

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

What has been the hardest part of applying to the SCGSR program so far?

Office of Science Graduate Student Research Program (SCGSR)

Application Assistance Workshop 2
for 2026 Solicitation 2

October 1, 2026

“This fellowship has connected me to determined, friendly, and like-minded researchers, taught me knowledge that one can never get in a classroom, helping me grow as a scientist in ways that no university education could achieve.”

SCGSR 2024 S2 Awardee



U.S. DEPARTMENT
of **ENERGY**

Office of
Science

[Energy.gov/science](https://energy.gov/science)

Schedule

(All times East)

2:00-2:50 PM Webinar:

The SCGSR Program
Evaluation of the Applications
Proposal format
Tips on Proposal Writing
Q&A

3:00-3:30 PM **Panel I: Recent SCGSR Awardees** (2 parallel panels)

3:30-4:00 PM **Panel II: DOE National Lab Scientists** (3 parallel panels)



SCGSR Program

Foster advanced workforce development in areas critically important to SC mission

Supplemental funding to PhD candidates for doing part of their thesis research **at DOE National Laboratories**

3 – 12 months in collaboration with a DOE National Laboratory scientist

+ opportunity to conduct **6 week-long research visits to collaborating institutions abroad** (CERN, RIKEN)

- PhD candidacy at U.S. University
- U.S. citizens or Lawful Permanent Residents
- Alignment with priority research areas
- New research experiences (no prior work at the host lab), **BES: proximity restrictions**



<https://science.osti.gov/wdts/scgsr/How-to-Apply/Priority-SC-Research-Areas#BES>

Scientist in Residence

Build network and establish yourself in the field

**Not an
Internship!**

**Stipend: \$3,600/month
Travel Reimbursement: Up to \$3,000**



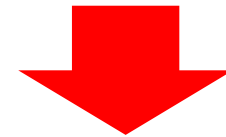
The SCGSR Program Supports

- **Hypothesis driven research:** Fundamental research (NOT applied research).
- **Method or instrument development:** when aimed to enable fundamental research, or if it is part of a large fundamental science experiment.

Examples of research not supported by SCGSR:

Exploratory work ❌

Human health ❌



**56 Priority
Research Areas**



<https://science.osti.gov/wdts/scgsr/How-to-Apply/Priority-SC-Research-Areas>



6 SC Research Programs → 56 Priority Areas

Advanced Scientific Computing Research (ASCR)

World leading computational and networking capabilities

Biological and Environmental Research (BER)

Understand complex biological, earth, and environmental systems

Basic Energy Sciences (BES)

Understand, predict, and control matter and energy at electronic, atomic, and molecular levels

Fusion Energy Sciences (FES)

Build the scientific foundations for a fusion energy source

High Energy and Nuclear Physics (HENP)

Understand how the universe works at its most fundamental level

Isotope R&D and Production (IRP)

National preparedness for isotope production and distribution

Convergence Areas
Exclusions!



Aligning Proposal to SC Mission/SCGSR Priority Research Areas

<https://science.osti.gov/wdts/scgsr/How-to-Apply/Priority-SC-Research-Areas>

Program office's websites:

- Basic research needs reports ➡ grand challenges: does your research aim that way?
- PI meeting/workshop reports for some of their divisions ➡ find potential collaborating scientists

Find them along with many other document types at:

- ASCR: <https://science.osti.gov/ascr/Community-Resources>
- BER: <https://science.osti.gov/ber/Community-Resources>
- BES: <https://sc.osti.gov/bes/Community-Resources>
- IRP: <https://sc.osti.gov/Isotope-Research-Development-and-Production/Resources>
- FES: <https://sc.osti.gov/fes/Community-Resources>
- HEP: <https://sc.osti.gov/hep/Community-Resources>
- NP: <https://sc.osti.gov/np/Community-Resources>



DOE National Laboratories: A Unique Asset for Training and Scientific Discovery

Created as a home for large-scale, costly scientific facilities that universities cannot afford.



DOE National labs employ
>30,000 scientists and engineers

World leading scientific user
facilities, expertise, and resources

Large multidisciplinary research programs
not available in universities or industry

SCGSR is ON SITE at the host DOE National Laboratory

From an awardee in theoretical HEP:

“Work of this kind, where the correct next step is usually identified in discussion, benefits disproportionately from being physically co-located.”



