



U.S. National Science Foundation (NSF)

FY26 NSF Trailblazer Engineering Impact Award (TRAILBLAZER)

Tuesday, January 13, 2026, 2:30-3:30 pm EST

Funding Opportunity Informational Webinar

NSF Solicitation 26-502

Webinar Housekeeping – TRAILBLAZER FY26

- The webinar is being recorded, and the recording will be posted online
- The webinar slides will be posted online
- Questions will be addressed using the Q&A function
- The Chat Function has been disabled
- Send any questions not addressed in the webinar to TRAILBLAZER@nsf.gov

For TRAILBLAZER program details, see solicitation NSF 26-502



Webinar Agenda – TRAILBLAZER FY26 (NSF Solicitation 26-502)

Welcome – Dr. Sohi Rastegar

Senior Advisor - EFMA, Engineering Directorate

Overview of the TRAILBLAZER Program

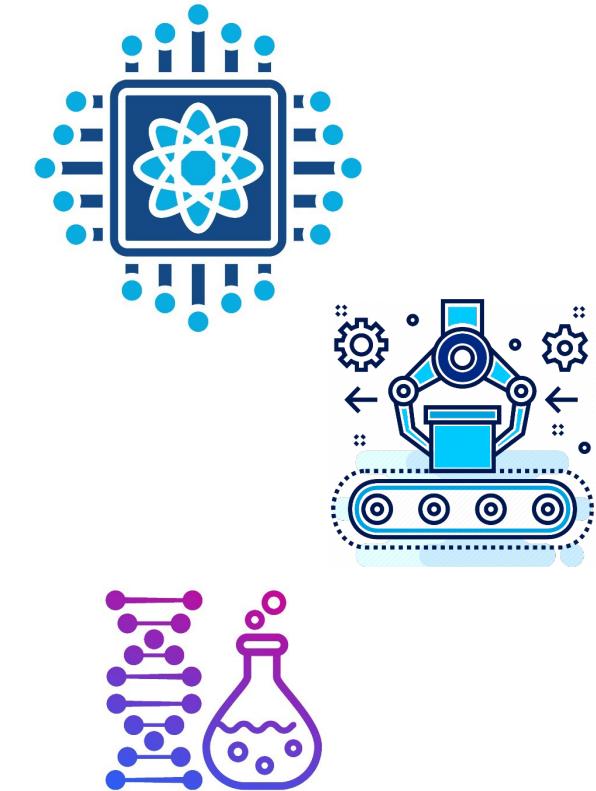
Proposal Preparation & Timeline

Letter of Intent, Preliminary Proposal, Full Proposal

TRAILBLAZER Proposal Review Process

Intellectual Merit, Broader Impacts, and
Solicitation Specific Review Criteria

Questions & Answers



ENGINEERING DIRECTORATE (ENG)

Dr. Don Millard, Directorate Head

ENG Sections

**Chemical, Bioengineering,
Environmental, & Transport
Systems (CBET)**

**Civil, Mechanical & Manufacturing
Innovation (CMMI)**

**Electrical, Communications & Cyber
Systems (ECCS)**

**Engineering Education & Centers
(EEC)**

**Office Emerging Frontiers &
Multidisciplinary Activities (EFMA)**

EFMA Activities

Dr. Sohi Rastegar, Senior Advisor

EFRI: Emerging Frontiers in Research and
Innovation

**NSF Trailblazer Engineering Impact Award
(TRAILBLAZER)**

GERMINATION: Germination of Research
Questions for Addressing Critical Societal
Challenges

