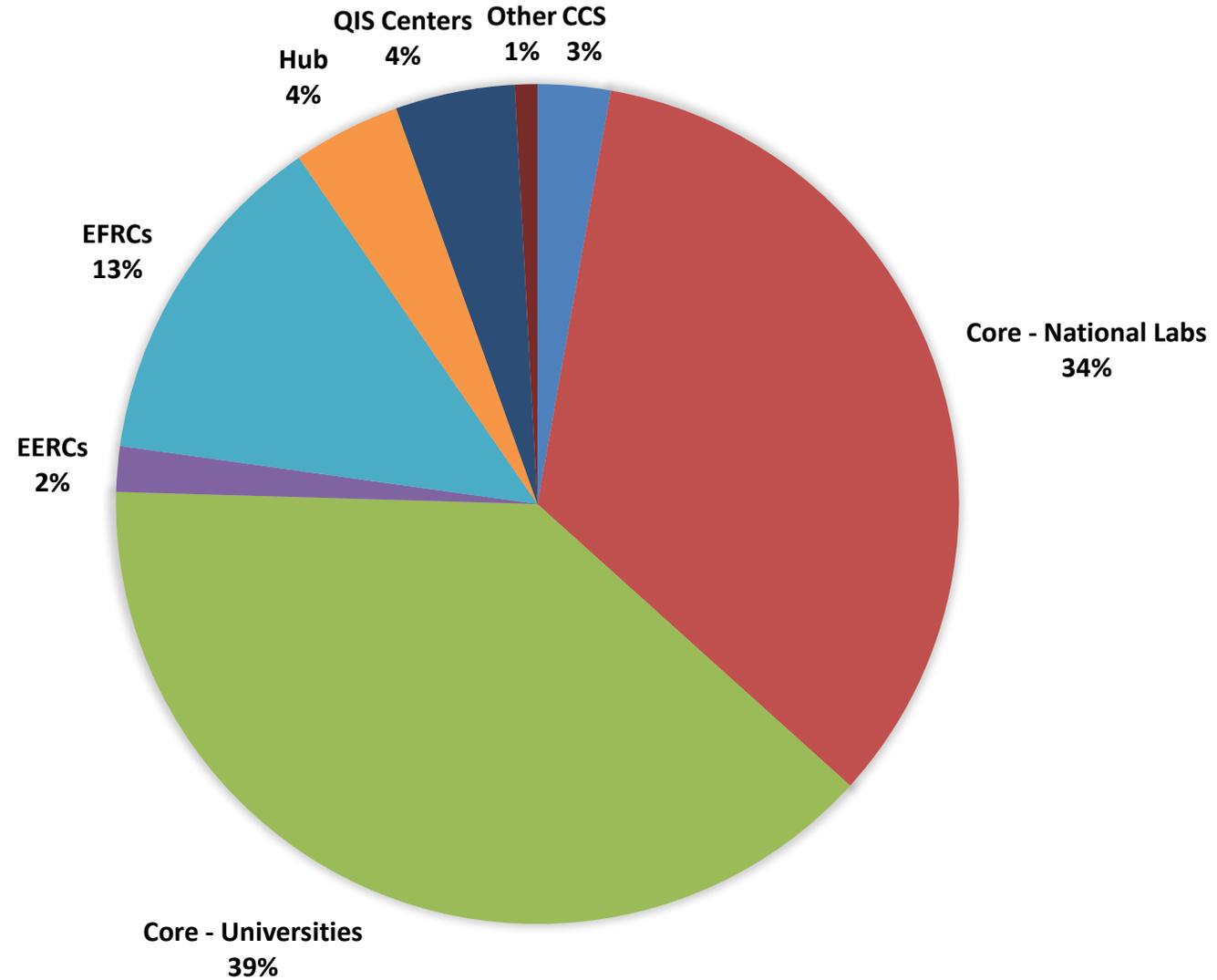
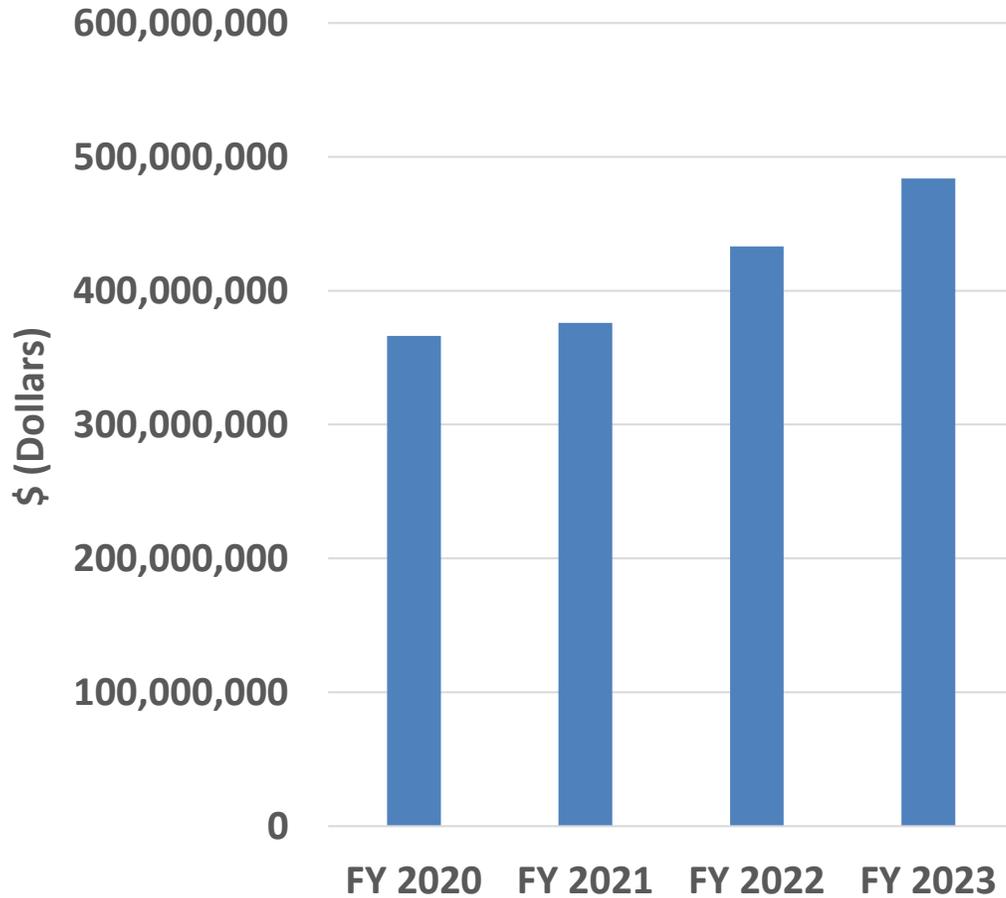