SCGSR Proposal

WHAT
REVIEWERS
LOOK FOR



1. Overall Goal:

Overarching problem or question? **THE BIG PICTURE!**

2. Background:

- Current understanding/state of the art? **UP TO DATE!**
- Relevance? **THE BIG PICTURE!**
- Fit in an SCGSR priority research area?
- Broadly: how can this problem/question be answered? **GENERAL STRATEGY**
- *Preliminary results/data* suggesting your idea may work? **CREDIBILITY**

3. Specific aims:

Basis for your research plan. Split Goal into smaller targets/steps.

4. Approach:

- Strategy, general steps with rationale. Will you use **the best methods** there are?
- What will you be doing in the lab from day 1? **SPECIFICS**
- What results do you expect? The **impact** of your work.
- Potential problems? **PREPAREDNESS**

5. Timeline:

Expected pace of progress? **BUILD IN TIME FOR TRAININGS!**

3 pages

6. References:

Separate **1** page.

USE IT!



Think Like a Reviewer – Help your Reviewers



What are reviewers looking for? – Interesting but feasible ideas, with sound reasoning



Skepticism – Don't expect reviewers will be willing to take a leap of faith (no unsupported claims, use credible and current evidence, etc.)



Make proposal easy to understand and score!

- Clarity (plain, concise language) >>> impressive-sounding language
- Use wording that explicitly shows the key elements of the proposal (the *aim* is..., I will *approach* the problem doing..., *my preliminary data* proves..., etc.)
- Details, details, details...
- Explain why you need to work with your collaborating scientist
- Follow evaluation criteria explicitly – see slide 12



Citations

EXERCISE:

Write down your overall research goals in 2-3 sentences

1. Start rough, polish later
2. Clear and concise sentences
3. Avoid being wordy
4. Try to show the expected impact



EXERCISE:

List 5 tools, methods, and/or techniques* that you would need to reach your research goals

*Not available at your home university

Explain briefly:

- Why do you need them?
- How would you use them?

Homework: which DOE National Lab has them?



Proposal Review Criteria



1. Scientific and/or Technical Merit of the Proposed Research (Score 0 – 6)

- a. Is the proposed research **well-conceived**, and does it demonstrate a **clear understanding** of the scientific and technical challenges involved?
- b. Is the proposed **method and approach** for the proposed research appropriate?
- c. Is the applicant **sufficiently prepared** to conduct the proposed research?
- d. Are the DOE laboratory **resources** adequate? If applicable, has the necessary access to a scientific user facility been secured?

2. Relevance of the Proposed Research to Graduate Thesis Research and Training (Score 0 – 4)

- a. Does the proposed research have the potential to make a **significant contribution to the applicant's PhD thesis** research project?
- b. Will the proposed research enhance the applicant's **training and research skills**?



EXERCISE: Homework

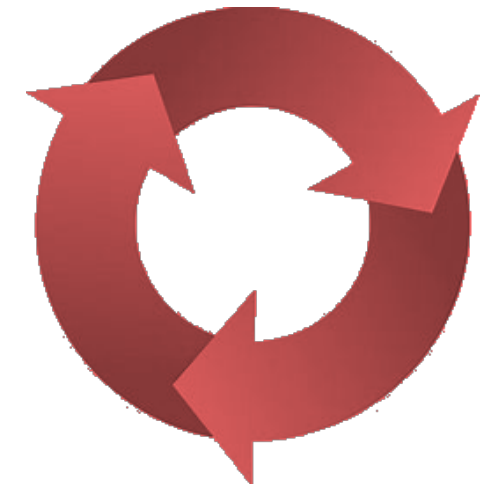
Grab Your Proposal Draft and Assess it Against the Review Criteria

Even better: ask a friend to do it for you
(just don't get mad about criticisms)

Check flow:

- **Logic of the ideas:** How articulate and complete is the reasoning?
Are there any gaps?
- **Readability:** Can they understand what you meant to say?