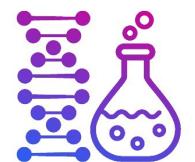
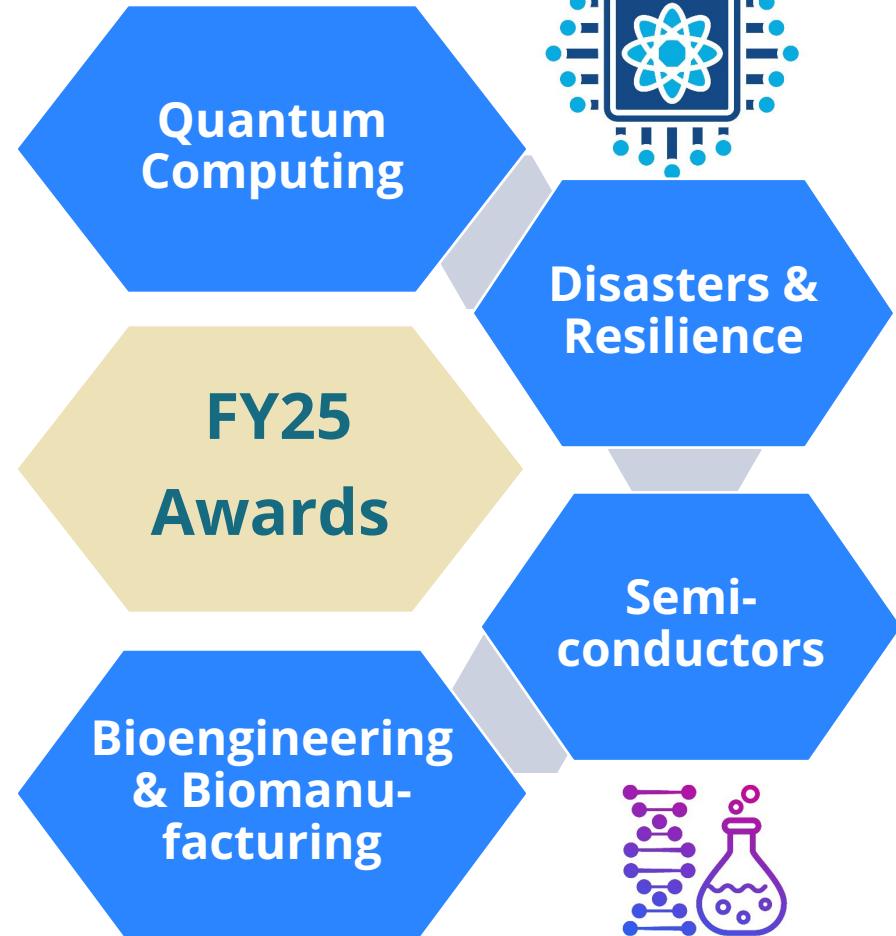
ERVA: Engineering Research Visioning Alliance



TRAILBLAZER FY26 Program Synopsis

TRAILBLAZER supports individual investigators who propose innovative projects with the potential to establish new avenues of research, catalyze the development of new industries or capabilities that increase the leadership position for the country, and/or make significant progress towards addressing a national need or grand challenge, particularly in current Priority Areas.

TRAILBLAZER principal investigators will leverage their distinctive track record of innovation and creativity to pursue new research directions that are distinct from their previous or current research areas.



2025 NSF Trailblazer Awardees



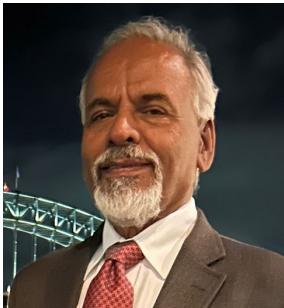
Thomas Angelini
University of Florida (EFMA 2535181)
Bringing the solid state to life with cell crystals



Rebecca Schulman
Johns Hopkins University (EFMA 2535413)
Biomaterials for programming tissue development



Owen Kingstedt
University of Utah (EFMA 2535247)
Leveraging extreme environment experimental mechanics to decipher deep-focus earthquake faulting mechanisms



Katepalli Sreenivasan
New York University (EFMA 2534977)
Quantum computing and machine learning for fluid dynamics research



Austin Minnich
Caltech (EFMA 2535437)
Electron-enhanced atomic layer processing for revolutionary thin-film technologies