* Established April 2023; staffing underway



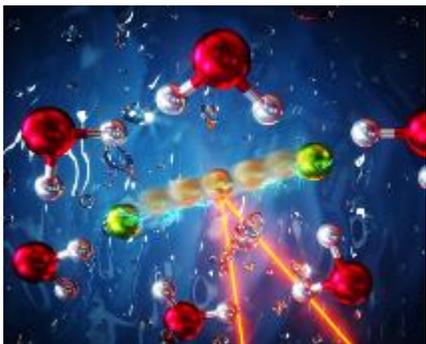
Research grouped by scientific topics, each impacting many energy technologies

BES-CSGB Budget



Chemical Sciences, Geosciences & Biosciences Research

Broad Portfolio of Grand Challenge and Energy Use-Inspired Fundamental Research

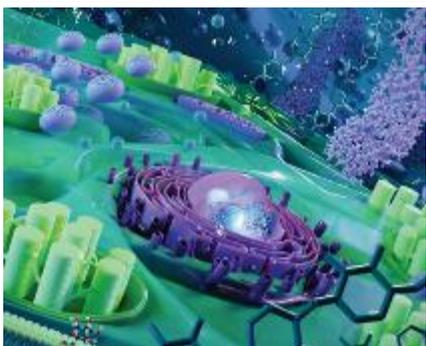


Fundamental Interactions:

Control chemical reactivity and dynamics in gas and condensed phases and at interfaces

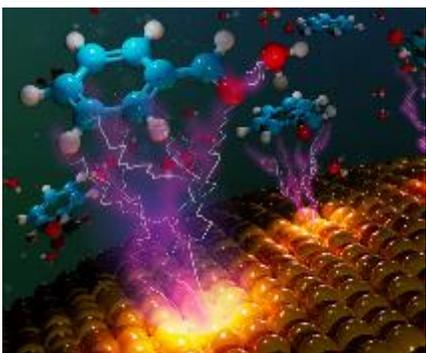
Photochemistry and Biochemistry:

Molecular mechanisms of light energy capture and its conversion into chemical and electrical energy



Chemical Transformations:

Chemical catalysis, synthesis, separation, stabilization, and transport processes, from atomic to geologic scales.



