

The DOE Webinar will begin shortly . . .

- **Why is there no sound?**
 - Once you logged into the webinar, you were provided two options to listen to this broadcast. The first option is through your computer speakers, the second option is via dialing the phone number provided to you upon login to the webinar. If you chose to listen through your computer speakers, you may need to turn your speaker volume on or up.
- **Will DOE provide access to the recorded webinar after the meeting?**
 - Yes, all those who registered will receive a link to the slides and to the recorded webinar soon after the meeting. It will also be available on the DOE SBIR/STTR web site.
- **Where can I find the Topics being discussed today?**
 - This link will take you to the Funding Opportunity Announcement (FOA) page that lists the FY 2020 Phase I Release 1 Topics: <https://science.osti.gov/sbir/Funding-Opportunities>
- **What if my question was not answered at today's webinar?**
 - Please contact the point of contact that follows each subtopic in the document listed above for further clarification.
 - If you have a question about the grant application process, please send us an email at: sbir-sttr@science.doe.gov or call us at (301) 903-5707.





**DOE SBIR/STTR
Phase I Release 1 Topics Webinar**

**Topics associated with the
FY 2020 Phase I Release 1
Funding Opportunity Announcement**

Topics 26-35

DOE SBIR/STTR Programs Office

July 23, 2019

TODAY'S AGENDA

Topics Introduction	DOE SBIR/STTR Programs Office – Chris O’Gwin
Topics 26-30 :	Office of Biological and Environmental Research
Topics 31-35 :	Office of Nuclear Physics



FY 2020 Phase I Schedule

	Release 1	Release 2
Topics Issued	Monday, July 15, 2019	Tuesday, November 12, 2019
Webinar(s)	Week of July 22, 2019	Week of November 18, 2019
FOA Issued	Monday, August 12, 2019	Monday, December 16, 2019
Webinar(s)	Monday, August 19, 2019	Friday, December 20, 2019
Letters of Intent (LOI) Due	Tuesday, September 3, 2019	Monday, 6 January, 2020
Non-responsive LOI Feedback Provided	Tuesday, September 24, 2019	Tuesday, January 27, 2020
Applications Due	Tuesday, October 15, 2019	Monday, February 24, 2020
Award Notification	Monday, January 6, 2020	Monday, May 18, 2020

Phase I Funding Opportunity Announcements

Participating DOE Programs (FY 2020)

Phase I Release 1

- Office of Advanced Scientific Computing Research
- Office of Basic Energy Sciences
- Office of Biological and Environmental Research
- Office of Nuclear Physics
- Office of Science

Phase I Release 2

- Office of Cybersecurity, Energy Security, and Emergency Response
- Office of Defense Nuclear Nonproliferation
- Office of Electricity
- Office of Energy Efficiency and Renewable Energy
- Office of Environmental Management
- Office of Fossil Energy
- Office of Fusion Energy Sciences
- Office of High Energy Physics
- Office of Nuclear Energy



Funding Opportunity Announcement (FOA) Webinar

- FY20 Phase I Release 1 FOA will be issued on **August 12th**
- Join our Mailing List – this field is on every DOE SBIR/STTR web page
 - Following the issuance of the FOA, look for an email with a link to the FOA
- Webinar with Q&A for this FOA on **August 19th**
 - Overview of the FY 2020 DOE SBIR/STTR Programs
 - Following the issuance of the FOA, look for an email announcing this webinar



Contact the DOE SBIR/STTR Programs Office

Address U.S. Department of Energy SC-29/Germantown Building 1000 Independence Ave., SW Washington, DC 20585	Phone Tel(301) 903-5707 Fax(301) 903-5488	Email Send us a message sbir-str@science.doe.gov	Join Mailing List Subscribe to email updates from the SBIR & STTR Programs Subscribe
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Provide Feedback
Submit suggestions for improving the SBIR & STTR Programs [here](#)

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Topic Basics

- Topics are created by DOE program managers and define important technology breakthroughs needed in R&D areas that support the DOE mission
- Topics are organized by DOE Program Office
- DOE program managers are listed with each subtopic
 - Questions to DOE program managers are limited to clarification of the topic and subtopic (including references)
 - Clarification is provided to help **you** determine whether your technology fits within the topic and subtopic
 - You may communicate with these topic managers from the release of topics until the grant application due date
 - The decision to apply is **yours**



Example Topic

- Topic & Subtopic
 - You must specify the same topic and subtopic in your Letter of Intent and grant application
- Topic Header
 - Lists the maximum award amounts for Phase I & Phase II and the types of application accepted (SBIR and/or STTR)
- Program Manager
 - Each subtopic lists the responsible DOE program manager
- “Other” Subtopic
- References

12. INSTRUMENTATION FOR ADVANCED CHEMICAL IMAGING

Maximum Phase I Award Amount: \$200,000	Maximum Phase II Award Amount: \$1,100,000
Accepting SBIR Phase I Applications: YES	Accepting STTR Phase I Applications: YES

The Department of Energy seeks to advance chemical imaging technologies that facilitate fundamental research to understand, predict, and ultimately control matter and energy at the electronic, atomic, and molecular levels. The Department is particularly interested in forefront advances in imaging techniques that combine molecular-scale spatial resolution and ultrafast temporal resolution to explore energy flow, molecular dynamics, breakage, or formation of chemical bonds, or conformational changes in nanoscale systems.