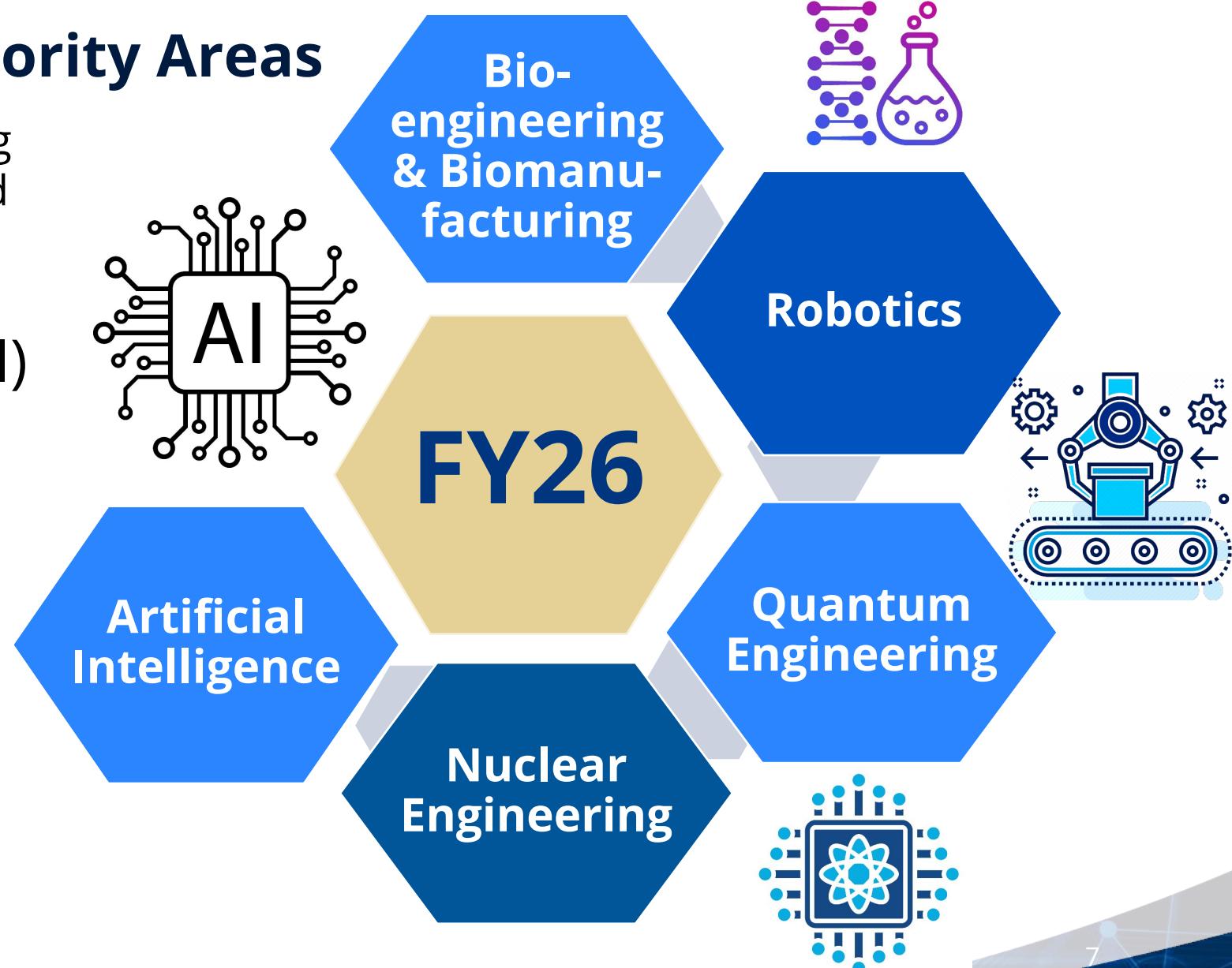
Petia Vlahovska
Northwestern University (EFMA 2535132)
Non-electrical mechanisms of neuronal excitation - a new direction for brain-computer interfaces & neuroengineering



TRAILBLAZER FY26: Priority Areas

Projects must have an Engineering focus and address a national need and/or grand challenge

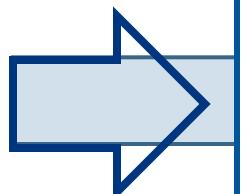
- Artificial intelligence (AI)
- Bioengineering
- Quantum engineering
- Robotics
- Nuclear engineering



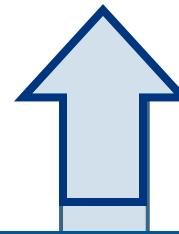
TRAILBLAZER Distinctive Elements

PI Research Expertise & Track Record

- Creativity
- Innovation
- Collaboration
- Thought Leader



“PIVOT”



Unconventional Approach

- Single PI driven project distinct from PI's previous / ongoing research
- Unconventional hypotheses
- No preliminary data required
- Propose Team, but build out after award