Rate each item of the criteria on a 1 – 4 scale
(yes... that is arbitrary, but gives you an idea of what needs more work)



Write-Feedback-Write
SEVERAL CYCLES NEEDED

Top 10 Concerns of Past Reviewers

1. Lack of **detail** or specificity in the research plan/goals/methodologies/outcomes.
2. Overly **ambitious scope** for the timeline/scope **too broad**.
3. Inadequate **preliminary data**/prior experience.
4. Insufficient **discussion of challenges**/limitations of proposed methods/**risk mitigation** strategies.
5. Unclear connection to **thesis/training** enhancement.
6. Lack of **novelty**/broader scientific **impact**/connection to **DOE mission**.
7. Lack of clear **scientific hypothesis**.
8. Insufficient justification for DOE **national lab resources**/fit.
9. Proposal **writing/clarity**/grammar issues.
10. Insufficient consideration of alternative methods/**comparison to other methods**/questionable **appropriateness** of technique/method.



Chasing a More Effective Writing

Replace a broad claim with a testable objective

Original:

These studies will provide important new insights into catalyst design and could ultimately lead to improved catalytic systems.



IMPORTANT
NEW INSIGHTS!

Revised:

I will test whether increasing steric confinement around the metal center improves selectivity by suppressing the competing β -hydride elimination pathway.



Difference: “Important new insights” becomes a **specific hypothesis** and **measurable outcome**.

Lead with the scientific goals, follow with the approach



Original:

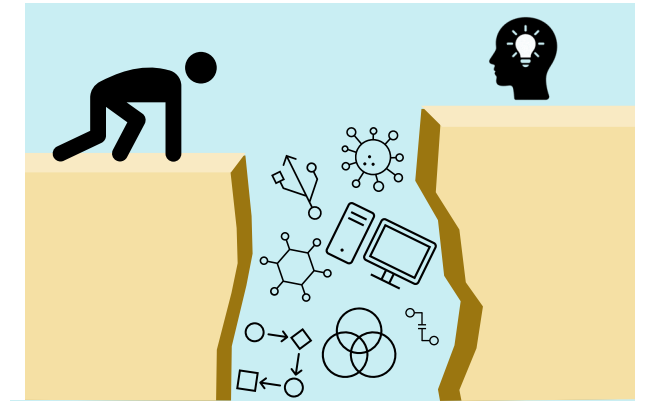
I propose to develop an analysis framework incorporating advanced reconstruction algorithms and multivariate techniques for the identification of displaced signatures in high-luminosity collision data.

Revised:

I will search for long-lived particles that decay centimeters from the collision point—a signature that standard searches can miss. I will develop reconstruction and classification methods specifically optimized for these displaced decays.

Difference: A reviewer first learns **what physics becomes possible** (the exciting part), and then how you will get there.

Make the knowledge gap explicit



Before:

I will characterize the role of microbial interactions in shaping community composition and function under conditions of environmental stress.

After:

I will determine whether cross-feeding induces antibiotic resistance in bacteria. I will identify the metabolites involved, and test whether disrupting their exchange reduces community survival.

Difference: The reviewer can see the question, hypothesis, experiment, and expected outcomes.

Illustrating Complex Concepts

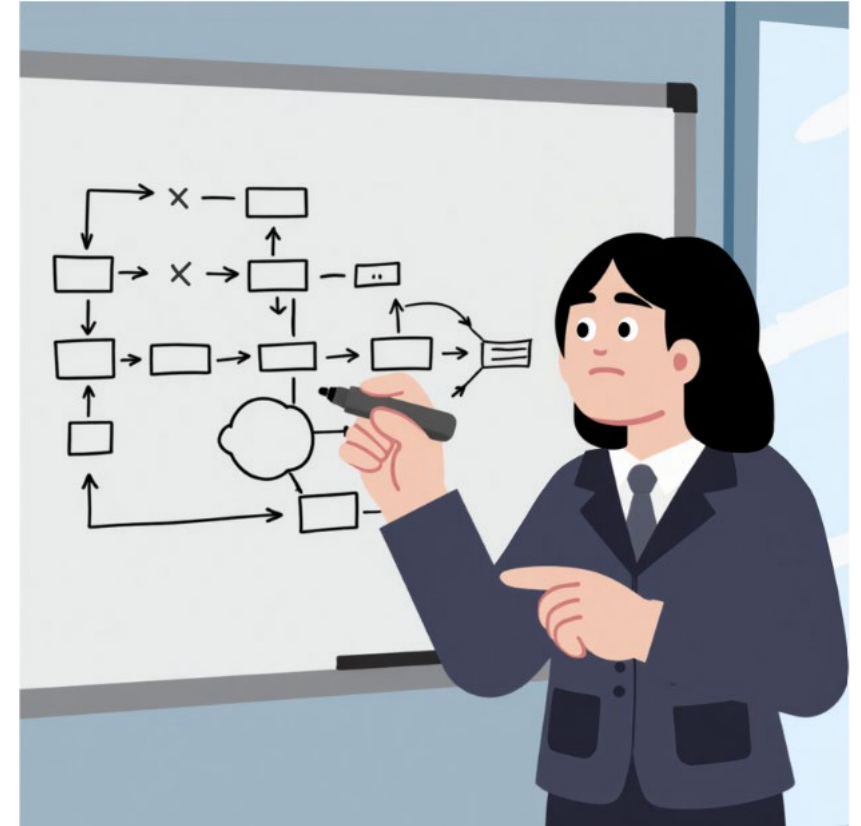
- **Consider adding ONE high-impact figure:**

