Welcome! Please answer the following question in the chat box:

How many DOE laboratories do you know?
Why are you interested in the SCGSR program?
Instructions for Q&A

Enter your questions during the presentation using Zoom’s Chat panel.

Office of Science Graduate Student Research (SCGSR) Program

Application Assistance Workshop for 2022 S2
(S2: Solicitation 2)

Welcome! Please answer the following question in the chat box:
What critical or unique National Lab capability/expertise can help you to advance your research?

To: Everyone

Type message here...
SCGSR Program Management Team

U.S. Department of Energy (DOE), Office of Science (SC)

• Dr. Igor I. Slowing
  SCGSR Program Manager
  Office of Workforce Development
  for Teachers and Scientists (WDTS)

Oak Ridge Institute for Science and Education (ORISE)

• Dr. Maria Taydem
  Project Manager
  Workforce Development

• Abby Robbins
  Program Specialist
  Workforce Development
SCGSR Program

The SCGSR program is sponsored and managed by Office of Science in collaboration with the SC Program Offices of Advanced Scientific Computing Research, Basic Energy Sciences, Biological and Environmental Research, Fusion Energy Sciences, High Energy Physics, Nuclear Physics, Accelerator R&D and Production (ARDAP), and Isotope R&D and Production (IP), and the US DOE National Laboratories/Sites.

Online application and awards administration support is provided by Oak Ridge Institute for Science and Education and Oak Ridge Associated Universities.
Two Workshops

• **Workshop I: This one**
  - General Description of the Program
  - Goals and Guidelines
  - General Questions
  - Meet the SC Managers for Discussing Research Topics

• **Workshop II: October 20, 2022, 3:00-4:30 PM ET**
  - Office Hours
  - Specific steps of application
  - Troubleshooting
  - Guidance
Outline

• Overview
  – Office of Science (SC)
  – SC Research and R&D and Production Programs
  – National Laboratories, Sites, and Facilities
  – SC WDTS, and the SCGSR Program

• Benefits

• Application Process and Requirements

• General Questions

• Breakout Sessions with Program Managers of Research Offices and R&D and Production Offices
Office of Science (SC): A Mission of Research

SC Mission:
Deliver scientific discoveries and major scientific tools to

- transform our understanding of nature
- advance the energy, economic and national security of the United States.

https://science.osti.gov/

SC is the Nation’s largest Federal sponsor of basic research in the physical sciences and the lead Federal agency supporting fundamental scientific research for energy.
## SC Research and R&D and Production Programs

<table>
<thead>
<tr>
<th>Program</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advanced Scientific Computing Research (ASCR)</strong></td>
<td>• Deliver world leading computational and networking capabilities to extend the frontiers of science and technology</td>
</tr>
<tr>
<td><strong>Biological and Environmental Research (BER)</strong></td>
<td>• Understand complex biological, earth, and environmental systems</td>
</tr>
<tr>
<td><strong>Basic Energy Sciences (BES)</strong></td>
<td>• Understand, predict, and ultimately control matter and energy flow at the electronic, atomic, and molecular levels</td>
</tr>
<tr>
<td><strong>Fusion Energy Sciences (FES)</strong></td>
<td>• Build the scientific foundations for a fusion energy source</td>
</tr>
<tr>
<td><strong>High Energy Physics (HEP)</strong></td>
<td>• Understand how the universe works at its most fundamental level</td>
</tr>
<tr>
<td><strong>Nuclear Physics (NP)</strong></td>
<td>• Discover, explore, and understand all forms of nuclear matter</td>
</tr>
<tr>
<td><strong>Isotope R&amp;D and Production (DOE IP)</strong></td>
<td>• Support National Preparedness for isotope production and distribution during national crisis</td>
</tr>
<tr>
<td><strong>Accelerator R&amp;D and Production (ARDAP)</strong></td>
<td>• Support new technologies for use in SC’s scientific facilities and in commercial products</td>
</tr>
</tbody>
</table>

*Source: [https://science.osti.gov/Programs](https://science.osti.gov/Programs)*
Office of Science Research Programs