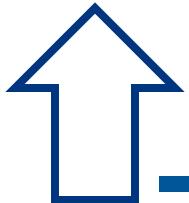
Bold New Research Direction

- Transformative potential
- Engineering focus
- National Need / Grand Challenge

TRAILBLAZER FY26 Distinctive Elements

push boundaries along two axes

**Transformative
Impact**

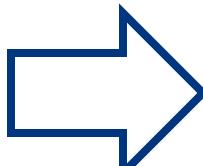


Investigator Track Record of
Research Excellence,
Innovation, and Collaboration

Paradigm shift or significant leap in
fundamental engineering knowledge

Long-term potential for advancing
National Needs / Grand Challenges,
U.S. Leadership

Bold New Research Direction



TRAILBLAZER FY26: Award and Eligibility Information

Number of awards: 5 anticipated

Total amount per award: \$3.0 million

Award duration: 3 years

Eligibility

- Institutions of Higher Education (IHEs)
- Non-profit, non-academic institutions

PI at time of proposal submission:

- Tenured or Tenure-Track at Associate or Full Professor rank
- Current appointment at Engineering School or College *and/or* Doctorate degree in an Engineering discipline

Submission Restrictions

Proposals per PI: 1 (one)

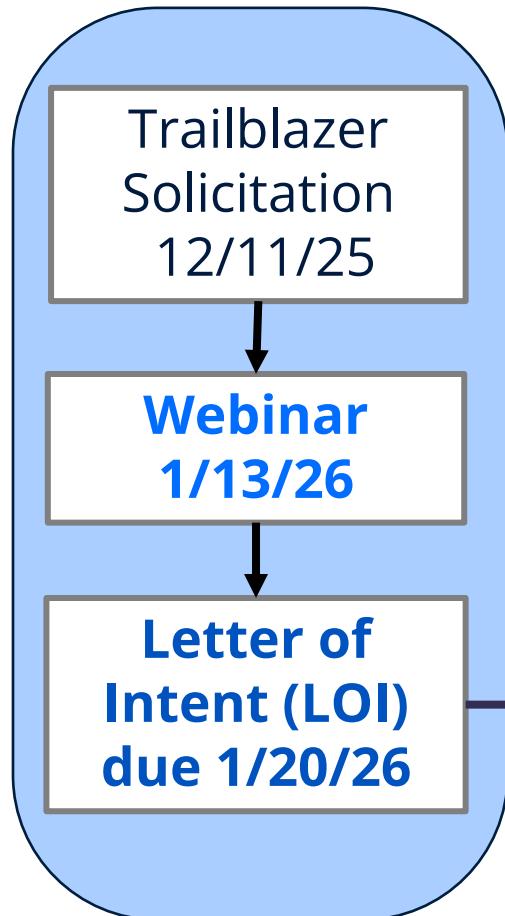
Proposals per Institution: no limit

- No co-PIs or Senior Personnel
- No collaborative proposals
- No letters of support
- Prior or concurrent funding support for other projects that overlap with the proposed TRAILBLAZER project will preclude eligibility for a TRAILBLAZER award

