


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 2024 Phase I Release 2 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 2 Topics Webinar

Topics associated with the
FY 2024 Phase I Release 2
Funding Opportunity Announcement

Topics 2-8 & 29-30

DOE SBIR/STTR Programs Office

November 16, 2023

TODAY'S AGENDA

Topics Introduction	DOE SBIR/STTR Programs Office
Topics 2-8	Office Of Defense Nuclear Nonproliferation Research And Development
Topics 29-30	Office of Nuclear Energy



FY 2024 Phase I Schedule

	Release 1	Release 2
Topics Issued	Monday, July 10, 2023	Monday, November 6, 2023
Webinar(s)	Week of July 17, 2023	Week of November 13, 2023
FOA Issued	Monday, August 7, 2023	Monday, December 11, 2023
Webinar(s)	Friday, August 11, 2023	Friday, December 15, 2023
Letters of Intent (LOI) Due	Monday, August 28, 2023	Wednesday, January 3, 2024
Non-responsive LOI Feedback Provided	Monday, September 18, 2023	Tuesday, January 23, 2024
Applications Due	Tuesday, October 10, 2023	Wednesday, February 21, 2024
Award Notification	Tuesday, January 2, 2024	Monday, May 20, 2024

Phase I Funding Opportunity Announcements

Participating DOE Programs (FY 2024)

Phase I Release 1

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

Phase I Release 2

- Office of Cyber Security, Energy Security, and Emergency Response
- Office Of Defense Nuclear Nonproliferation Research And Development
- Office of Electricity
- Office of Energy Efficiency and Renewable Energy
- Office of Fossil Energy and Carbon Management
- Office of Nuclear Energy



Funding Opportunity Announcement (FOA) Webinar


- FY24 Phase I Release 2 FOA will be issued on **December 11th**
- 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 **December 15th**
 - Overview of the FY 2023 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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Reminder - Phase 0 Application Assistance Program



- Phase 0 application assistance program is available for first-time DOE SBIR/STTR applicants
- Participants receive an individual coach who is an expert in our application process.
- Program opens when Topics are released (Open now!)
- Visit <http://www.dawnbreaker.com/doephase0/> to determine your eligibility and apply to Phase 0



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., ASCR, 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 C58-02: QUANTUM SENSORS FOR UNDERGROUND NUCLEAR EXPLOSION MONITORING

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: NO
Accepting SBIR Fast-Track Applications: YES	Accepting STTR Fast-Track Applications: NO

- a. Fieldable Quantum Sensors to Detect Underground Explosions
- b. Other

Questions: John Lazarz, John.Lazarz@nnsa.doe.gov

Topic C58-03: RADIATION RESISTANT PLASTIC ENCAPSULATED MICROCIRCUITS

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: NO
Accepting SBIR Fast-Track Applications: YES	Accepting STTR Fast-Track Applications: NO

- a. Radiation Resistant Plastic Encapsulated Microcircuits (PEMs) with Undiminished Performance, High-Yield, and Lower Cost
- b. Other

Questions: Christopher McCartan, Chris.McCartan@nnsa.doe.gov

Topic C58-04: ARTIFICIAL INTELLIGENCE

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: NO
Accepting SBIR Fast-Track Applications: YES	Accepting STTR Fast-Track Applications: NO

- a. Experimentation Framework for Multimodal Foundation Models

Questions: Paul Adamson, paul.adamson@nnsa.doe.gov

Topic C58-05: AUTONOMOUS RADIATION SENSING AND MAPPING

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: NO
Accepting SBIR Fast-Track Applications: YES	Accepting STTR Fast-Track Applications: NO

- a. Autonomous Sensors Systems for Radiation Detection and Mapping
- b. Other

Questions: Hank Zhu, hank.zhu@nnsa.doe.gov

Topic C58-06: HIGH-ENERGY X-RAY SOURCES FOR FIELD RADIOGRAPHY

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: NO
Accepting SBIR Fast-Track Applications: YES	Accepting STTR Fast-Track Applications: NO

- a. Novel X-Ray Sources for High-Energy Field Radiography
- b. Other

Questions: Hank Zhu, hank.zhu@nnsa.doe.gov

Topic C58-07: ALTERNATIVE RADIOLOGICAL SOURCE TECHNOLOGIES

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: NO
Accepting SBIR Fast-Track Applications: YES	Accepting STTR Fast-Track Applications: NO

- a. Novel Approaches to Accelerator Component Redesign to Address Supply Chain Uncertainty
- b. Other

Questions: Hank Zhu, hank.zhu@nnsa.doe.gov

Topic C58-08: TECHNOLOGY FOR FUTURE REMOTE DETECTION SENSING

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: NO
Accepting SBIR Fast-Track Applications: YES	Accepting STTR Fast-Track Applications: NO

- a. Imaging Focal Planes Using Quantum Resonance Effects in the Pixels that are Adjustable in Sensing Frequency Through Application of a Control Signal (i.e., Thermal, Electrical, etc.)
- b. Demonstration or Analysis of a Phased Array Gravity Sensor to Permit Off-Vertical Sensing Through Multi-Sensor Gravimeter or Gravity Gradiometer Systems Employing Atom Interferometers
- c. Maritime, Limnologic, and Oceanic Hyperspectral Imagery Analysis Advancement

Questions: Christopher Ramos, Christopher.Ramos@nnsa.doe.gov

Topic C58-29: ADVANCED TECHNOLOGIES FOR NUCLEAR ENERGY

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
Accepting SBIR Fast-Track Applications: NO	Accepting STTR Fast-Track Applications: NO

- a. Advanced Modeling and Simulation
- b. Advanced Methods and Manufacturing Technologies (AMMT) Program
- c. Nuclear Science User Facilities (NSUF) Program
- d. Advanced Sensors and Instrumentation (ASI) (Crosscutting Research)