- Dr. Jordan Thomas — ASCR
- Dr. Justin Hnilo — BER
- Dr. Robin Hayes — BES
- Dr. Curt Bolton — FES
- Dr. Jeremy Love — HEP
- Dr. Sharon Stephenson — NP
- Dr. Ethan Balkin — DOE IP
- Dr. Eric Colby - ARDAP

Meet them later in the Breakout Rooms!!!
DOE National Laboratories: A Unique Asset for Training and Scientific Discovery

DOE labs employ >30,000 scientists and engineers

World-class scientific user facilities, expertise, and resources

Culture of team science, mentoring, and learning through discovery

Large multidisciplinary research programs not available in universities or industry

Office of Science
https://www.energy.gov/national-laboratories
28 Scientific User Facilities

>33,500 users in FY 2021
Mission:
Foster the development of the next generation of scientists, engineers, and technicians to support DOE mission and conduct the research to realize the nation’s science and innovation agenda.

Training Opportunities for Students and Faculty at DOE National Laboratories:

- Science Undergraduate Laboratory Internships – SULI
- Community College Internships – CCI
- Visiting Faculty Program – VFP
- Office of Science Graduate Student Research Program – SCGSR
SCGSR Program

Supplemental awards to outstanding U.S. graduate students.

Pursue part of their doctoral thesis research at DOE laboratories/facilities.
(3 – 12 months)

Unique expertise, resources, and capabilities.

Areas that address high-priority workforce needs in scientific challenges central to the SC mission.
SCGSR Program by the Numbers in FY 2021

FY21 BUDGET

$5.0 MILLION

145 awardees from
77 Ph.D. granting institutions at
18 DOE National Labs and Sites
33 % are women

49.7 % awardees working at least at one of the 28 scientific user facilities

WHAT AWARDEES SAY ABOUT SCGSR

99 % Received training not available at their universities
99 % Expanded their networks
>78 % Are interested in employment or postdoctoral positions at DOE Labs
98 % Stated SCGSR introduced them to careers outside academia
100 % SCGSR enabled completion of an important part of their dissertation

Since 2014
919 awardees from
135 hometowns in
47 states
>560 collaborating scientists

U.S. DEPARTMENT OF ENERGY
Office of Science

Workforce Development for Teachers and Scientists (WDTS)
A Couple of Questions to Ask Yourself

Why would I want to do part of my PhD thesis research at a DOE national laboratory?

What tools/expertise do I need that is not available at my university?

The unique expertise/capabilities of scientists/facilities at DOE National Labs/sites may enable a more in depth understanding of your research!

https://www.energy.gov/national-laboratories
Other Key Questions

• Can the SCGSR program contribute to my professional and career goals?
  – Become a “Scientist-in-Residence”: test drive a career as a scientist
  – Networking opportunities

• Does my research problem align with the priority directions of the DOE Office of Science?
  – Check those out at the SCGSR website.
50 Priority Research Areas for SCGSR 2022 S2

Advanced Scientific Computing Research (ASCR)
(a) Applied Mathematics
(b) Computer Science
(c) Computational Partnerships
(d) Advanced Computing Technologies

Basic Energy Sciences (BES)
(a) Accelerator and Detector R&D
(b) Basic Geosciences
(c) Basic Science for Advanced Manufacturing
(d) Basic Science for Clean Energy and Decarbonization
(e) Chemical and Materials Sciences for Quantum Information Science (QIS)
(f) Data and Computational Sciences for Materials and Chemical Sciences
(g) Fundamental Electrochemistry for Chemical and Materials Sciences
(h) Gas Phase Chemical Physics
(i) Instruments R&D for Neutron and X-ray Facilities
(j) Instruments and Techniques R&D for Electron and Scanning Probe Microscopy
(k) Materials Sciences and Chemistry for Microelectronics
(l) Nuclear Chemistry and Radiochemical Separations
(m) Radiation Effects in Materials and Chemistry

Biological and Environmental Research (BER)
(a) Computational Biology and Bioinformatics
(b) Biomolecular Characterization and Imaging Science
(c) Plant Science for Sustainable Bioenergy
(d) Environmental Microbiology
(e) Environmental System Science
(f) Atmospheric System Research
(g) Earth System Model Development
(h) Regional and Global Model and Analysis