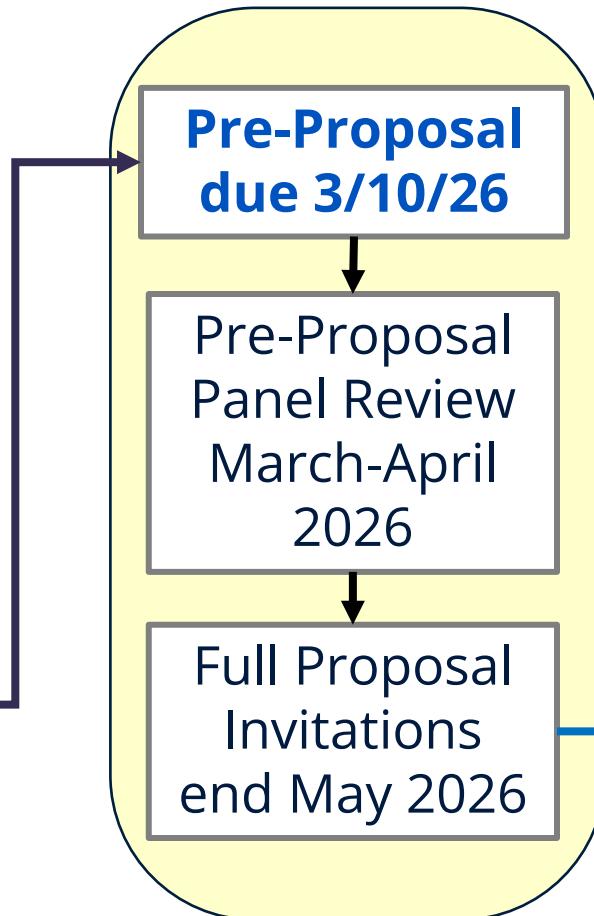


TRAILBLAZER FY26 Proposal Preparation & Timeline

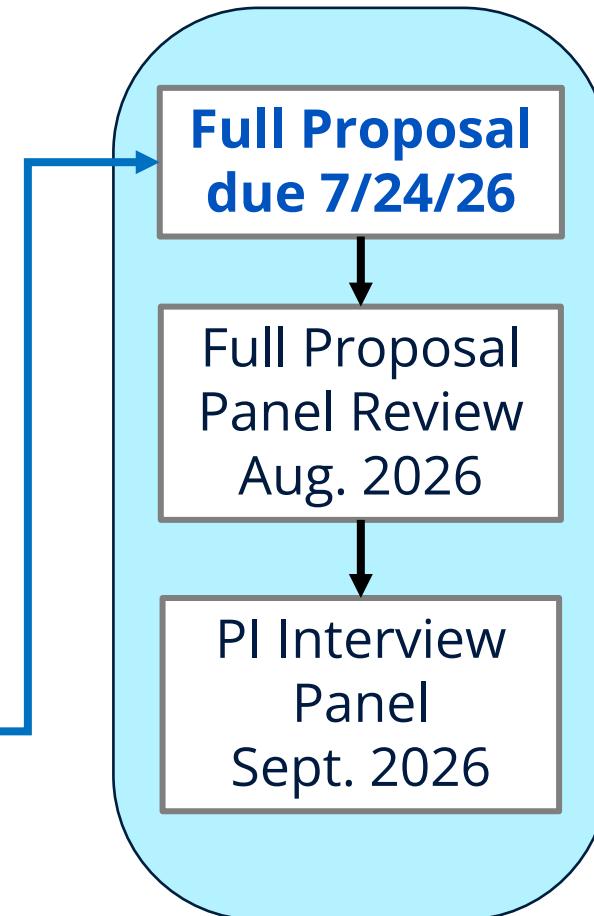
Announcement



Pre-Proposal



Full Proposal



TRAILBLAZER FY26 Letter of Intent (LOI)

due January 20, 2026 5:00 pm Proposer's Time

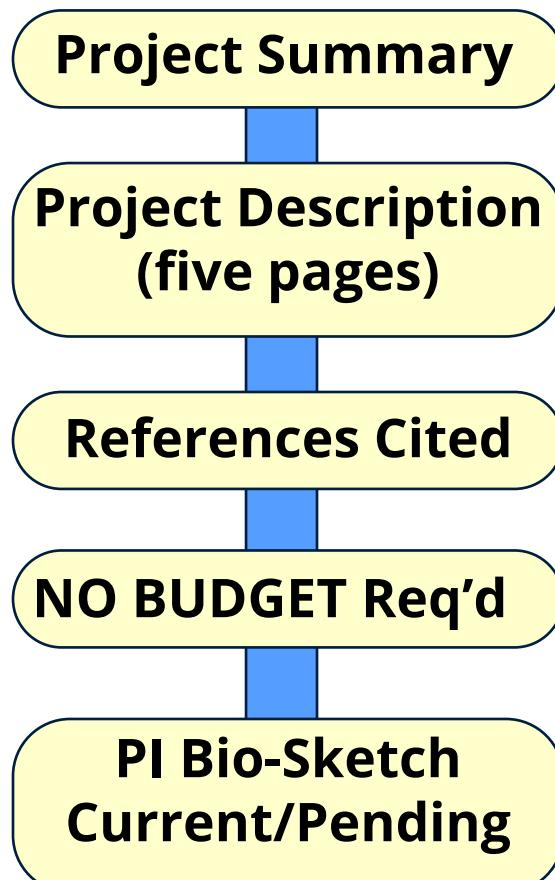
1. **Title** - Title, preceded by the word TRAILBLAZER
2. **Principal Investigator** - Name, affiliation, research expertise
3. **Synopsis** - Scientific goals of the proposed research, and why the proposed project is appropriate for the TRAILBLAZER program; Name of the Program(s) and associated *Section* (formally Division) within the Engineering Directorate of NSF the proposal topic best aligns