Grant applications are sought in the following subtopics:

- a. **High Spatial Resolution Ultrafast Spectroscopy**
Chemical information associated with molecular-scale processes is often available from optical spectroscopies involving interactions with electromagnetic radiation ranging from the infrared spectrum to x-rays. Ultrafast laser technologies can provide temporally resolved chemical information via optical spectroscopy or laser-assisted mass sampling techniques. These approaches provide time resolution ranging from the breakage or formation of chemical bonds to conformational changes in nanoscale systems but generally lack the simultaneous spatial resolution required to analyze individual molecules. Grant applications are sought that make significant advancements in spatial resolution towards the molecular scale for ultrafast spectroscopic imaging instrumentation available to the research scientist. The nature of the advancement may span a range of approaches including sub-diffraction limit illumination or detection, selective sampling, and coherent or holographic signal analysis.

Questions – Contact: James Rustad, James.Rustad@Science.doe.gov

- b. **Time-Resolved Chemical Information from Hybrid Probe Microscopies**
Probe microscopy instruments (including AFM and STM) have been developed that offer spatial resolution of molecules and even chemical bonds. While probe-based measurements alone do not typically offer the desired chemical information on molecular timescales, methods that take advantage of electromagnetic interactions or sampling with probe tips have been demonstrated. Grant applications are sought that would make available to scientists new hybrid probe instrumentation with significant advancements in chemical and temporal resolution towards that required for molecular scale chemical interactions. The nature of the advancement may span a range of approaches and probe techniques, from tip-enhanced or plasmonic enhancement of electromagnetic spectroscopies to probe-induced sample interactions that localize spectroscopic methods to the molecular scale.

Questions – Contact: James Rustad, James.Rustad@Science.doe.gov

- c. **Other**
In addition to the specific subtopics listed above, the Department invites grant applications in other areas that fall within the scope of the topic description above.

Questions – Contact: James Rustad, James.Rustad@Science.doe.gov

References:

1. U.S. Department of Energy, 2006, Office of Science Notice DE-FG01-05ER05-30, Basic Research for Chemical Imaging, BES Chemical Imaging Research Solicitation. (<http://science.energy.gov/~media/grants/pdf/foas/2005/DE-FG01-05ER05-30.pdf>).
2. National Research Council, 2006, Visualizing Chemistry, The Progress and Promise of Advanced Chemical Imaging, National Academies Press. (http://www.nap.edu/catalog.php?record_id=11663).



Topic 26 : TECHNOLOGIES FOR CHARACTERIZING AND MONITORING THE SUBSURFACE, TERRESTRIAL ECOSYSTEMS AND WATERSHEDS

Maximum Phase I Award Amount: \$200,000

Maximum Phase II Award Amount: \$1,600,000

Accepting SBIR Phase I Applications: YES

Accepting STTR Phase I Applications: YES

- a. Real-Time, In-situ Measurements of Hydro-biogeochemical and Microbial Processes in Watersheds and Subsurface Systems
- b. Image Processing Improvements for In Situ Fine Root Measurements
- c. Other

Questions: Subtopics a & c – Paul Bayer, paul.bayer@science.doe.gov

Questions: Subtopic b – Dan Stover, daniel.stover@science.doe.gov

Topic 27: ATMOSPHERIC MEASUREMENT TECHNOLOGY

Maximum Phase I Award Amount: \$200,000	Maximum Phase II Award Amount: \$1,600,000
Accepting SBIR Phase I Applications: YES	Accepting STTR Phase I Applications: YES

- a. Field Calibration for Atmospheric Measurements
- b. Other

Questions: Subtopics a – Sally McFarlane, Sally.McFarlane@science.doe.gov

Questions: Subtopic b – Rick Petty, Rick.Petty@science.doe.gov
or Sally McFarlane, Sally.McFarlane@science.doe.gov

Topic 28: ENABLING TOOLS FOR STRUCTURAL BIOLOGY OF MICROBIAL AND PLANT SYSTEMS RELEVANT TO BIOENERGY

Maximum Phase I Award Amount: \$200,000

Maximum Phase II Award Amount: \$1,600,000

Accepting SBIR Phase I Applications: YES

Accepting STTR Phase I Applications: YES

- a. Tools or Instruments for Structural Characterization of Biological Systems Ranging from Atomic to Multi-Cellular Scales
- b. Other