- Conceptual model
- Experimental workflow
- Schematic of equipment
- Preliminary data
- Timeline

- **A strong figure can:**

- Clarify your hypothesis
- Show feasibility
- Demonstrate a well-thought-out research plan
- Reduce reviewer fatigue
- Make your proposal memorable

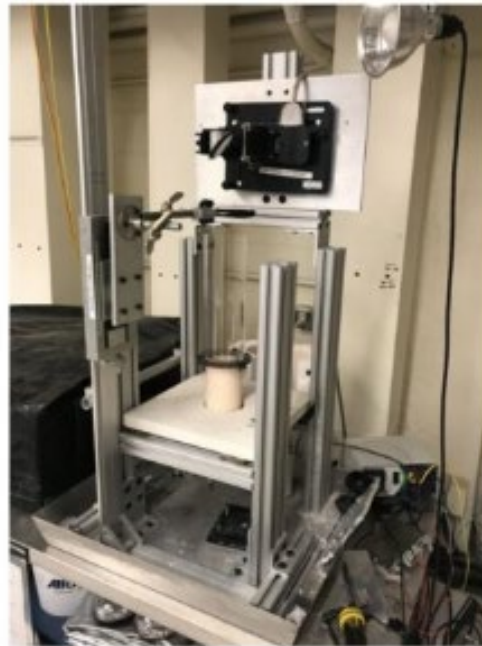
- **Start with a plan - what do you want to convey?**



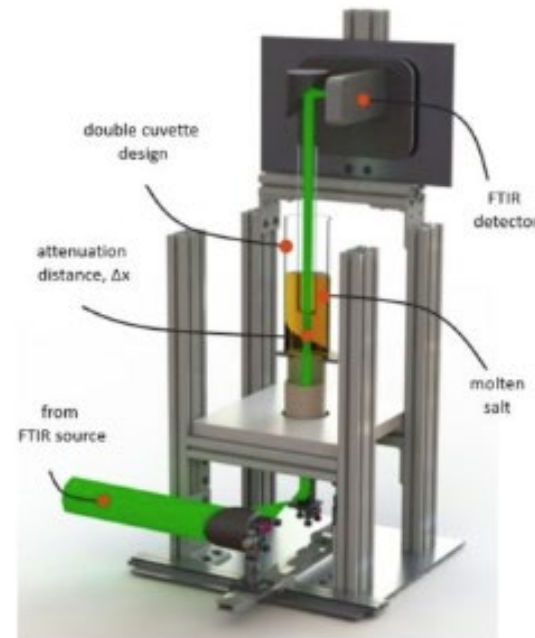
Illustrating Complex Concepts

If a reviewer looked at these figures, which would they better understand?

Option 1



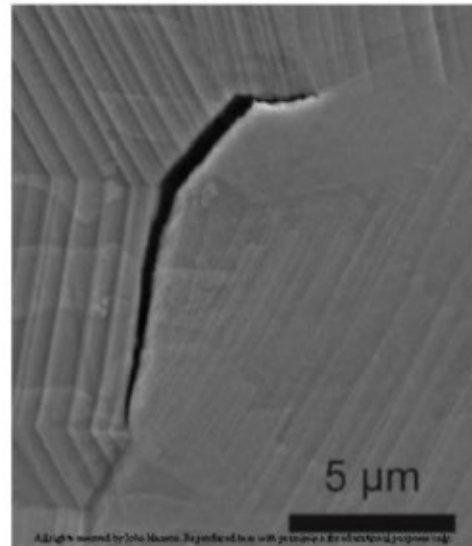
Option 2



Illustrating Complex Concepts

If a reviewer looked at these figures, which would they better understand?

