Innovative Water Technology Grant Program: Models to Predict the Removal of Emerging Micropollutants from Water in Fixed-Bed Column Processes

EPA Funding Opportunity Number (FON): EPA-G2024-ORD-F1

Informational Webinar for Potential Applicants

August 15th, 2024

Webinar Objectives

- Review application information requirements for the funding opportunity:
Innovative Water Technology Grant Program:
Models to Predict the Removal of Emerging Micropollutants from Water in Fixed-Bed Column Processes

- Provide guidelines for eligibility, submission and technical aspects of application process

- Answer questions about the application process and information written in the funding opportunity notice

Webinar Ground Rules

- During the presentation, you can type your questions in the Chat box

- Questions will be addressed after the presentation

- No specific research project or idea can be discussed but we can respond to clarifying questions regarding the funding opportunity announcement

- These slides are posted on the funding opportunity webpage: https://www.epa.gov/research-grants/models-predict-removal-emerging-micropollutants-water-novel-adsorbents-fixed-bed

- Answers to questions on this funding opportunity will be posted on the webpage in the next few weeks

- Please keep your microphone muted during the presentation.

Agency Contacts

- Technical Contact:

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- Eligibility Contact:

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- Electronic Submissions:

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- If interested in being on the Peer Review Panel (rather than applying) please contact:

  Aaron Wishnuff, Science Review Officer and Deputy Eligibility Officer

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Funding Opportunity and Award Information

- Deadline for Submission:
  - October 2nd, 2024 at 11:59:59 p.m. Eastern Daylight Time

- Funding Level:
  - Anticipated total for all awards: $1M
  - Estimated number of awards: 1
    (Note: The EPA reserves the right to reject all applications and make no awards under this funding opportunity and reserves the right to make additional awards under this announcement, consistent with Agency policy, if additional funding becomes available after the original selections are made.)
  - Proposed budget must not exceed **$1M** in federal funds, including direct and indirect costs
  - Required 35% minimum cost share/match of TOTAL project costs (equal to a minimum of $538,462)
  - Project duration up to **4 years**

Research Areas
(Section I.E)

Applications should address both Research Areas 1 and 2. Applications that do not address both research areas may not be rated as highly under the evaluation process.

Research Area 1: Develop new models to predict effectiveness for at least two classes of novel adsorbents, provide a rationale for selecting the adsorbents and the modeling approaches.

Research Area 2: Develop, test, and deploy a novel model (or models) to predict how well the selected novel adsorbents work for selected micropollutants under a variety of environmentally relevant conditions for flow-through, fixed-bed processes.

- The experimental data should include sufficient tests to justify the model(s). The testing should show that the proposed model(s) can be deployed and will work under environmentally relevant conditions sufficient to justify the model(s).

Research Area 1

Develop new models to predict effectiveness for at least two classes of novel adsorbents and provide a rationale for selecting the adsorbents and the modeling approaches.

- Define the classes of novel adsorbents being proposed for use (at least two), provide justification for their selection, and define the types and classes of micropollutants expected to be removed.

- Explain the design parameters showing how the type of adsorbent, apparatus design, and the micropollutants studied may interrelate.

- Describe the treatment contexts and practical applications (e.g., drinking water treatment, wastewater treatment, environmental remediation) being targeted.

- Provide justification for selecting the specific micropollutants to be studied within the chosen micropollutant classes, and explain how these specific micropollutants will help support the steps of building a new model.

- For the novel adsorbents selected and the targeted classes of micropollutants, explain how the new model(s) will test the removal hypotheses. Describe the model(s) and associated theory being proposed that account for the unique characteristics of the targeted classes of micropollutants.

The research questions are suggested for consideration. Applicants are encouraged to consider other significant questions as needed to meet the objectives of this research area.

Research Area 2

Develop, test and deploy a novel model (or models) to predict how well the selected novel adsorbents work for selected micropollutants under a variety of environmentally relevant conditions for flow-through, fixed-bed processes.

- Describe what experimental data will be developed on adsorption of those micropollutants for the novel adsorbents chosen (at least two different classes of adsorbents), with the goal of developing a new model for a flow-through, fixed-bed process. This should address both adsorption capacity and kinetics.

- Explain how additional relevant water quality or operating conditions (for example pH, temperature, natural organic matter [NOM]) are included in the model.

