U.S. DEPARTMENT OF ENERGY | Office of Science

BES ECN Grant Writing Webinar: Brief Overview of DOE-BES Funding Opportunities

Viviane Schwartz
Chris Fecko

Program Managers, BES

DOE Basic Energy Sciences Funding Opportunities

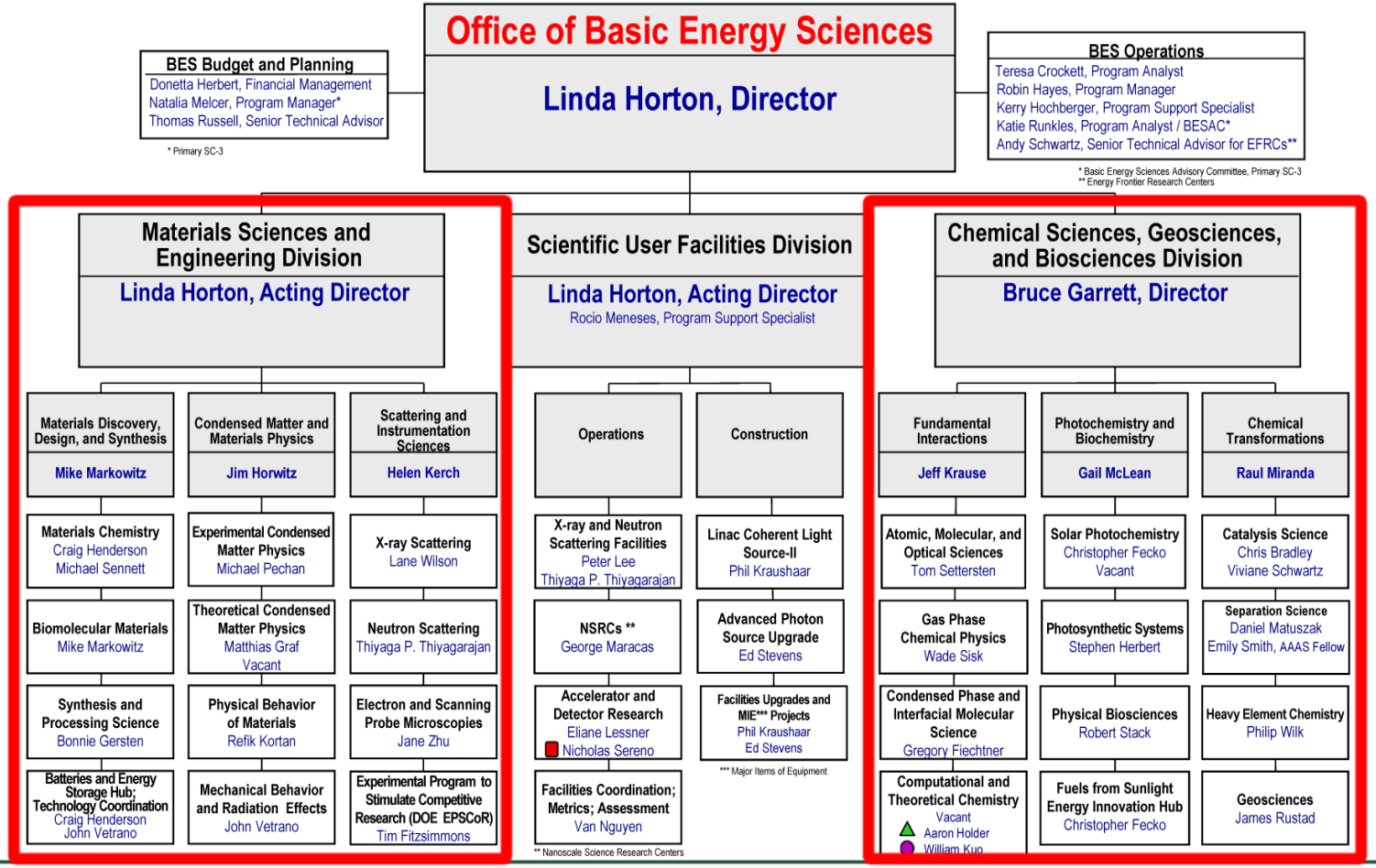
For the purposes of this webinar for early career researchers, BES Funding Opportunity Announcements (FOAs) can be categorized:

