Developing and Demonstrating Nanosensor Technology to Detect, Monitor and Degrade Pollutants

Informational Webinar for Applicants

EPA STAR RFA

November 1, 2022

Webinar Objectives

- Review application Information for the EPA STAR RFA:

  "Developing and Demonstrating Nanosensor Technology to Detect, Monitor and Degrade Pollutants"

- Provide guidance for eligibility, submission, technical aspects of application process
- Answer questions about the application process

Webinar Rules

Webinar Ground Rules

- Please hold your questions until all EPA presentations have been made.
- You may type your questions in the comments box.
- Specific research projects or ideas should not be discussed but clarifying questions regarding the RFA announcement may be answered.
- Slides and Q&A transcript will be provided after the webinar.
- Please keep yourself muted during the presentation.

Agency Contacts

- **Technical Contact:** Hayley Aja, Project Officer (aja.hayley@epa.gov); phone: 202-564-6427
- **Eligibility Contact:** Ron Josephson, Eligibility Officer (josephson.ron@epa.gov); phone: 202-564-7823
- **Peer Review Contact**: Aaron Wishnuff, Science Review Officer (Wishnuff.aaron@epa.gov); phone: 202-564-2055
- **Electronic Submissions:** electronic-grant-submissions@epa.gov

STAR Research Grants

- The Science to Achieve Results (STAR) program's goal is to stimulate and support scientific and engineering research that advances EPA's mission to protect human health and the environment.
- STAR is a competitive, peer-reviewed, extramural research program that provides access to the nation's best scientists and engineers in academic and other non-profit research institutions.

RFA and Award Information

- RFA will close on December 7, 2022, at 11:59:59 p.m. Eastern Time
- Estimated Number of Awards: 1
- Total Funding Amount: $1,500,000 (direct + indirect)
- Project Period: 3 years
- Cost sharing is not needed or allowed
- Award information details can be found in **Section II** of the RFA.

Read the RFA very carefully, all necessary information is provided

Background

- Advances in nanotechnology have significantly advanced the field of environmental science.
- Because of their unique properties, nanomaterials have enabled advances in sensor design to improve specificity and sensitivity.
- Nanomaterials are also being used to develop new environmental remediation technologies to capture and degrade pollutants.
- This RFA is soliciting research to develop and demonstrate nanosensor technology with functionalized catalysts that have potential to **degrade** selected contaminants in addition to **detecting** and **monitoring** pollutants.

Research Interests and Questions

Applications must address <u>both</u> of the following two research areas:

1. Develop and demonstrate nanosensor technology to detect and monitor pollutants
2. Develop and demonstrate nanosensor technology with functionalized catalysts to degrade selected contaminants

Research Interests and Questions

- EPA is interested in a holistic approach for detecting and degrading environmental pollutants using nanotechnology.
- Projects should demonstrate the integration of a sensing solution with a decontamination solution.
- The class of contaminants (e.g., PFAS, heavy metals, pesticides) is not limited by this RFA. However, the project should focus on the same contaminant across both research areas.
- Projects may use different nanoparticles for the detection/monitoring and degradation portions of the project. It is not the expectation that the same nanomaterial will perform both functions.

Research Interests and Questions

- EPA is seeking projects with expected results that can be practically applied in real-world settings.
- This RFA is not seeking proof-of-concept or bench-scale projects.
- Applicants should clearly define the Technology Readiness Levels (TRL) of their technology.
- This RFA is seeking nanotechnology that is ready to be validated and demonstrated outside the lab in the relevant environment, equivalent to a TRL of 5-6.
- NOTE: STAR grant funding cannot be used for commercialization purposes.

Expected Outputs/Outcomes

- Nanosensors with proven sensitivity and selectivity for pollutants in the relevant environment.
- Validation of nanosensors that are scalable and practical for use beyond laboratory
- settings.
- Demonstration of how nanotechnology can be developed, scaled, and implemented for environmental sensing and management.
- Established test cases for future applications of nano-enabled sensing and catalysis for environmental monitoring and management.
- Improved understanding of environmental sensing at the nanoscale.
- Improved ability for nanosensors to measure many analytes simultaneously and near real-time.
- Improved spatial and temporal resolution of nanosensors for more accurate and precise modeling.

Eligibility Information

Eligible to Apply (See Section III)

- Public and private nonprofit institutions/organizations
- Public and private institutions of higher education
- Hospitals located in the U.S.
- State and local governments
- Federally Recognized Indian Tribal Governments

Eligibility Information

Not Eligible to Apply (See Section III)

- Profit-making firms
- Individuals
- Foreign governments or international organizations
- Federal agencies
- Federally-Funded Research and Development Centers (FFRDCs)

Foreign collaborators are allowed. The international budget will need to be justified, reviewed, and approved.

FFRDC employees may cooperate or collaborate with eligible applicants within the limits imposed by applicable regulations.

Application Materials and Process

- Application and submission information can be found in **Section IV**
- Applications must include all information requested in **Section IV.C**
- Applications must be received electronically through **Grants.gov** under the funding opportunity number (EPA-G2023-STAR-A1)
- Organizations must have an active **SAM.gov** registration in order to apply
- Formal instructions for submission can be found in **Section IV.F**
- All necessary forms are available at: **Research Funding Opportunities: How to Apply and Required Forms.**
- Required application package materials include:
  - Human Subjects Research Statement (HSRS)
  - Scientific Data Management Plan (SDMP)

Make sure to include the Current and Pending Support form as part of the Project Narrative of your submission.

Application Review Process

- Detailed information about review criteria can be found in **Section V**.
- Peer Review
  - All eligible applications are reviewed by external technical experts for scientific merit.
  - Peer Review Officer: Aaron Wishnuff (Wishnuff.aaron@epa.gov)
  - Peer Review Team Lead: Meta Bonner (bonner.meta@epa.gov)
- Relevancy Review
  - Applicants who pass peer review will undergo an internal relevancy review to ensure an integrated research portfolio for the Agency.
  - Project Officer: Hayley Aja (aja.hayley@epa.gov)
- Past Performance History Review
  - Applicants who pass peer review will be asked to provide additional information on the PI's performance and reporting history under Federal grants.

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Thank you!