- Explain the validation methods to test the model. The outcomes should be mechanistic and linked to physical parameters. Models based on black box concepts or statistical correlations (e.g., machine learning, QSPR) will not be considered responsive to this funding opportunity.

- Describe how the model(s) will be able to accurately predict how the adsorbents will work for large-scale treatment under conditions relevant to the chosen contexts and/or applications. Explain how your proposed experiments and framework are flexible enough to work at multiple sites or over a range of conditions.

- Describe how the model(s) can be used to further develop related adsorption media with improved performance characteristics.

- The model(s) developed should be tested and deployed in real-world conditions, and the results evaluated for effectiveness. Sufficient micropollutants should be tested to justify the model.

The research questions are suggested for consideration. Applicants are encouraged to consider other significant questions as needed to meet the objectives of this research area.

Innovation

Develop, test and deploy a novel model (or models) to predict how well the selected novel adsorbents work for selected micropollutants under a variety of environmentally relevant conditions for flow-through, fixed-bed processes.

- To the maximum extent practicable, research applications for this FO should embody innovation.

- For the purposes of this FO, innovation is defined as **the process of making changes; a new method, custom, or device.**

- Innovative research can take the form of wholly new applications or applications that build on existing knowledge and approaches for new uses.

- **Applications should include a discussion on how the proposed research is innovative** (see Section IV.C.5.iii.a). Reviewers will draw from the above-mentioned innovation definition in the review/evaluation process of research applications (see Section V.A).

Expected Outputs
(Section I.D)

Outputs expected from the research funded under this funding opportunity may include, but are not limited to:

- Predictive models for fixed-bed, flow-through treatment performance of specific novel adsorbents for specific classes of micropollutants

- Demonstration, testing, and deployment of the model(s) developed

- Experimental data on adsorption of a specific class of micropollutants on at least two classes of novel adsorbents in flow-through, fixed-bed processes

- Novel mechanistic models for micropollutant removal in water treatment systems

- Publications of research results in peer-reviewed journals, reports and presentations.

- Software or other simulation tools implementing the developed models.

Note: It is expected that the model development and code for these models will be made publicly available upon completion of this project.

Expected Outcomes
(Section I.D)

Outcomes from the research funded under this funding opportunity may include but are not limited to:

- Reduced costs of testing and deploying innovative micropollutant removal technologies

- Improved public health and reduced risks to human health and ecosystems from micropollutant removal from water

- The models developed could lead to development of new and improved drinking water and wastewater treatment processes for removal of specific classes of micropollutants to help maintain clean and safe water and drinking water.

Eligibility Information (1)
Eligible Entities (Section III.A)

Public water systems, institutions of higher education (IHEs), research institutions or foundations, regional water organizations and certain nonprofit organizations in the U.S. or its territories or possessions.

Privately and publicly owned public water systems that meet the definition of a public water system in 42 U.S.C. 300f(4).

Eligibility Information (2)

- The following entities are **NOT** eligible:
  - U.S. State, territorial, and local governments
  - Federally recognized Indian Tribal governments
  - Profit-making companies
  - Foreign governments
  - International organizations
  - Federally-funded research and development centers (FFRDCs)
  - Federal agencies

- Eligible entities may partner with some ineligible entities under [EPA's Subaward Policy](#)

- For-profit companies are NOT eligible and may NOT be subawardees

- For-profit companies MAY be consultants
  - Consultants are not to be considered key personnel
  - Consultants are subject to competitive procurement requirements (see Section IV.C.5.iv.f. on p. 32 of the FO)

Eligibility Information (3)

- Applications must be submitted via Grants.gov
  - If you cannot access Grants.gov, see https://www.epa.gov/grants/exceptions-grantsgov-submission-requirement.
  - You must have SAM.gov registration ACTIVE in order to apply via Grants.gov.

- Applications that exceed federal funding or performance period time limits will not be reviewed
  - Period of performance must be 4 years or less
  - Projects usually start nine to twelve months after the end of the solicitation period

- Applications from ineligible organizations, or that are somehow not substantially compliant, will not be reviewed

- Organizations and PIs may submit more than one application, however the applications must be substantially different

Eligibility Information (4)
Cost Sharing (Section III.B)

- **Each applicant must contribute a minimum non-federal cost share/match of 35% of the total allowable project costs.** This is equivalent at a minimum to 53.846% of the federal funds awarded (see Section III.B on p. 15).