Crosscutting Research Themes:

Chemical Mechanisms for Clean Energy; Ultrafast Chemistry; Chemistry at Complex Interfaces; Charge Transport and Reactivity; Reaction Pathways in Diverse Environments; Chemistry in Aqueous Environments

Administrative Staff

Teresa Crockett



Gail McLean
Director

Chemical Sciences, Geosciences and Biosciences (CSGB) Division

Contact info for all PMs is
on the BES-CSGB Website



Fundamental Interactions Team

Team Lead – Tom Settersten



Atomic, Molecular, and Optical
Sciences

Acting PM – Tom Settersten



Gas Phase Chemical Physics

PM – Wade Sisk



Condensed Phase and Interfacial
Molecular Science

PM – Greg Fiechtner



Computational and Theoretical
Chemistry & Computational
Chemical Sciences

PM – Aaron Holder



Quantum Information Science

PM – Marat Valiev



Photochemistry and Biochemistry Team

Acting Team Lead – Gail McLean



Photosynthetic Systems

PM – Stephen Herbert



Physical Biosciences

PM – Kate Brown



Solar Photochemistry

PMs – Chris Fecko, Jenny Roizen



Fuels from Sunlight Energy
Innovation Hub

PMs – Chris Fecko, Jenny Roizen



Chemical Transformations Team

Team Lead – Raul Miranda



Catalysis Science

PMs – Chris Bradley, Viviane Schwartz



Separation Science

PM – Amanda Haes



Heavy Element Chemistry

PM – Philip Wilk



Geosciences

Acting PM – Philip Wilk

BES Funding Opportunities



Continuation of Solicitation for the Office of Science Financial Assistance Program (annual “Open Call”)

The annual, broad, open solicitation that covers all research areas in the Office of Science and is open throughout the Fiscal Year.

For BES, the solicitation includes brief descriptions of 24 core research areas, with current priorities/areas of interest and contact information for program managers (contacting program managers is encouraged).

BES identifies the following “**overarching research priorities**” relevant to multiple core research areas for the Open Call:

- Fundamental Science to Enable Clean Energy
- Critical Materials/Minerals
- Fundamental Science to Transform Processing and Fabrication
- Artificial Intelligence and Machine Learning (AI/ML)

DEPARTMENT OF ENERGY (DOE)
OFFICE OF SCIENCE (SC)



FY 2024 CONTINUATION OF SOLICITATION FOR THE OFFICE OF SCIENCE FINANCIAL ASSISTANCE PROGRAM

FUNDING OPPORTUNITY ANNOUNCEMENT (FOA) NUMBER:
DE-FOA-0003177

FOA TYPE: AMENDMENT **000001**
CFDA NUMBER: **81.049**

Amendment 000001 is issued with a number of minor edits, detailed on the next page

FOA Issue Date:	September 29, 2023
Submission Deadline for Pre-Applications:	A Pre-Application is optional/encouraged
Submission Deadline for Applications:	Not Applicable This FOA will remain open until September 30, 2024, or until replaced by a successor FOA. Applications may be submitted any time during that period. Individual topics in this FOA may have scheduled review panels. Applications submitted after the panel's acceptance date may be held until the next review panel.

<https://science.osti.gov/bes/-/media/grants/pdf/foas/2023/DE-FOA-0003177-000001.pdf>

FOA: Annual SC Early Career Research Program

- FOA Scope:
 - Support the development of individual research programs of outstanding scientists early in their careers and to stimulate research careers in the areas supported by SC.
 - All BES core research areas participate, including scientific user facilities
 - Topics may alternate to maintain reasonable applicant pool, ease reviewer burden, and improve success statistics.
- FOA Details:
 - Eligible Applicants: Untenured university professors on tenure track and DOE Lab Scientists, both within 12 years of PhD (likely reverting to 10 years in future); each applicant may apply a maximum of three times; extensions may be granted for major life events of at least 3 months
 - Typical funding: University: \$175K/yr for 5 years; DOE Lab: \$550K/yr for 5 years
 - FY 2024 Timeline:
 - FOA published on Dec. 15, 2023
 - ~~Pre-application due January 30, 2024~~
 - Applications (for those encouraged) due by April 25, 2024
 - Recorded Webinar Available Online.



