

Engineering Research Initiation (ERI)

NSF 22-595
Webinar



Agenda + Housekeeping

- Welcome + Introductions
- Presentation about ERI
- Q&A session

-
- Type your questions in the Q&A anytime
 - Upvote your favorites.
 - **Will the slides be available?**
 - **Will a recording of this be available?**
 - Yes, we will post both to the ERI website when available.



Welcome Remarks

Don Millard, PhD

Acting Deputy Assistant Director,
Engineering Directorate



Introductions – ERI Team

- The ERI Team includes representatives from the ENG Divisions participating in ERI.



CMMI

Laurel Kuxhaus, PhD
Kathryn Jablokow, PhD



CBET

Carole Read, PhD
Shahab Shojaei-Zadeh, PhD



ECCS

Rosa (Ale') Lukaszew, PhD
Larry Goldberg, PhD



EEC

Dana Denick, PhD



ERI Goals

- The main goal of the ERI program is to ***broaden the base*** of scientists and engineers in academia who dedicate their careers to advancing engineering research and education in societally important fields relevant to ENG.
 - Synergistic with NSB Vision 2030
- This solicitation provides ***support for investigators who have yet to receive research funding from Federal Agencies*** to initiate their engineering research.
- NSF encourages submission by new investigators in engineering fields from ***non-PhD awarding institutions, including community colleges***.
 - ERI is limited to investigators that are not affiliated with “very high research activity” R1 institutions
- NSF strongly ***encourages participation*** in this ERI program by PIs from all underrepresented groups in engineering.



ERI History

- ERI ran for the first time in 2021.
- Nearly 100 awards made to date.
- ***What's new in NSF 22-595?***
- Senior Personnel Allowed
 - Catalyze partnership
- Equipment costs may be included to support research.
- Clarified eligibility restrictions.
- Required headers in Project Description.
- Updated solicitation-specific criteria
- Some ENG programs are not participating in ERI this year.
- Must choose a specific program (not just Division) when you submit.



The ERI competition is different.

Proposal Deadlines:
October 11, 2022
(September 15, 2023)

- Eligibility restrictions (described next)
- Project Description: 10 pages (compare to Unsolicited: 15 pages)
- Chair/Dean's letter: required
- Project Duration: 2 years
- Project Personnel
 - Senior Personnel are allowed. *(New for 2022!)*
 - One proposal per person per competition, as either PI or Senior Personnel.



Eligibility (1/2)

Institutional eligibility:

- Institution **not** currently classified as a Doctoral University with “Very High Research Activity” according to the 2021 Carnegie Classification

PI appointment:

- PI must hold an appointment at the institution.
 - Post-docs may not serve as PIs for ERI proposals.

Limits:


- One proposal per person, per deadline.
 - As either PI or Senior Personnel.
 - (Co-PIs are not allowed.)
- No Collaborative Proposals
 - As defined in the PAPPG, Chapter II.D.3.b
- Subawards permitted
 - Non-R1 institutions only.



Eligibility (2/2) – PI may not have had prior federal research funding.

At the time of the proposal submission deadline, the PI may not have been a PI, Co-PI or equivalent on any current or prior *awarded* NSF research grant (including subaward) or have had research support from any other Federal Agency (within the United States or abroad), with the following exceptions:

- Conference or travel awards;
- Doctoral dissertation improvement grants and any other award made while the PI was a student, including NSF Graduate Research Fellowships;
- Postdoctoral research fellowship awards that exclusively support pre-tenure-track activities;
- Major Research Instrumentation grants (NSF MRI or equivalent) as PI or Co-PI,
- REU or RET site awards;
- I-Corps, Phase I SBIR, or STTR awards;
- Awards that originated as Federal funds but were distributed locally without naming the submitting ERI PI in the Federal funding proposal (such as: NASA Space Grant Project.); and
- Awards that originated as Federal funds but were not for research purposes (this must be described in the Chair's letter.)



Note: these eligibility restrictions apply to the PI, NOT to Senior Personnel!

In essence: if you've had prior federal RESEARCH support beyond a post-doc, you are NOT eligible for ERI.

More details about ERI proposals



Project Description (1/4)

Required section: **Research goals**

- A brief description of the PI's overall research goals.

Pro tips:

- These section headings are required. Use them exactly.
- "If you want the reviewers to know something, you should tell them."
 - Why is your work important?
 - Why is your role in your institution important?



Project Description (2/4)

Required section: **Research Project**

- clear description of the general plan of work
- motivation for the research and a discussion of the novelty of the work in the context of existing literature.
- mechanisms and plans for assessing success of the proposed activities. The proposed single-PI activities may include activities to catalyze partnerships.
- *If a partner (e.g., Senior Personnel) is included:*
 - Partnership activities may enable access to instrumentation or resources, activities that establish a working relationship such as formulating new and sound plans for larger-scale projects in emerging research areas, travel for the PI or trainees to strengthen the partnership, or other activities.
- *Note that Subawards to R1 institutions are not permitted.*



Project Description (3/4)

Required section: **Broader Impacts**

- A discussion of the *broader impacts* of the proposed activities.
- Broader impacts may be accomplished through the research itself, through the activities that are directly related to specific research projects, and/or through activities that are supported by, but are complementary to the project, such as educational activities.



Project Description (4/4)

Required section: **ERI Criteria**

- ERI Criteria: Provide a brief description of how the proposed work addresses the solicitation-specific review criteria.