Submission: LOIs must be submitted through Research.gov by the sponsored programs office at your institution by January 20, 5 pm proposer's time. *Email submissions will not be accepted.*



TRAILBLAZER FY26 Preliminary Proposal – Required Elements

due March 10, 2026, 5:00 pm Proposer's Time



Title: TRAILBLAZER: your title

Project Summary (one page)

Overview: PI research expertise; pivot to new research direction

Intellectual Merit: Transformative nature of research

Broader Impacts: Address national need / grand challenge, and potential for workforce development

Supplementary Documents

PowerPoint Slide (for panel review)



TRAILBLAZER FY26 Pre-Proposal – Project Description (5 pages)

Investigator Expertise (~1 page): highlight PI's research expertise, describe how PI track record will be leveraged to pivot to new area of research

TRAILBLAZER Vision and Goals (up to 3 pages):

- Vision and Goals of Project
- Overview Plan, Approaches and expected Outcomes
- Explain how proposed Project represents a bold new research direction with transformative potential distinct from the PI's previous/ongoing research

Broader Impacts (~1 page): address National Need / Grand Challenge



TRAILBLAZER FY26 Full Proposal – Required Elements

due July 24, 2026, 5:00 pm Proposer's Time *by invitation* after Pre-Proposal review

Project Summary (1 page)

Project Description (15 pages)

References Cited

Budget & Justification

PI Bio-Sketch only!
PI Current/Pending only!
Facilities/Equip/Resources
Data Management Plan
Mentoring Plan

Supplementary Documents

- Unattributed Project Summary (1 page)
- PowerPoint Slide (1 page, for full proposal)
- Results from Prior NSF Support (<5 pages)
- Department Head Letter – PI eligibility

Budget & Award

- Budget Ceiling: \$3.0 million
- Duration: 3 years
- PI Salary – up to six months/year allowed

TRAILBLAZER FY26 Full Proposal – Project Description (15 pages)

Weave the following elements into the proposal narrative

Intellectual Merit

Evidence of Research Excellence, Innovation, and Collaboration – PI track record

TRAILBLAZER Potential – bold new research direction by PI

TRAILBLAZER Transformative Impact – research addresses National Need/Grand Challenge

Research Approach and Research Plan

Management Plan – team building if an award is made

Broader Impacts

Paradigm shift or significant leap in fundamental engineering knowledge

Long-term potential for advancing National Needs, Grand Challenges, U.S. Leadership

Integration of STEM education and Workforce Development to achieve societal impact

Workforce Development Plan

Expand on narrative from Preliminary proposal



TRAILBLAZER Full Proposal – Team Members & Management Plan

Not Allowed:

- Collaborative Proposals
- Co-PIs listed on proposal
- Bio-sketch of collaborators
- Letters of Support

Management Plan

- Assembly and leadership of Team
- Team member needed expertise
 - Team members can be named, *but*
 - No team member Bio-sketches allowed
 - *Letters of Collaboration* are allowed
- Management of Intellectual Property
- Timeline of Activities



TRAILBLAZER FY26: Workforce Development Plan

- ❑ FY26 NSF Trailblazer Full Proposals submitted under solicitation NSF 26-502 must include a Workforce Development Plan
- ❑ The Workforce Development Plan must be consistent with NSF Priorities, as reiterated below:
 - Activities undertaken in fulfillment of the Broader Impacts criterion, and research on workforce development, must aim to create opportunities for all Americans everywhere.
 - These efforts should not preference some groups at the expense of others, or directly/indirectly exclude individuals or groups. Research projects with more narrow impact limited to subgroups of people based on protected class or characteristics do not effectuate NSF priorities.
 - NSF will continue to support research with the goal of understanding or addressing participation in STEM, in accordance with all applicable statutes and mandates, with the core goal of creating opportunities for all Americans.



