

Opportunity Title: Sensor Application and Development at EPA

Opportunity Reference Code: EPA-SSP-0023-10

Organization U.S. Environmental Protection Agency (EPA)

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How to Apply

- Submit application and supporting documents by clicking on Apply Now button.
- *For more information, contact EPAjobs@orau.org. Do not contact EPA directly.*

Description The EPA Environmental Research and Business Support Program has an immediate opening for a Sensor Application and Development position with the Office of Research and Development at the EPA facility in Research Triangle Park, NC.


The Office of Research and Development at the EPA supports high-quality research to improve the scientific basis for decisions on national environmental issues and help EPA achieve its environmental goals. Research is conducted in a broad range of environmental areas by scientists in EPA laboratories and at universities across the country.


Within ORD, the National Risk Management Research Laboratory's Air and Energy Management Division (AEMD) conducts research relating to air pollution issues including measurements and source characterization. This includes research on use and development, testing, and application of miniaturized gas/particle sensors and sampler systems for characterizing combustion pollutant species.

The selected candidate shall be part of a team working on testing gas and particle emission sensors for characterizing combustion pollutants and developing them into systems for a unique laboratory and field sampling program that utilizes aerial and ground-based systems, including tethered aerostats, unmanned aerial vehicles, and combustion laboratories.

The selected candidate shall participate as part of a team developing a lightweight sensor/sampler-based system that would be deployed for emission sampling on aerostats and unmanned aerial systems (UASs) such as aerostats and multicopters. Past field sampling applications have included at-sea oil fires, waste pile fires, prescribed forest burns, and open burning/open detonation of military ordnance. He/she shall also employ these systems and others to characterize combustion pollutants for species type and emission rate.


The selected candidate shall participate in various aspects of development including testing the performance of new gas sensors, designing pump systems, developing control code programs, conducting combustion tests, and field system trials. Sensor development is ongoing to reduce the size and weight of sampling system while increasing the ability to measure multiple


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pollutants and PM characteristics.

The selected candidate shall assist the mentor in:

- Testing the accuracy, responsiveness, range, and selectiveness of small gas and particle sensors;
- Developing calibration software for sensors;
- Selecting, designing and testing pump systems and associated electronic and programming control software;
- Incorporating these sensors into sampling systems for use on mobile and aerial unmanned systems;
- Testing these systems in laboratory and field combustion efforts to characterize pollutant species;
- Participating as a member of a multi-disciplinary research team; and
- Interacting with other EPA, NASA, USGS, NOAA, and USFS scientists.

Location: This job will be located at EPA's facility in Research Triangle Park, NC.

A limited duration field effort (2-3 weeks) is possible conducting measurements at an industrial or natural site.

Salary: Selected applicant will become a temporary employee of ORAU and will receive an hourly wage of \$20.96 for hours worked.

Hours: Full-Time.

Travel: A limited number of field tests involving overnight travel may be required.

Working Conditions: The selected candidate shall be supervised by a mentor who will provide day-to-day direction, as well as coach, advise and counsel the selected candidate, and review his/her work.

This position will primarily involve work in a laboratory, with limited in-field measurement work. It is not expected to involve exposure to hazardous elements.

Expected Start Date: The position is full time and expected to begin December 2017. The initial project is through May 14, 2018, followed by up to two (2) 12-month optional periods.

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Qualifications Eligible applicants must:

- Be at least 18 years of age and
- Have earned a bachelor's degree in in engineering, chemistry, physics, or a related field from an accredited

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university or college within the last 24 months and

- Be a citizen of the United States of America or a Legal Permanent Resident.

EPA ORD employees, their spouses, and children are not eligible to participate in this program.

Required Knowledge, Skills, Work Experience, and Education

The applicant shall have:

- Demonstrated education and/or experience in gas flow systems including experience with gas phase measurements and measurement systems, pump systems, gas cylinder operation, laboratory testing, instrument calibration; and
- Strong written and oral communication.

Desired Knowledge, Skills, Work Experience, and Education

It is desirable that the candidate have:

- Experience with pump control;
- Experience with Swagelok (or similar) fittings;
- Experience with proportional–integral–derivative (PID) operation;
- Arduino, LabView, and MatLab programming skills;
- Experience with 3D printing and computer aided design; and
- Experience with circuit board design.

Eligibility Requirements

- **Citizenship:** LPR or U.S. Citizen
- **Degree:** Bachelor's Degree, Master's Degree, or Doctoral Degree received within the last 24 month(s).
- **Discipline(s):**
 - **Chemistry and Materials Sciences** (12 👁)
 - **Engineering** (27 👁)
 - **Physics** (16 👁)

Affirmation

I certify that I am at least 18 years of age; a recent graduate with a bachelor's degree in in engineering, chemistry, physics, or a related field; a citizen or a Legal Permanent Resident of the United States of America; and not a current employee of EPA ORD or the spouse or child of an EPA ORD employee.

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