Opportunity Title: EPA Postdoctoral Fellowship on Modeling Human Exposure to Chemicals of Current and Emerging Concern
Opportunity Reference Code: EPA-ORD-CPHEA-PHESD-2022-02

Organization U.S. Environmental Protection Agency (EPA)

Reference Code EPA-ORD-CPHEA-PHESD-2022-02

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 10/6/2022 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 Public Health Environmental Assessment (CPHEA), Public Health and Environmental Systems Division (PHESD), Exposure Indicators Branch located in Research Triangle Park, North Carolina

Research Project: The research participant may apply, evaluate and improve human exposure models to build understanding of the key sources and pathways of exposure to chemicals of current and emerging concern (e.g., per-and polyfluoroalkyl substances [PFAS]). The research participant will have the opportunity to analyze bio-monitoring, multimedia (e.g., dust, soil, water) and questionnaire data using a combination of statistical modeling, process-based exposure models, and pharmacokinetic (PK) models. The research participant may also build understanding of time-activity patterns that mediate exposure by developing data mining and machine learning based approaches to collect and analyze publicly available big data including: social media mentions and geotags, search engine trends, and consumer product purchase data.

Research activities may include:

Computer programming (Python and/or R), statistical analysis (e.g., mixed-effects models, probabilistic/Bayesian models), machine learning, sensitivity analysis, model selection, numerical verification of model output, data mining, and meta-analysis.

Learning Objectives: Under the guidance of a mentor, the research

participant will receive training/guidance in analyzing data, presenting research results, and preparing manuscripts for publication. The participant will have the opportunity to develop skills for robust and reproducible science, including code version control systems (e.g. git) and computational notebooks (e.g. R Markdown, Jupyter notebooks). The research participant will have the opportunity to further develop statistical inference, coding and scientific writing skills.

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

Anticipated Appointment Start Date: August 1, 2022. 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).

Questions: Please see the FAQ section of our website. After reading, if you have additional questions about the application process please email ORISE.EPA.ORD@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 (e.g.,

Opportunity Title: EPA Postdoctoral Fellowship on Modeling Human Exposure to Chemicals of Current and Emerging Concern
Opportunity Reference Code: EPA-ORD-CPHEA-PHESD-2022-02

Applied Math, Applied Physics, Biology, Chemistry, Computer Science, Ecology and Evolutionary Biology, Earth and Atmospheric Sciences, Engineering, Environmental Science, Geography, Geology, Mathematics, Microbiology, Public Health, Statistics, Toxicology), or be currently pursuing the degree with completion before January 2023. Degree must have been received within five years of the anticipated appointment start date.

Preferred skills:

- Experience with R, Python or SAS
- Experience analyzing data with statistical models (including hierarchical/mixed-effects models, machine learning)
- Experience working with process-based models (e.g., agent-based models, exposure models)
- Familiarity with probabilistic modeling techniques (e.g., Monte Carlo sampling, Bayesian analysis)
- Ability to develop and test hypotheses
- Strong written and oral communication skills including first author publications
- Ability to work and collaborate in a multidisciplinary environment

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree received within the last 60 months or anticipated to be received by 1/2/2023 11:59:00 PM.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12)
  - **Computer, Information, and Data Sciences** (4)
  - **Earth and Geosciences** (4)
  - **Engineering** (6)
  - **Environmental and Marine Sciences** (3)
  - **Life Health and Medical Sciences** (21)
  - **Mathematics and Statistics** (11)
  - **Other Non-Science & Engineering** (1)
  - **Physics** (2)
  - **Social and Behavioral Sciences** (5)