ERI Solicitation-specific review criteria:

- To what extent will the project provide the foundation for sustained scholarly contribution to engineering research?
- To what extent will the proposed engineering research initiation activities enhance the PI's ability to maintain impactful research activities?

One criterion is about the work and scholarly contributions;

The other is about the PI's ability to maintain such activities.



Supplementary Documents (1/2)

- **Department Chair/Dean's Letter** (required):
 - describe how the proposed research plan is aligned with the department, school, or institution's goals.
 - describe how the department or organization is committed to the professional development of the PI.
 - certify that the PI meets the ERI eligibility criteria.
 - If the PI has any non-institutional current or past support, the letter should succinctly indicate into which exempted category the support falls (see Eligibility Criteria.)

Letters that do not meet these requirements will cause a proposal to be returned without review.

Something unusual about your eligibility? This is the place for your Chair/Dean to explain it.



Supplementary Documents (2/2)

- Data Management Plan (**required**)
- Post Doctoral Mentoring Plan (**required** *if* Post Doc support is requested)
- Single Copy Document Collaborators and Other Affiliations Information (**required**)
- See PAPPG Chapter II.C.2.j for the full policy on supplementary documents.



How are ERI proposals reviewed?

- All proposals at NSF must be reviewed by at least 3 reviewers.
 - Experts in the broad field of the program that manages the proposal.
- NSF program directors must consider diversity of the panel.
 - Topical expertise within the field.
 - Career stage.
 - Institution type.
 - Geographic diversity.
 - Demographic diversity.

Most NSF proposals are reviewed by a panel. That means that the PI gets:

- Verbatim copies of at least 3 written reviews.
- A panel summary (if the proposal was discussed by the panel.)



Review Criteria

Reviewers are asked to explicitly address these. Think like a reviewer! Make it easy for them to find what you think are the meritorious aspects of your proposal.

1. Intellectual Merit
2. Broader Impact
3. Additional Solicitation Specific Review Criteria:
 - To what extent will the project provide the foundation for sustained scholarly contribution to engineering research?
 - To what extent will the proposed engineering research initiation activities enhance the PI's ability to maintain impactful research activities?



Program Fit

- Your proposal will be reviewed within the program that you choose upon submission.
 - *Caveat: if the NSF Program Director determines that the topic does not fit with the program, it may be transferred to another program for review, or returned without review.*

ENG Unit of Consideration: Research.gov users: Secondary units of consideration may be selected after the proposal is created by clicking on "Manage Where to Apply" in the proposal details section . Grants.gov users should refer to Section VI.1.2. of the NSF Grants.gov Application Guide for specific instructions on how to designate the NSF Unit of Consideration. For assistance in determining which program(s) to choose, refer to the list of ERI-eligible ENG Programs below:

CBET

- Catalysis
- Electrochemical Systems
- Interfacial Engineering
- Process Systems, Reaction Engineering, and Molecular Thermodynamics
- Biophotonics
- Biosensing
- Cellular and Biochemical Engineering
- Disability and Rehabilitation Engineering
- Engineering of Biomedical Systems
- Environmental Engineering
- Environmental Sustainability
- Nanoscale Interactions
- Combustion and Fire Systems
- Fluid Dynamics
- Particulate and Multiphase Processes
- Thermal Transport Processes

CMMI

- Advanced Manufacturing (AM)
- Biomechanics and Mechanobiology (BMMB)
- Civil Infrastructure Systems (CIS)
- Dynamics, Control and Systems Diagnostics (DCSD)
- Engineering for Civil Infrastructure (ECI)
- Engineering Design and System Engineering (EDSE)
- Foundational Research in Robotics (Robotics)
- Humans, Disasters, and the Built Environment (HDBE)
- Mechanics of Materials and Structures (MOMS)
- Mind, Machine and Motor Nexus (M3X)
- Operations Engineering (OE)

ECCS

- Electronics, Photonics and Magnetic Devices (EPMD)
- Communications, Circuits, and Sensing-Systems (CCSS)
- Energy, Power, Control, and Networks (EPCN)

Pro tip:

- Ensure that you are submitting to the right program for your research by contacting the cognizant program director well in advance!



Assessing Program Fit

- **Read** the program description.
- **Draft a one-page summary** of your proposal.
 - Pro tip: “This work will advance our understanding of <program name/area> by”
- **Email** the program director.
- **Ask** if your idea fits within the scope of the work supported by the program.
- **Interpret** the results.
 - “Yes this fits!”
 - “This somewhat fits.”
 - “This has a small bit of relevance.”
 - “This does not fit.”

When to do this?

- The sooner, the better.

Good to know:

- Most program directors are able to reply to inquiries within about a week.



When to contact eri@nsf.gov?

- General ERI questions.
 - Note that we are unable to assist with Research.gov questions – there is a separate Helpdesk for that.
- Good to know:
 - eri@nsf.gov is a shared mailbox.
 - You can expect a reply within about one week.

Good to know for proposal submission tips:

- NSF Virtual Grants Conference, June 6-10 2022.



Q&A

- Type your questions in the Q&A!
 - Upvote your favorites.
 - *Pro tip: Look to the “answered” tab to see what has already been answered.*
- **Will the slides be available?**
- **Will a recording of this be available?**
 - Yes, we will post both to the ERI website when available.