- **Open Solicitation** (formally: "FY 2020 Continuation of Solicitation for the Office of Science Financial Assistance Program")
  - Broad opportunity for all research areas in the Office of Science (including BES)
  - Eligibility generally open with respect to career stage, individuals/teams, submission dates; white papers encouraged to ensure programmatic relevance
  - Some programs specify priorities and/or practices; contact PM for details
- **Early Career Research Program**
  - Support for most scientific areas, but restricted to PIs within 10 years of Ph.D.
  - More info about this program provided in subsequent slides
- **Targeted or Special Solicitations**
  - Occasional solicitations targeted to specific scientific areas (e.g. quantum information science), centers (e.g. EFRCs), or other criteria (e.g. EPSCoR)

More information: https://science.osti.gov/bes/Funding-Opportunities

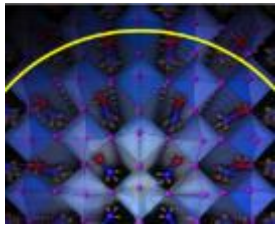
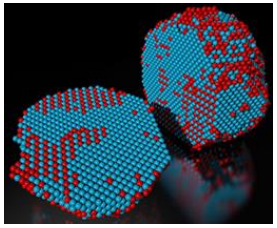
DOE Basic Energy Sciences Core Research Areas

Mission: The Office of Basic Energy Sciences (BES) **supports fundamental research to understand, predict, and ultimately control matter and energy at the electronic, atomic, and molecular levels** in order to provide the foundations for new energy technologies and to support DOE missions in energy, environment, and national security.



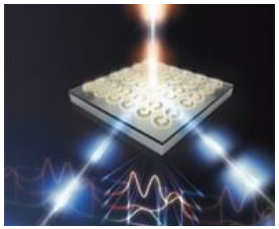
Materials Sciences and Engineering Research

Materials Discovery Design and Synthesis *Understanding design and synthesis to discover new materials via physical, chemical, and bio-molecular routes*

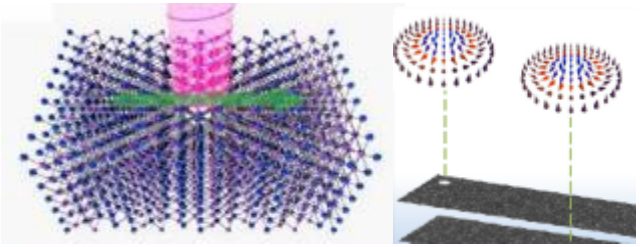
- *Materials Chemistry*
- *Biomolecular Materials*
- *Synthesis and Processing Science*

Condensed Matter and Materials Physics *Experimental and theoretical research to advance understanding of phenomena in condensed matter*

- *Experimental Condensed Matter Physics*
- *Theoretical Condensed Matter Physics*
- *Physical Behavior of Materials*
- *Mechanical Behavior and Radiation Effects*

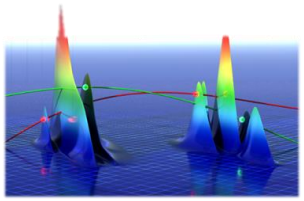
Scattering and Instrumentation Sciences *Investigation of photon, neutron, and electron interactions with matter to characterize structures, dynamics, and functionality*

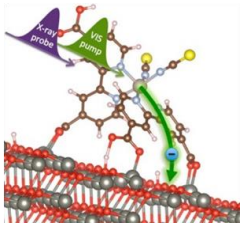


- *X-ray Scattering*
- *Neutron Scattering*
- *Electron and Scanning Probe Microscopies*

Chemical Sciences, Geosciences, and Biosciences Research

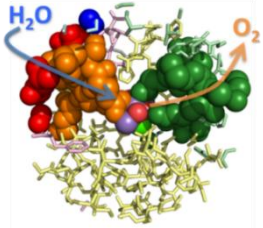
Fundamental Interactions *Understanding reactive chemistry at full quantum detail*

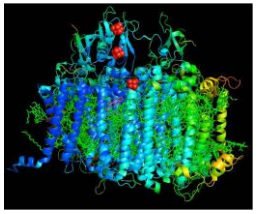




- *Atomic, Molecular and Optical Interactions*
- *Gas Phase Chemical Physics*
- *Condensed Phase and Interfacial Molecular Sciences*
- *Computational and Theoretical Chemistry*