FY26 TRAILBLAZER Full Proposal – Budget

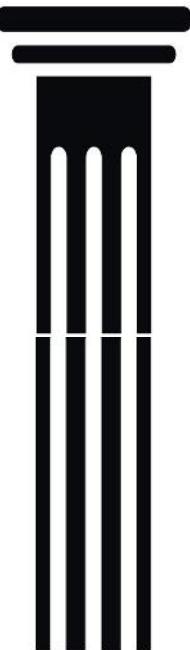
- **Budget Ceiling:** \$3.0 million, including Indirect Costs
- **Project Duration:** 3 years
- **PI Salary Request:** up to six months per year is allowed
- **Budget Negotiations / Revised Budget:** if the Full Proposal is recommended for an Award, the PI may be requested to submit a revised Budget to accommodate Team building given in Management Plan
- **Indirect Costs Rate:** follow your Institution's policies, final Budget subject to negotiation as detailed above
- **Post Award Actions:** Subawards, additional Senior Personnel, may also be requested after the Award is granted



NSF Merit Review Criteria - Summary

Intellectual Merit

Advance knowledge
& understanding



Broader Impacts

Benefit to society,
advance desired
social outcomes



Elements of both *Intellectual Merit* and *Broader Impacts* consider:

- Creative, original, potentially transformative concepts
- Well-conceived plans for proposed activities based on sound rationale
- Qualifications of the investigator*
- Resources to support proposed activities

* **In context to Additional Solicitation Specific Review Criteria #1**

TRAILBLAZER FY26 – Additional Solicitation Specific Review Criteria

Preliminary Proposal

1. **Principal Investigator Research Expertise & Leadership** – Does the proposal demonstrate that the PI has a strong track record of creativity and impactful innovations, and to what extent does the PI provide evidence of their ability to form and lead a team appropriate for the proposed project?
2. **TRAILBLAZING Potential** - Does the proposed research project convincingly leverage the PI's capacity for creativity and innovation to achieve a significant leap or paradigm shift in fundamental engineering knowledge that is uniquely enabled by the PI's pivot to a distinctly new, bold, and potentially transformative area of research?
3. **National Need and/or Grand Challenge** – Does the proposed research have the potential to make significant progress on a national need and/or grand challenge?
4. **Workforce Development Plan** – Does the plan promote, increase, and enhance the participation of emerging researchers in the field of engineering, and provide hands-on research experiences and training to support workforce development?
5. **Management Plan** – Does the plan describe how a strong and effective team will be convened and led by the PI to conduct the proposed research?



TRAILBLAZER FY26 – Merit Review Process

Intellectual Merit / Boarder Impacts / Solicitation Specific Review Criteria, including

- PI Research Expertise
- Transformative Impact
- Trailblazing Potential
- Potential for Workforce Development

PI Interview Panel

- Panel meets remotely with PI
 - PI presentation (~15 min)
 - Q & A by panelists (~15 min)
- Program Director moderated
- Identical Review Criteria to Full Proposal

Pre-Proposal Panel Review

Subset of
proposals invited
for Full Proposal

Full Proposal Panel Review

Subset of proposals
invited for PI
Interviews

PI Interview Panel

EFMA Award
Recommendations



Summary - TRAILBLAZER FY26 Distinctive Elements

Research Expertise & Track Record

- Creativity
- Innovation
- Collaboration

Transformative Impact

- National Need
- Grand Challenge
- Advance U.S. Leadership

Trailblazing Potential

- Leverages Expertise
- Unconventional Hypotheses
- Distinct from Current or Previous Research

STEM Education & Workforce Development



TRAILBLAZER FY26 – Contacts & Information

Cognizant NSF Program Officers

Dr. Alias Smith
Program Director, EFMA
TRAILBLAZER@nsf.gov

Dr. Gregory L. Rorrer
Program Director, EFMA
TRAILBLAZER@nsf.gov

Key Dates:

Letter of Intent: January 20, 2026
Preliminary Proposal: March 10, 2026
Full Proposal (by invitation): July 24, 2026

NSF Solicitation 26-502

NSF Trailblazer Engineering Impact Award
(TRAILBLAZER)

Frequently Asked Questions (FAQs)

(Link posted after webinar)

Additional Information

- NSF Trailblazer Website
www.nsf.gov/funding/opportunities/trailblazer-nsf-trailblazer-engineering-impact-award
- Send any questions not addressed in the webinar to TRAILBLAZER@nsf.gov



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Senior Advisor, Engineering Directorate

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Questions & Answers