Fusion Energy Sciences (FES)
(a) Burning Plasma Science & Enabling Technologies
(b) Discovery Plasma Science

High Energy Physics (HEP)
(a) Theoretical and Computational Research in High Energy Physics
(b) Advanced Accelerator and Advanced Detector Technology Research and Development in High Energy Physics
(c) Experimental Research in High Energy Physics

Nuclear Physics (NP)
(a) Medium Energy Nuclear Physics
(b) Heavy Ion Nuclear Physics
(c) Fundamental Symmetries
(d) Nuclear Structure and Nuclear Astrophysics
(e) Nuclear Theory
(f) Nuclear Data and Nuclear Theory Computing
(g) Accelerator Research and Development for Current and Future Nuclear Physics Facilities
(h) Quantum Information Science for Experimental and Computational Nuclear Physics
(i) Artificial Intelligence and Machine Learning for Nuclear Physics
(j) Advanced Detector Technology Research and Development in Nuclear Physics

Isotope R&D and Production (DOE IP)
(a) Isotope Production Research
(b) Isotope Processing, Purification, Separations and Radiochemical Synthesis
(c) Biological Tracers and Imaging
(d) Isotope Enrichment Technology

Accelerator R&D and Production (ARDAP)
(a) Accelerator Technology Research
(b) Accelerator Technology Development

Convergence Research Topical Areas
(a) Microelectronics (ASCR, BES, HEP, and NP)
(b) Data Science (ASCR, BES, BER, FES, HEP, and NP)
(c) Conservation Laws and Symmetries (HEP and NP)
(d) Accelerator Science (ASCR, BES, BER, FES, HEP, NP, DOE IP, and ARDAP)

Full descriptions at: https://science.osti.gov/wdts/scgsr/how-to-apply/priority-sc-research-areas/
Benefits and Eligibility

Awards/Compensation:
- Monthly stipend of up to $3,600/month for general living expenses.
- Reimbursement of inbound/outbound traveling expenses to/from the host DOE laboratory/facility of up to $2,000 (> 50 miles away).

Eligibility:
- U.S. Citizen or Lawful Permanent Resident.
- Qualified graduate program
- Ph.D. Candidacy
  - Graduate research aligned with an SCGSR priority research area
  - Securing collaboration with DOE laboratory scientist at the time of application.

Full details, requirements, FAQs, and link to application at: 
https://science.osti.gov/wdts/scgsr/

Program Contact: sc.scgsr@science.doe.gov
1. Know your field! Go to the literature!

2. Your Advisor’s network and knowledge of the field.

3. Searchers: ISI Web of Science, SciFinder, Google Scholar...
   Search by topic -> refine by institution

4. Browse National Laboratories websites
   https://www.energy.gov/national-laboratories
Will National Lab Scientists want to collaborate with me?

Dear colleagues - if (a student) or (have a student) you would like to spend a year at ORNL to work on science driven machine learning based automated experiment in electron or scanning probe microscopy - let me know (check out Office of Science Graduate Student Research (SCGSR).

Are you a year 3 or 4 PhD student in the USA and want to do a fully funded data science + electron microscopy project for 3-9 months in my group at Berkeley Lab?

DOE SCGSR applications are open! science.osti.gov/wdts/scgsr

Feel free to email or DM me if interested!

“This program is extremely useful for us! Myself and my colleagues in our facility are constantly on the look out for new students to apply for this. Our current student is doing great work, and I hope to work with one more student supported in the upcoming round as well.”
# Key Dates for this Solicitation

At the submission deadline, the online application system will close and no additional materials will be accepted.

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
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<tbody>
<tr>
<td>On-line Application Opens</td>
<td>August 17, 2022</td>
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<tr>
<td>Applications Due (including all letters of support)</td>
<td>November 9, 2022</td>
</tr>
<tr>
<td>Offer Notification Period</td>
<td>April/May 2023*</td>
</tr>
<tr>
<td>Earliest Start Date for Proposed Project Periods</td>
<td>June 12, 2023*</td>
</tr>
<tr>
<td>Latest Start Date for Proposed Project Periods</td>
<td>October 2, 2023*</td>
</tr>
</tbody>
</table>

Project periods may be 3 to 12 consecutive months in duration.