Questions: Subtopic a – David Henderson, David.Henderson@nuclear.energy.gov

Subtopic b – Dirk Cairns-Gallimore, Dirk.Cairns-Gallimore@nuclear.energy.gov

Subtopic c – Christopher Barr, christopher.barr@nuclear.energy.gov

Subtopic d – Daniel Nichols, daniel.nichols@nuclear.energy.gov

Topic C58-29: ADVANCED TECHNOLOGIES FOR NUCLEAR ENERGY (Continued)

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
Accepting SBIR Fast-Track Applications: NO	Accepting STTR Fast-Track Applications: NO

- e. Component Development to Support Liquid Metal Reactors – Electromagnetic Pumps
- f. Roller Bearings for High Temperature Sodium Applications
- g. Under-lead Viewing Systems for Advanced Reactor Applications

Questions: Kaatrin Abbott, kaatrin.abbott@nuclear.energy.gov

Topic C58-29: ADVANCED TECHNOLOGIES FOR NUCLEAR ENERGY (Continued)

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
Accepting SBIR Fast-Track Applications: NO	Accepting STTR Fast-Track Applications: NO

- h. Rapid, Inexpensive Molten Salt Property Measurement
- i. Advanced Construction Technology (ACT) Initiative
- j. Robotics for Advanced Nuclear Facilities
- k. Supporting Technologies for Microreactor Operations

Questions: Janelle Eddins, Janelle.Eddins@nuclear.energy.gov

Topic C58-29: ADVANCED TECHNOLOGIES FOR NUCLEAR ENERGY (Continued)

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
Accepting SBIR Fast-Track Applications: NO	Accepting STTR Fast-Track Applications: NO

- l. Microreactor Applications, Unattended Operations, and Cost-Reduction Technologies
- m. Graphite Component Development to Support High Temperature Gas Reactors (HTGR) and Molten Salt Reactors (MSR)
- n. Thermal Hydraulic Development to Support High Temperature Gas Reactors (HTGR)
- o. Reducing the Footprint and Cost of Structure and Siting for Distributed Nuclear Generation
- p. Cost to Manufacture and Install Advanced Nuclear Reactor Technologies
- q. Nuclear Heat for Polymers, Plastics, and Cellulose Waste Decomposition and Recovery

Questions: Subtopic l – Diani Li, Diana.Li@nuclear.energy.gov

Subtopics m, n – Matt Hahn, Matthew.Hahn@nuclear.energy.gov

Subtopics o, p, q – Jason Marcinkoski, Jason.Marcinkoski@nuclear.energy.gov

Topic C58-29: ADVANCED TECHNOLOGIES FOR NUCLEAR ENERGY (Continued)

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
Accepting SBIR Fast-Track Applications: NO	Accepting STTR Fast-Track Applications: NO

- r. Small Modular Reactor (SMR) Capabilities, Components, and Systems
- s. Advanced and Small Reactor Physical Security Cost Reduction
- t. Advanced and Small Reactor Material Control and Accounting Modernization
- u. Cybersecurity Technologies for Protection of Nuclear Critical Systems
- v. Light Water Reactor Central Alarm Station Simulator Based Human Factors Studies
- w. Plant Modernization

Questions: Subtopic r – Melissa Bates, Melissa.Bates@nuclear.energy.gov

Subtopics s, t, u, v – Contact: Savannah Fitzwater,
savannah.fitzwater@nuclear.energy.gov

Subtopic w – Alison Hahn, Alison.Hahn@nuclear.energy.gov

Topic C58-29: ADVANCED TECHNOLOGIES FOR NUCLEAR ENERGY (Continued)

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
Accepting SBIR Fast-Track Applications: NO	Accepting STTR Fast-Track Applications: NO

- x. Nondestructive Examination (NDE) Techniques for In-situ Monitoring of Cable Insulation
- y. Materials Protection Accounting and Control for Domestic Fuel Cycles
- z. Innovative Fuel Cladding Materials and Core Materials
- aa. Advanced Technologies for the Fabrication, Characterization of Nuclear Reactor Fuel
- bb. Other

Questions: Subtopic x – Sue Lesica, sue.lesica@nuclear.energy.gov

Subtopic y – Tansel Selekler, tansel.selekler@nuclear.energy.gov

Subtopic z – Ming Tang, ming.tang@nuclear.energy.gov

Subtopic aa – Frank Goldner, Frank.Goldner@nuclear.energy.gov

Subtopic bb – JoAnne Hanners, JoAnne.Hanners@nuclear.energy.gov

Topic C58-30: ADVANCED TECHNOLOGIES FOR NUCLEAR WASTE

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
Accepting SBIR Fast-Track Applications: NO	Accepting STTR Fast-Track Applications: NO

- a. Spent Nuclear Fuel Rail Transport Risk of Derailment and Release
- b. Triple Purpose Canisters for TRISO-based SNF
- c. Storage & Transportation R&D
- d. Disposal Research
- e. Simultaneous Measurement of Density and Viscosity for High-Temperature Molten Salts
- f. Krypton-Specific Capture Technologies
- g. Multi-Radionuclide Sorbents and Waste Forms

Questions: Subtopics a, b – Tran Le, tran.le@nuclear.energy.gov

Subtopic c – John Orchard, John.Orchard@nuclear.energy.gov

Subtopic d – Prasad Nair, Prasad.Nair@nuclear.energy.gov

Subtopic e – James Willit, james.willit@nuclear.energy.gov

Subtopics f, g – Kimberly Gray, Kimberly.Gray@nuclear.energy.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://doetutorials.dawnbreaker.com/>

