Opportunity Title: EPA Fellowship on Development and Application of Methods for Gas Chromatograph-High Resolution Mass Spectrometry for Non-Targeted Analysis
Opportunity Reference Code: EPA-ORD-CCTE-CCED-2024-03

Organization U.S. Environmental Protection Agency (EPA)

Reference Code EPA-ORD-CCTE-CCED-2024-03

How to Apply ***Connect with ORISE...on the GO!*** Download the new ORISE GO mobile app in the Apple App Store or Google Play Store to help you stay engaged, connected, and informed during your ORISE experience and beyond!

A complete application consists of:

- An application
- Transcript(s) – For this opportunity, an unofficial transcript or copy of the student academic records printed by the applicant or by academic advisors from internal institution systems may be submitted. All transcripts must be in English or include an official English translation. Click here for detailed information about acceptable transcripts.
- A current resume/CV, including academic history, employment history, relevant experiences, and publication list
- Two educational or professional recommendations. Click here for detailed information about recommendations.

All documents must be in English or include an official English translation.

Application Deadline 7/5/2024 3:00:00 PM Eastern Time Zone

Description ***Applications may be reviewed on a rolling-basis and this posting could close before the deadline.** Click **here** for information about the selection process.

EPA Office/Lab and Location: A research opportunity is available at the Environmental Protection Agency (EPA), Office of Research and Development (ORD), Center for Computational Toxicology and Exposure (CCTE), Chemical Characterization & Exposure Division (CCED) located in Research Triangle Park, North Carolina. If selected for the opportunity, the participant will need to relocate to the appropriate EPA facility. The relocation costs are not reimbursable. The opportunity is not 100% remote, but limited remote participation may be considered at the mentor's discretion.

Research Project: Non-targeted analysis (NTA) has been increasingly used in recent years to elucidate structures of novel compounds of emerging concern, however, the majority of studies use liquid chromatography. Gas chromatography (GC) has the potential to be equally useful and compliment chemical space coverage but methodologies for GC data collection and processing need to be further developed, tested, and applied in order to be widely adopted and used in decision making.

The goal of the research project is to develop GC-NTA techniques to identify chemicals of interest in environmental samples.

Under the guidance of a mentor, the research activities will include, but not limited to:

- Exploring the usefulness of combining data from various ionization techniques (e.g., electron impact, chemical ionization).
- Exploring and mastering software features (e.g., Compound Discoverer, MSDial, etc.).
- Writing QA/QC procedures and documents, and writing programming

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code (R, python, or other) for processing data output.

Applications of GC-NTA will include identification of novel per- and polyfluorinated alkyl substances (PFAS) in samples originating near manufacturing facilities and products of incomplete combustion formed from household items during a fire.

Learning Objectives: The research participant will be part of a multidisciplinary team of experts who are identifying chemicals to which humans are exposed. The research participant will be expected to actively participate in internal and external research groups such as the EPA NTA group, a GC-Orbitrap users group, etc. An emphasis will be placed on publishing in peer-reviewed journals with the aim of preparing the research participant for a successful career in science.

Mentor(s): The mentor for this opportunity is Seth Newton (Newton.Seth@epa.gov). If you have questions about the nature of the research please contact the mentor.

Anticipated Appointment Start Date: May 15, 2024. All start dates are flexible and vary depending on numerous factors. Click **here** for detailed information about start dates.

Appointment Length: The appointment will initially be for one year and may be renewed upon EPA recommendation and subject to availability of funding.

Level of Participation: The appointment is full-time.

Participant Stipend: The participant will receive a monthly stipend commensurate with educational level and experience. Click **here** for detailed information about full-time stipends.

EPA Security Clearance: Completion of a successful background investigation by the Office of Personnel Management (OPM) is required for an applicant to be on-boarded at EPA.

ORISE Information: This program, administered by ORAU through its contract with the U.S. Department of Energy (DOE) to manage the Oak Ridge Institute for Science and Education (ORISE), was established through an interagency agreement between DOE and EPA. Participants do not become employees of EPA, DOE or the program administrator, and there are no employment-related benefits. Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE.

ORISE offers all ORISE EPA graduate students and Postdocs a free 5 year membership to the National Postdoctoral Association (NPA).

The successful applicant(s) will be required to comply with Environmental, Safety and Health (ES&H) requirements of the hosting facility, including but not limited to, COVID-19 requirements (e.g. facial covering, physical distancing, testing, vaccination).

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Questions. Please see the FAQ section of our website. After reading, if you have additional questions about the application process please email EPArpp@orau.org and include the reference code for this opportunity.

Qualifications

The qualified candidate should have received a doctoral degree in one of the relevant fields. Degree must have been received within five years of the appointment start date.

Preferred Skills/Experience:

- Experience running, troubleshooting, and maintaining mass spectrometers, preferably high-resolution mass spectrometers.
- Experience with chromatography (gas or liquid, but experience with gas preferred).
- Experience dealing with large datasets, preferably using programming code such as R or Python.
- Strong written, oral and electronic communication skills.
- Familiarity with per- and polyfluorinated alkyl substances (PFAS).
- Python and/or R programming for data processing and analysis.

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree received within the last 60 month(s).
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (7)
  - **Communications and Graphics Design** (1)
  - **Computer, Information, and Data Sciences** (3)
  - **Earth and Geosciences** (1)
  - **Engineering** (2)
  - **Environmental and Marine Sciences** (2)
  - **Life Health and Medical Sciences** (4)
  - **Mathematics and Statistics** (3)
  - **Physics** (5)