

Opportunity Title: Analytical Methods for the Characterization and Human

Exposure to Nano-scale Particles

Opportunity Reference Code: EPA-ORD-NERL-EMMD-2019-07



Organization U.S. Environmental Protection Agency (EPA)

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How to Apply

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

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

If you have questions, send an email to EPArpp@orau.org. Please include the reference code for this opportunity in your email.

Application Deadline 8/30/2019 3:00:00 PM Eastern Time Zone

Description ***Applications will be reviewed on a rolling-basis.**

A research training opportunity is currently available at the U.S. Environmental Protection Agency's (EPA) Office of Research and Development (ORD)/National Exposure Research Laboratory (NERL). The appointment will be served with the Exposure Methods and Measurements Division (EMMD) located in Research Triangle Park, North Carolina.

EMMD provides the science that underlies the measurement of environmental stressors and their interaction with biological systems. This science includes method development, evaluation, and field and laboratory testing. These measurement methods are foundational to the Agency's regulatory programs and stakeholder needs in protecting public health and the environment. The Public Health Chemistry Branch (PHCB) specializes in the collection and analysis of chemical samples from humans and built environments. The branch develops, evaluates, and applies state-of-the-art analytical methods to characterize human exposures and provides forensic and technical support to the Agency.

Due to their unique characteristics, nanomaterials are being incorporated into a wide variety of consumer products and can be emitted from a range of processes. In addition, nanoscale particles (NP) can be generated and released into indoor environments as a result of a number of activities such as 3D printing. Our understanding of human exposure, especially child exposure, to these particles is limited. More specifically, development and demonstration of analytical methodology used to measure the potential release and exposure to NP from these products and processes is critical in better understanding human exposure.

This research project will focus on several examples where new methods are key to understanding of NP release and exposure, including:

- 3-D printer generated aerosols (characterize particulates and measure potential exposure)
- Nanomaterials (characterization, release and exposure to nanoparticles-NP from NP-containing consumer products)

Techniques and instrumentation that the research participant may apply to the research will include the following:

- dynamic light scattering
- UV-visible spectrophotometry
- ICP-MS
- single particle ICP-MS
- nanoparticle tracking analysis
- flow field flow fractionation

The research participant may analyze data and report findings at national meetings and in the peer-reviewed literature.

The mentor for this opportunity is Kim Rogers (rogers.kim@epa.gov).

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Anticipated Appointment Start Date: September 3, 2019

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. The initial appointment is for one year, but may be renewed upon recommendation of EPA and is contingent on the availability of funds. The participant will receive a monthly stipend commensurate with educational level and experience. Proof of health insurance is required for participation in this program. The appointment is full-time in the Research Triangle Park, North Carolina area. Participants do not become employees of EPA, DOE or the program administrator, and there are no employment-related benefits.







Qualifications

The qualified candidate should have received a doctoral degree in one of the relevant fields, or be currently pursuing the degree and will reach completion by the start date of the appointment. Degree must have been received within five years of the appointment start date.

Preferred skills:

- Experience with nanomaterials or aerosols
- Experience with bench-level research and publication in the areas of environmental chemistry or biochemistry

Eligibility Requirements

- **Degree:** Doctoral Degree received within the last 60 months or anticipated to be received by 9/3/2019 11:59:00 PM.
- **Discipline(s):**
 - **Chemistry and Materials Sciences** (3 )
 - **Earth and Geosciences** (21 )
 - **Engineering** (27 )
 - **Environmental and Marine Sciences** (3 )
 - **Life Health and Medical Sciences** (4 )
 - **Science & Engineering-related** (1 )