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Opportunity Title: Organic Capillary Electrophoresis Analysis System (OCEANS) Instrument Hardware Development and Validation
Opportunity Reference Code: 0158-NPP-MAR25-JPL-Astrobio

Organization National Aeronautics and Space Administration (NASA)

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How to Apply All applications must be submitted in Zintellect

Please visit the NASA Postdoctoral Program website for application instructions and requirements: How to Apply | NASA Postdoctoral Program (orau.org)

A complete application to the NASA Postdoctoral Program includes:

1. Research proposal
2. Three letters of recommendation
3. Official doctoral transcript documents

Application Deadline 3/1/2025 6:00:59 PM Eastern Time Zone

Description **About the NASA Postdoctoral Program**

The NASA Postdoctoral Program (NPP) offers unique research opportunities to highly-talented scientists to engage in ongoing NASA research projects at a NASA Center, NASA Headquarters, or at a NASA-affiliated research institute. These one- to three-year fellowships are competitive and are designed to advance NASA's missions in space science, Earth science, aeronautics, space operations, exploration systems, and astrobiology.

Description:

A postdoctoral position is available in microscale chemical analyzer instrument development in the Microdevices Laboratory at JPL. This research will involve the development and validation of an automated capillary electrophoresis - mass spectrometry (CE-MS) instrument capable of analysis of astrobiologically relevant compounds including amino acids, carboxylic acids, and polycyclic aromatic hydrocarbons. Technology development efforts will leverage sample handling, electrophoresis, and mass spectrometry instrumentation and methods developed previously at JPL, in addition to electrospray technologies developed at SCIEX in nearby Brea, CA.

This research effort has a significant engineering component, involving system design and automation, which is required for the implementation of these analyses on future robotic spaceflight missions searching for signs of life on ocean worlds such as Europa or Enceladus. As such, the postdoctoral fellow will develop automated methods and associated hardware for end-to-end analysis of water and/or ice samples, and scientifically validate the bioanalytical approach using ocean world analog samples collected from glaciers, sub-glacial lakes, or deep ocean currents.

Candidates should have a recent Ph.D. in chemistry or a chemistry-related discipline with a strong background in analytical chemistry, capillary electrophoresis, electrospray ionization, and mass spectrometry using

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custom-developed hardware. Experience in analytical system design, electronics/PCB design, programming, and mechanical design/CAD is required.

Location:
Jet Propulsion Laboratory
Pasadena, California

Field of Science: Astrobiology

Advisors:
Peter Willis
Peter.A.Willis@jpl.nasa.gov
818-354-1297

Applications with citizens from Designated Countries will not be accepted at this time, unless they are Legal Permanent Residents of the United States. A complete list of Designated Countries can be found at: https://www.nasa.gov/oiir/export-control.

Eligibility is currently open to:

- U.S. Citizens;
- U.S. Lawful Permanent Residents (LPR);
- Foreign Nationals eligible for an Exchange Visitor J-1 visa status; and,
- Applicants for LPR, asylees, or refugees in the U.S. at the time of application with 1) a valid EAD card and 2) I-485 or I-589 forms in pending status

This opportunity may require the following: 1- Mandatory drug testing; 2-Random drug testing; 3- Testing prior to initiation of fellowship appointment.

Questions about this opportunity? Please email npp@orau.org

Eligibility Requirements

- **Degree:** Doctoral Degree.