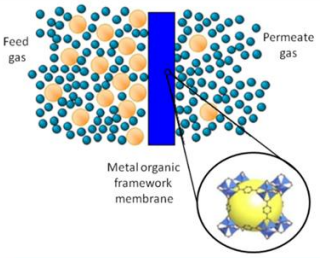
Photochemistry and Biochemistry *Light energy capture and conversion into chemical and electrical energy through biological and chemical pathways*

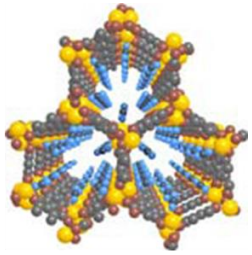




- *Solar Photochemistry*
- *Photosynthetic Systems*
- *Physical Biosciences*

Chemical Transformations *Understand and control synthesis, conversion, stabilization and transport processes in chemical systems, from atomic to geologic scales*





- *Catalysis Science*
- *Separations Science*
- *Heavy Element Chemistry*
- *Geosciences*

More Information on BES Core Research Areas

Recommended online resources:

- **BES Research Areas Websites**

  https://science.osti.gov/bes/mse

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

- **Abstracts of BES Principal Investigators' Meetings**

  https://science.osti.gov/bes/mse/Principal-Investigators-Meetings

  https://science.osti.gov/bes/csgb/Principal-Investigators-Meetings

- **BES-sponsored Workshop Reports**

  https://science.osti.gov/bes/Community-Resources/Reports

Office of Science Early Career Research Program

- **Purpose: To support the development of individual research programs of outstanding scientists early in their careers and to stimulate research careers in the disciplines supported by the DOE Office of Science.**

- **Proposals are invited in the following program areas:**

Basic Energy Sciences	•Understanding, predicting, and ultimately controlling matter and energy flow at the electronic, atomic, and molecular levels
Advanced Scientific Computing Research	•Delivering world leading computational and networking capabilities to extend the frontiers of science and technology
Biological and Environmental Research	•Understanding complex biological, climatic, 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

Office of Science Early Career Research Program Overview

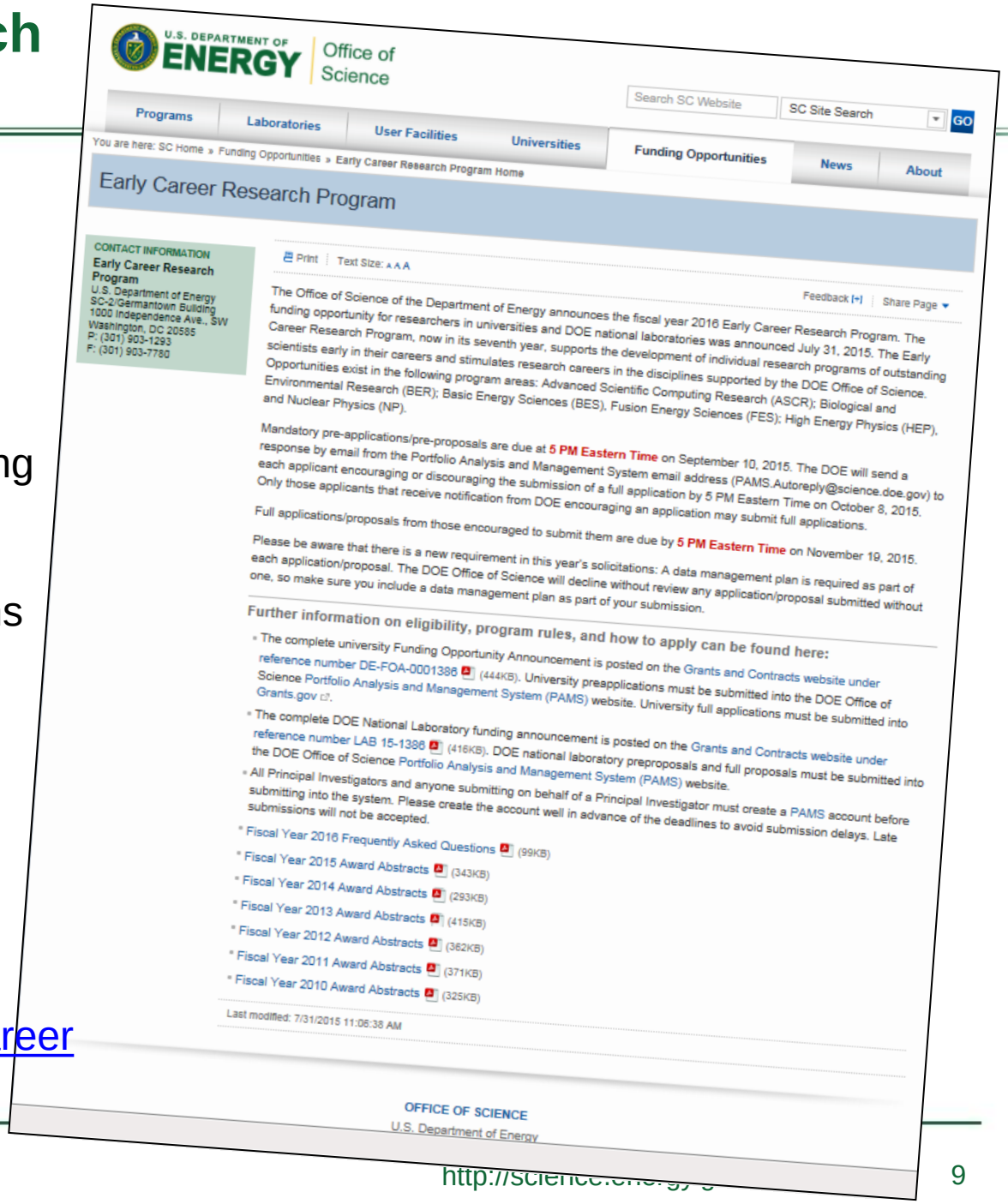
Office of Science Early Career Research Program – Started in FY10