*These dates are tentative.

At the submission deadline, the online application system will close and no additional materials will be accepted. The online application system closes at 5:00 PM Eastern Time.

Project periods may be 3 to 12 consecutive months in duration.

*These dates are tentative.
Summary: How do I Apply to SCGSR?

Thesis Research aligned with SCGSR priority areas

Find a DOE National Lab Scientist
• working in the area
• with suitable expertise/capabilities

Support by your Thesis Advisor

Lead and Write an SCGSR research project Proposal

Online Application System

• You need a research proposal and letters of support from your thesis advisor and the collaborating DOE laboratory scientist.
• Projects involving experiments at SC user facilities must apply for facility time separately.

https://apps.orau.gov/SCGSR/Account/Login
Developed by the applying graduate student in collaboration with the DOE laboratory scientist, and in consultation with the thesis advisor.

Describe the part of the graduation thesis project that will be conducted at the DOE laboratory/facility. This part is your SCGSR proposal.

Address in its aims at least one of the SCGSR Priority Research Areas, and how the proposed SCGSR project will take advantage of the DOE laboratory/facility's research capabilities and assets.

An application whose SCGSR research proposal is the same as that of an SCGSR application awarded in a previous solicitation cycle is a duplicate and will NOT be considered in any other SCGSR solicitation cycles.

https://science.osti.gov/wdts/scgsr/how-to-apply/research-proposal-guidelines/
# Merit Review Criteria

<table>
<thead>
<tr>
<th>1. Scientific and/or Technical Merit of the Proposed Research*</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Is the proposed research well-conceived, and does it demonstrate a clear understanding of the scientific and technical challenges involved?</td>
</tr>
<tr>
<td>b. Is the proposed method and approach for the proposed research appropriate?</td>
</tr>
<tr>
<td>c. Is the applicant (graduate student) sufficiently well prepared to conduct the proposed research?</td>
</tr>
<tr>
<td>d. Are the DOE laboratory resources adequate? If applicable, has the necessary access to a scientific user facility been secured by the DOE laboratory collaborating scientist?</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>2. Relevance of the Proposed Research* to Graduate Thesis Research and Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Does the proposed research have the potential to make a significant contribution to the applicant’s (graduate student’s) thesis research project?</td>
</tr>
<tr>
<td>b. Will the proposed research enhance the applicant’s graduate training and research skills?</td>
</tr>
</tbody>
</table>

* Research proposed refers explicitly to the scope of the work to be conducted by the applicant (graduate student) at the DOE Laboratory/Facility.
All applications must be completed through the online application system. **Only COMPLETE applications submitted by the deadline will be considered!**

**A Complete SCGSR Application includes:**

- All required fields of the Online Application System, *including*:
  - Contact information of the applicant, primary graduate thesis advisor, and collaborating DOE laboratory scientist.
  - Academic information, including undergraduate and graduate study programs.
  - Professional information, including research experiences, scientific publications, awards, etc.
  - Alignment of proposed research to one of the SCGSR Priority Research Areas.

- Official graduate transcripts and proof of Ph.D. Candidacy.

- Two Letters of Support: one by graduate thesis advisor, and the other by collaborating DOE laboratory scientist.

- The Research Proposal (*3-page maximum including references*).
THANK YOU!

Questions???

After this Q&A please visit the Breakout Rooms to meet with Program Managers of the SC Research Offices.

Talk with them about suitability of your research to the priority areas and National Laboratory Scientists with whom you may be able to work.

For general questions you can always come back to the main room.

Next Application Assistance Workshop
October 20, 2022, 3:00 – 4:30 pm ET:
OFFICE HOURS
Office of Science Research Programs

- Dr. Claire Cramer – ASCR (Claire.Cramer@Science.doe.gov)
- Dr. Justin Hnilo – BER (Justin.Hnilo@science.doe.gov)
- Dr. Robin Hayes – BES (Robin.Hayes@science.doe.gov)
- Dr. Curt Bolton – FES (Curt.Bolton@science.doe.gov)
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