

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 2021 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.





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

**Topics associated with the
FY 2021 Phase I Release 1
Funding Opportunity Announcement**

Topics 29-38

DOE SBIR/STTR Programs Office

July 22, 2020

TODAY'S AGENDA

Topics Introduction	DOE SBIR/STTR programs office
Topics 29-34	Office of Biological and Environmental Research
Topics 35-38	Office of Nuclear Physics



FY 2021 Phase I Schedule

	Release 1	Release 2
Topics Issued	Monday, July 13, 2020	Monday, November 9, 2020
Webinar(s)	Week of July 20, 2020	Week of November 16, 2020
FOA Issued	Monday, August 10, 2020	Monday, December 14, 2020
Webinar(s)	Monday, August 17, 2020	Friday, December 18, 2020
Letters of Intent (LOI) Due	Monday, August 31, 2020	Monday, 4 January, 2021
Non-responsive LOI Feedback Provided	Monday, September 21, 2020	Monday, January 25, 2021
Applications Due	Tuesday, October 13, 2020	Monday, February 22, 2021
Award Notification	Monday, January 4, 2021	Monday, May 17, 2021

Phase I Funding Opportunity Announcements

Participating DOE Programs (FY 2021)

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

- FY21 Phase I Release 1 FOA will be issued on **August 10th**
- 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 17th**
 - Overview of the FY 2021 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
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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, e.g., EERE, BES, etc.
- 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 29: TECHNOLOGIES FOR HYDROBIOGEOCHEMICAL MEASUREMENTS IN COASTAL SYSTEMS

Maximum Phase I Award Amount: \$250,000

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

Accepting SBIR Phase I Applications: YES

Accepting STTR Phase I Applications: YES

- a. Integrated Surface/Near-surface Sensors and Arrays for Real-Time, In situ Measurements of Hydro-Biogeochemical Processes in Coastal Terrestrial-Aquatic Interfaces
- b. Other

Questions: Subtopic a – Jennifer Arrigo, jennifer.arrigo@science.doe.gov
or Brian Benscoter, brian.benscoter@science.doe.gov

Questions: Subtopic b – Jennifer Arrigo, jennifer.arrigo@science.doe.gov

Topic 30: ATMOSPHERIC MEASUREMENT TECHNOLOGY

Maximum Phase I Award Amount: \$250,000	Maximum Phase II Award Amount: \$1,600,000
Accepting SBIR Phase I Applications: YES	Accepting STTR Phase I Applications: YES

- a. Fast Response Aircraft Temperature and/or Water Vapor Measurements
- b. Airborne Instruments for Water Cloud Measurements
- c. Other

Questions: Sally McFarlane, Sally.McFarlane@science.doe.gov

Topic 31: ENABLING TOOLS FOR STRUCTURAL BIOLOGY OF MICROBIAL AND PLANT SYSTEMS RELEVANT TO BIOENERGY

Maximum Phase I Award Amount: \$250,000

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 32: BIOIMAGING TECHNOLOGIES FOR BIOLOGICAL SYSTEMS

Maximum Phase I Award Amount: \$250,000	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 33: TECHNOLOGIES TO ENABLE THE SYNTHESIS OF LARGE DNA FRAGMENTS FOR SYNTHETIC BIOLOGY

Maximum Phase I Award Amount: \$250,000

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 34: BIOLOGICAL APPROACHES AND TECHNOLOGIES FOR BIOENERGY: ENZYMATIC AND MICROBIAL TECHNOLOGIES FOR BIOENERGY AND BIOPRODUCTS PRODUCTION FROM LIGNOCELLULOSIC FEEDSTOCKS

Maximum Phase I Award Amount: \$250,000

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

Accepting SBIR Phase I Applications: YES

Accepting STTR Phase I Applications: YES

- a. Lignocellulose Deconstructing Enzymes
- b. Synthetic Biology Approaches for the Microbial Conversion of Lignocellulose to Bioproducts
- c. Microbial Amendments for Enhanced Bioenergy Crop Production
- d. Other

Questions: Subtopic a & d – Kent Peters, Kent.Peters@science.doe.gov

Questions: Subtopic b – Dawn Adin, Dawn.Adin@science.doe.gov

Questions: Subtopic c – Shing Kwok, Shing.Kwok@science.doe.gov

Topic 35: 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. Applications of AI/ML to Nuclear Physics Data Science
- c. Heterogeneous Concurrent Computing
- d. Other

Questions: Michelle Shinn, Michelle.Shinn@science.doe.gov or
Gulshan Rai, Gulshan.Rai@science.doe.gov

Topic 36: 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 37: 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 Future Electron-Ion Colliders (EIC)
- h. Other

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

Topic 38: 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

DOE SBIR/STTR Programs Office Contact Information

- SBIR/STTR Web: <https://science.osti.gov/sbir>
- Email: sbir-sttr@science.doe.gov
- Phone Assistance Hotline: 301-903-5707
- DOE Phase 0 Assistance Program: <http://www.dawnbreaker.com/doephase0/>
- DOE Application Assistance: <https://science.osti.gov/SBIRLearning>