- University and National labs eligible:
  - Eligibility: Within 10 years of receiving a Ph.D., either untenured academic assistant or associate professors on the tenure track or full-time DOE national lab employees
- No co-PIs.
- A PI can submit one proposal per competition.
- A PI cannot participate more than three times.
- 5-Yr Awards: University grants $150,000/yr, National lab awards $500,000/yr min (typical requests)

- ***New in FY19:*** For some research areas, full proposal submission only encouraged after internal ***reviews of pre-application***:
  - Conducted by no less than three federal program managers chosen for their topical knowledge and diversity of perspective;
  - Comparative reviews will compare pre-applications within a topical field with priority given to scientifically innovative and forward-looking basic research with the highest likelihood of success as a full application

Early Career Research Program Website

- Deadlines
- Direct links to announcements
- Links to PAMS for submitting preproposal
- Frequently Asked Questions (FAQ)
- Award abstracts from first six years of the program office



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

Early Career Research Program: Merit Review Criteria

1. **Scientific and/or technical merit of the project.**
2. **Appropriateness of the proposed method or approach.**
3. **Competency of applicant's personnel and adequacy of proposed resources.**
4. **Reasonableness and appropriateness of the proposed budget.**
5. **Relevance to the mission of the specific program (e.g., ASCR, BER, BES, FES, HEP, or NP) to which the proposal is submitted.**
6. **Potential for leadership within the scientific community.**

Rating System:

Strongly Encourage Funding (5-6)

Encourage Funding (3-4)

Discourage Funding (1-2)

U.S. DEPARTMENT OF ENERGY | Office of Science

Questions?

Viviane.Schwartz@science.doe.gov
Christopher.Fecko@science.doe.gov

DOE Office of Basic Energy Sciences:
Scientific User Facilities

- ✸ Available to all researchers ***at no cost*** for non-proprietary research, regardless of affiliation, nationality, or source of research support
- ✸ Access based on external peer merit review of brief proposals
- ✸ Coordinated access to co-located facilities to accelerate research cycles
- ✸ Collaboration with facility scientists an optional potential benefit
- ✸ Instrument and technique workshops offered periodically
- ✸ A variety of on-line, on-site, and hands-on training available
- ✸ Proprietary research may be performed at full-cost recovery

Light Sources

- Advanced Light Source (LBNL)
- Advanced Photon Source (ANL)
- Linac Coherent Light Source (SLAC)
- National Synchrotron Light Source-II (BNL)
- Stanford Synchrotron Radiation Laboratory (SLAC)

Neutron Sources

- High Flux Isotope Reactor (ORNL)
- Spallation Neutron Source (ORNL)

Nanoscale Science Research Centers

- Center for Functional Nanomaterials (BNL)
- Center for Integrated Nanotechnologies (SNL & LANL)
- Center for Nanophase Materials Sciences (ORNL)
- Center for Nanoscale Materials (ANL)
- Molecular Foundry (LBNL)