Option 1



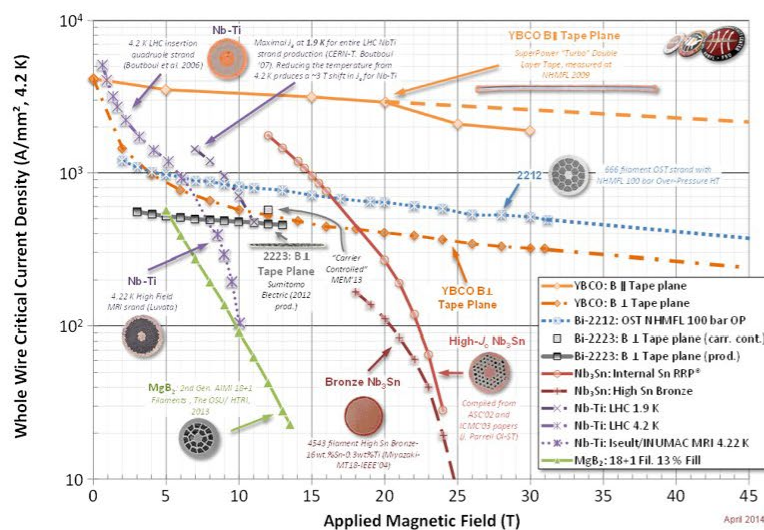
Option 2



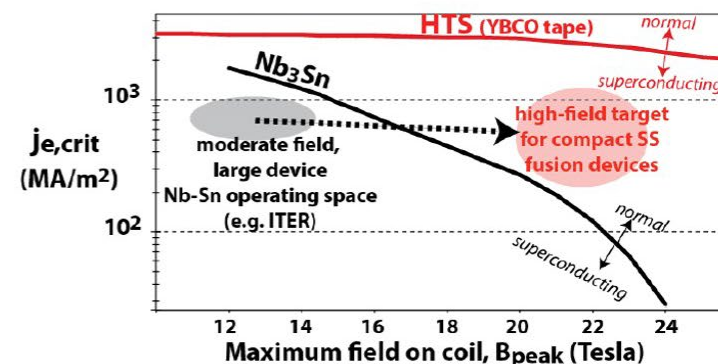
The Art of Illustrating Complex Concepts

If a reviewer looked at these figures, which would they better understand?