Questions: Amy Swain, Amy.Swain@science.doe.gov

Topic 29: BIOIMAGING TECHNOLOGIES FOR BIOLOGICAL SYSTEMS

Maximum Phase I Award Amount: \$200,000	Maximum Phase II Award Amount: \$1,600,000
Accepting SBIR Phase I Applications: YES	Accepting STTR Phase I Applications: YES

- a. New Instrumentation and Bioimaging Devices for Non-destructive, Functional Metabolic Imaging of Plant and Microbial Systems
- b. Other

Questions: Prem Srivastava, Prem.Srivastava@science.doe.gov

Topic 30: TECHNOLOGIES FOR THE SYNTHESIS OF LARGE DNA FRAGMENTS TO ENABLE SYNTHETIC BIOLOGY

Maximum Phase I Award Amount: \$200,000

Maximum Phase II Award Amount: \$1,600,000

Accepting SBIR Phase I Applications: YES

Accepting STTR Phase I Applications: YES

- a. Technologies for the Synthesis of Large DNA Fragments
- b. Other

Questions: Boris Wawrik, boris.wawrik@science.doe.gov

Topic 31: NUCLEAR PHYSICS SOFTWARE AND DATA MANAGEMENT

Maximum Phase I Award Amount: \$200,000

Maximum Phase II Award Amount: \$1,100,000

Accepting SBIR Phase I Applications: YES

Accepting STTR Phase I Applications: YES

- a. Tools for Large Scale Distributed Data Storage
- b. Software-Driven Network Architectures for Data Acquisition
- c. Data Science / Distributed Computing Applications
- d. Heterogeneous Concurrent Computing
- e. Other

Questions: Michelle Shinn, Michelle.Shinn@science.doe.gov

or Gulshan Rai, Gulshan.Rai@science.doe.gov

Topic 32: NUCLEAR PHYSICS ELECTRONICS DESIGN AND FABRICATION

Maximum Phase I Award Amount: \$200,000

Maximum Phase II Award Amount: \$1,100,000

Accepting SBIR Phase I Applications: YES

Accepting STTR Phase I Applications: YES

- a. Advances in Digital Processing Electronics
- b. Front-End Application-Specific Integrated Circuits
- c. Next Generation Pixel Sensors
- d. Manufacturing and Advanced Interconnection Techniques
- e. Other

Questions: Michelle Shinn, Michelle.Shinn@science.doe.gov

or Manouchehr Farkhondeh, Manouchehr.Farkhondeh@science.doe.gov

Topic 33: NUCLEAR PHYSICS ACCELERATOR TECHNOLOGY

Maximum Phase I Award Amount: \$200,000	Maximum Phase II Award Amount: \$1,100,000
Accepting SBIR Phase I Applications: YES	Accepting STTR Phase I Applications: YES

- a. Materials and Components for Radio Frequency Devices
- b. Design and Operation of Radio Frequency Beam Acceleration Systems
- c. Particle Beam Sources and Techniques
- d. Polarized Beam Sources and Polarimeters
- e. Rare Isotope Beam Production Technology
- f. Accelerator Control and Diagnostics
- g. Magnet Development for Proposed Future Electron-Ion Colliders (EIC)
- h. Other

Questions: Michelle Shinn, Michelle.Shinn@science.doe.gov

Topic 34: NUCLEAR PHYSICS INSTRUMENTATION, DETECTION SYSTEMS AND TECHNIQUES

Maximum Phase I Award Amount: \$200,000

Maximum Phase II Award Amount: \$1,100,000

Accepting SBIR Phase I Applications: YES

Accepting STTR Phase I Applications: YES

- a. Advances in Detector and Spectrometer Technology
- b. Development of Novel Gas and Solid-State Detectors
- c. Technology for Rare Decay and Rare Particle Detection
- d. High Performance Scintillators, Cherenkov Materials and Other Optical Components
- e. Technology for High Radiation Environments
- f. Other

Questions: Michelle Shinn, Michelle.Shinn@science.doe.gov

or Elizabeth Bartosz, Elizabeth.Bartosz@science.doe.gov

Topic 35: NUCLEAR PHYSICS ISOTOPE SCIENCE AND TECHNOLOGY

Maximum Phase I Award Amount: \$200,000	Maximum Phase II Award Amount: \$1,100,000
Accepting SBIR Phase I Applications: YES	Accepting STTR Phase I Applications: YES

- a. Novel or Improved Isotope Production Techniques
- b. Improved Radiochemical Separation Methods for Preparing High-Purity Radioisotopes
- c. Other

Questions: Michelle Shinn, Michelle.Shinn@science.doe.gov
or Ethan Balkin, Ethan.Balkin@science.doe.gov

DOE SBIR/STTR Programs Office Contact Information

- SBIR/STTR Web: www.science.energy.gov/sbir
- Email: sbir-sttr@science.doe.gov
- Phone Assistance Hotline: 301-903-5707
- DOE Phase 0 Assistance Program: <http://www.doe.gov/phase0>
- DOE Application Assistance: <https://science.osti.gov/SBIRLearning>