- For example, if an applicant requests $1,000,000 in EPA funds, a minimum of $538,462 must be included. Including matching, total project costs can exceed $1,538,462 if the applicant proposes more than the minimum required non-federal cost share/match. However, **the federally funded portion of the budget must not exceed $1,000,000.**

- The cost share/match may be provided in cash or can come from in-kind contributions, subject to the regulations governing matching fund requirements at 2 CFR §200.306, but generally not from other federal sources.

- **Cost-shared amounts must be described in the budget justification under each applicable category** (See Section IV.C.5.iv on pp. 30-33).

Application Materials (1)

- See Section IV. "Application and Submission Information"

- To apply under this solicitation, use the application package available at Grants.gov
    - For submission information see: Section IV.F. "Submission Instructions and other Submission Requirements" on pp. 39-42.

- All necessary forms are included in the electronic application package, with the exception of the Current and Pending Support form, which is available at: Research Funding Opportunities: How to Apply and Required Forms
    - Current and pending support forms must include certification from each senior/key person and Authorized Organization Representative (Section IV.B.5.vi, pp. 35-36).

- Letters of support or intent from EPA employees are prohibited

Application Materials (2)

Component	NOFO Section	Page Limit
¥SF-424 (Application for Federal Assistance)	IV.C.1	N/A
¥EPA Form 5700-54 (Key Contacts)	IV.C.2	N/A
¥EPA Form 4700-4 (Preaward Compliance Review Report)	IV.C.3	N/A
¥SF-424A Section B (Budget Information for Non-Construction Programs)	IV.C.4	N/A
Table of Contents	IV.C.5.i	none
Abstract	IV.C.5.ii	1
Research Plan	IV.C.5.iii.a	15
Quality Assurance Statement (QAS)	IV.C.5.iii.b	3
Human Subjects Research Statement (HSRS)	IV.C.5.iii.c	4
Scientific Data Management Plan (SDMP)	IV.C.5.iii.d	2
References	IV.C.5.iii.f	none
Budget Justification	IV.C.5.iv	3
Resumes	IV.C.5.v	2 per investigator/senior personnel
§Current and Pending Support (w/certification statements)	IV.C.5.vi	N/A
Letters of Intent/Letters of Support	IV.C.5.vii.a	1 per letter
§Additional Key Contacts Form, if appropriate	IV.C.2	N/A

Submit as one PDF — (bracket spanning Table of Contents through Additional Key Contacts Form)

¥Available at https://www.grants.gov; §Available at https://www.epa.gov/research-grants/research-funding-opportunities-how-apply-and-required-forms

Electronic Submissions

- See Section IV.F. "Submission Instructions and Other Submission Requirements" on pp. 39-42.

- If you experience difficulty with Grants.gov, do the following steps **before** the end of the solicitation period (Section IV.F.5.):

  - Contact Grants.gov Support Center (support@grants.gov; 1-800-518-4726)

  - Document the Grants.gov ticket/case number.

  - Send an email with the FON (EPA-G2024-ORD-F1) in the subject line to electronic-grant-submissions@epa.gov, including the following information:

    i. Grants.gov ticket/case number(s)

    ii. Description of the issue

    iii. The entire application package in PDF format.

- You may resubmit an application before the deadline, but changes are not permitted after the solicitation period ends. If we see duplicates of the same application, we will process the most recent one.

- If you are experiencing a natural disaster and cannot submit on time, please contact us immediately.

Application Review Information

- **Peer Review Criteria** (see Section V.A. for details, including sub-criteria)

  1. Research Merits 2. Responsiveness 3. Project Management 4. Innovation

- **Relevancy Review Criteria** (Section V.B.)

  1. The degree to which the proposed science/research is relevant to EPA's priorities as described in Goal 5: Ensure Clean and Safe Water for All Communities, Objective 5.1: Ensure Safe Drinking Water and Reliable Water Infrastructure, of EPA's FY2022-2026 Strategic Plan.
  2. The degree to which results (i.e., outputs/outcomes) of the research have broad application or affect large segments of society.
  3. The degree to which the research is designed to produce data and methods that can immediately and/or with little to no translation be utilized by the public, states, and tribes to better assess or manage environmental problems.

- See **Section V** for more detail on the above criteria and other review components

Agency Contacts (2)

- Technical Contact:

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Questions?
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