Option 1

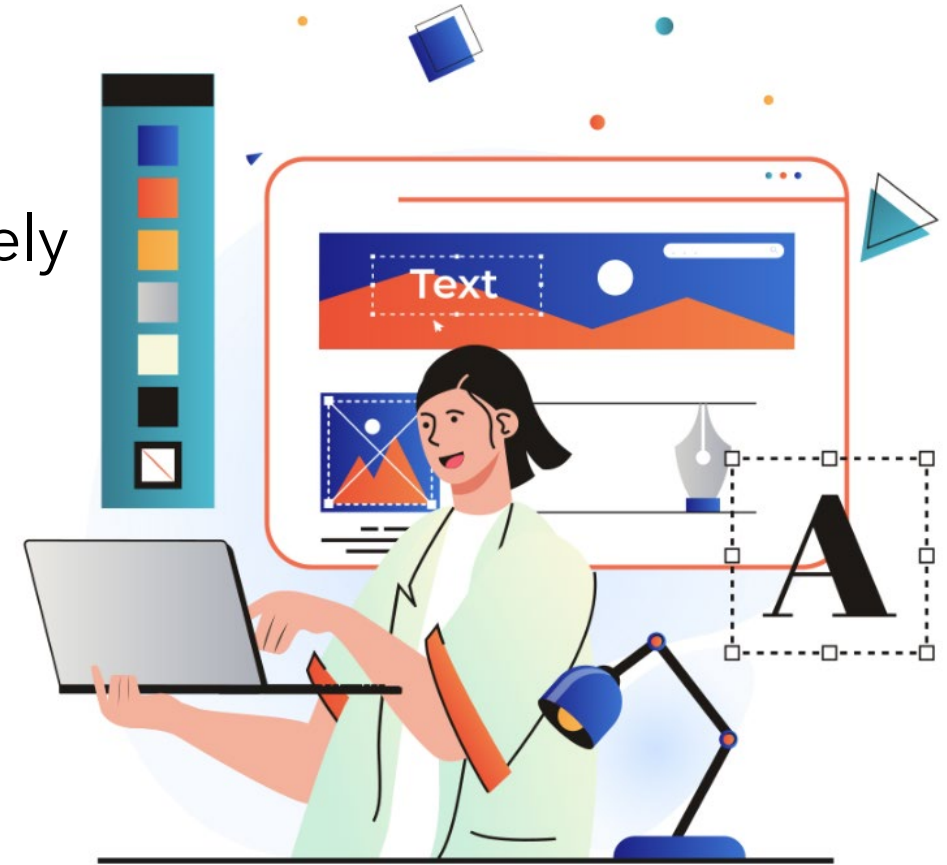


Option 2



Design Tips

- Keep it simple (no clutter)
- Large, legible text and labels
- Use color intentionally
- Caption should explain the figure appropriately
- Figure should enhance your proposal



Before you submit, a final checklist

Ask yourself:

- ✓ Is my hypothesis clearly stated?
- ✓ Do my aims directly test it?
- ✓ Is my scope realistic?
- ✓ Is my approach specific with adequate background and/or preliminary data?
- ✓ If a figure is included, is it high-impact and does it enhance my proposal?
- ✓ Have I justified relevance to the DOE mission and why DOE Lab resources are essential?
- ✓ Is the benefit to my dissertation and development clearly stated?
- ✓ Have I addressed potential challenges with contingency plans?
- ✓ Does my timeline match my aims?
- ✓ Can a reviewer with expertise in my proposed priority research area follow my logic?



Questions So Far?



Panels with 2025 S2 SCGSR Awardees

Panel 1:

- **Yahya Forihat** – ASCR, ORNL – Controller-Level Fuzzing and Debug-Assisted Memory Forensics for Securing CNC Manufacturing Systems
- **Aaron Jacobson** – AI & Data Sci, PNNL – Collateral Damage in Machine Unlearning
- **Sarah Stofik** – BES, INL – Mechanistic Studies of Adsorbates on Catalytic Surfaces

Panel 2:

- **Paul Anderson** – NP, TJNAF – Extracting Quantum Correlation Functions with AI/ML Simulation-Based Inference Method
- **Anthony Garcia** – FES, INL – Analyzing Tritium Migration during Loss of Coolant Accidents in Fusion Reactors
- **Steve Eshiemogie** – BER, LANL – Bioengineering Microorganisms for Conversion of Aromatic Compounds

Panels with National Laboratory Scientists

Panel 1:

- **Dr. Jack Berkery** – PPPL – Deputy Director NSTX-U research program
- **Dr. Stephan Irle** – ORNL – Quantum chemistry of complex systems, nonequilibrium dynamics
- **Dr. Liu Yang** – LBNL – Fast and parallel scientific computing tools for exascale applications

Panel 2:

- **Dr. Spencer Gessner** – SLAC – Collider physics, plasma acceleration, positron sources, beam-laser interactions
- **Dr. Ron Soltz** – LLNL – Relativistic heavy ion collisions, Quark-Gluon Plasma, QCD, sPHENIX, JETSCAPE
- **Dr. Alice Giem** – NLR – SCGSR alumna, now NLR Director's Postdoctoral Fellow

Panel 3:

- **Dr. David Grills** – BNL – Electron- and photo-induced processes, artificial photosynthesis
- **Dr. Yong Zhao** – ANL – Non-perturbative problems in QCD, RHIC, EIC
- **Dr. John Watt** – LANL – cryogenic TEM, SEM/FIB for soft matter, low-Z and beam sensitive nanomaterials, and interfaces



Thank You!



- After the Panels: **Feedback Poll**

- Office Hours: Every Friday 1-2 pm ET at

<https://www.zoomgov.com/j/1659653312?pwd=WxUnTkCR3ME3MPEtySzabisSiLeLvE.1>