<https://science.osti.gov/early-career>

Where to find more information

BES Chemical Sciences, Geosciences & Biosciences Division Webpage



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Meetings](#)

Chemical Sciences, Geosciences, & Biosciences (CSGB) Division

- Descriptions of all core research areas (funding programs)
- Abstract books from Principal Investigator Meetings
- Contact information for Program Managers

<https://science.osti.gov/bes/csgb>

BES Funding Opportunity Announcements



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Other Research Institutions](#)

Funding Opportunities

- [New Grant Applications from Universities and Other Research Institutions](#)

[Office of Science Guidance](#) on Accommodating Interruptions to Applications and Awardees due to COVID-19

Funding Opportunity Announcements (FOAs)

May be open to one or more institution types. For assistance with the Office of Science's Portfolio Analysis and Management System (PAMS) at <https://pamspublic.science.energy.gov>, please contact the Helpdesk at (855) 818-1846 (toll-free), (301) 903-9610, or sc.pams-helpdesk@science.doe.gov.

FY 2024 Continuation of Solicitation for the Office of Science Financial Assistance Program

Announcement Number: DE-FOA-0003177, Amendment
000001

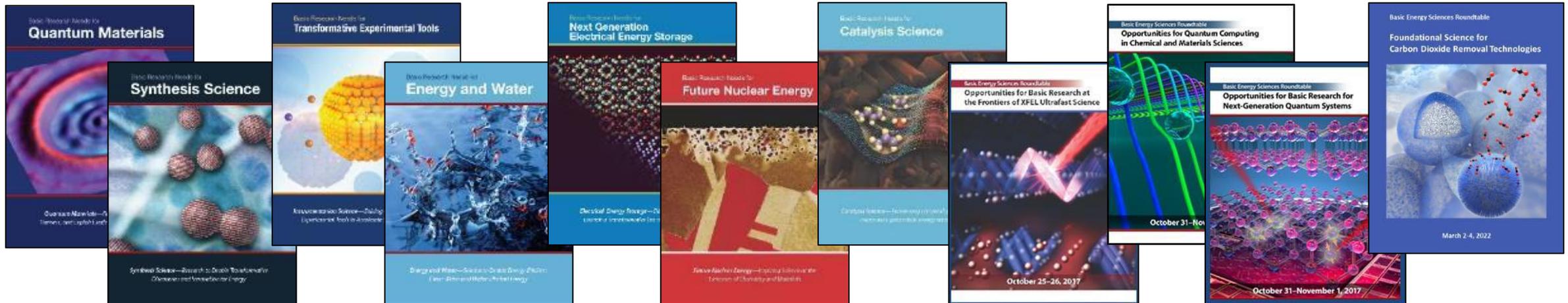
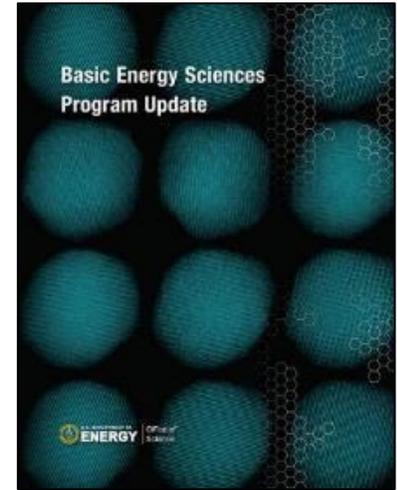
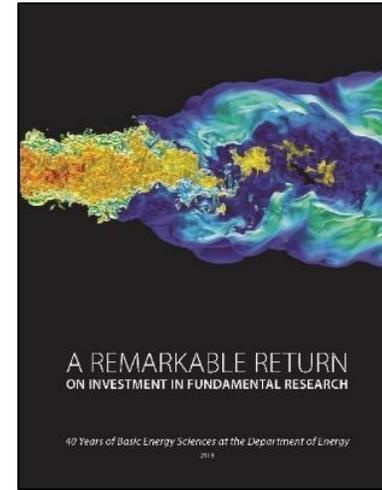
Post Date: Friday, September 29, 2023

Close Date: Monday, September 30, 2024

<https://science.osti.gov/bes/Funding-Opportunities>

Other Online Resources

- BRN Workshop and Roundtable Reports
 - Topical Reports identifying priority research directions and opportunities



<https://science.osti.gov/bes/Community-Resources>

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Future BES Office Hours

- Upcoming dates, topics and registration links here:
<https://science.osti.gov/bes/officehours> (including this slide deck)
- Zoom Poll
 - How did you hear about these BES office hours?
 - What additional office hours topics would interest you?

Q&A in Zoom Breakout Rooms

- Three Breakout Rooms for Q&A, organized by CSGB Team:
 - FI – Fundamental Interactions
 - CT – Chemical Transformations
 - PB – Physical Biosciences

Thank you

Gail McLean

gail.mclean@science.doe.gov