Opportunity Title: Laboratory Studies of Astrophysical Ices and Organic Compounds
Opportunity Reference Code: 0105-NPP-NOV24-ARC-Cosmochem

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0105-NPP-NOV24-ARC-Cosmochem

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 11/1/2024 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 U.S. and non-U.S. 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:

Our group at the Ices, Ice Irradiation, and Organics Laboratory for Astrobiology (I3OLAB) studies the composition, evolution, and the physical and chemical properties of interstellar and planetary materials. More particularly, we focus on the evolution of astrophysical ices (on interstellar grains in dense molecular clouds, on grains in protoplanetary disks, in comets, and on the surface of icy worlds in our Solar System) and their interaction with energetic radiation (photons and energetic particles). In particular, we are interested in how radiation processes lead to the formation of organic residues which contain a large variety of organic molecules including compounds of astrobiological interest. Such astrophysical ice analogs are produced in the laboratory under conditions that are realistically close to those expected in the interstellar medium, protoplanetary disks, and the surface of cold Solar System objects by adjusting experimental parameters such as the temperature and the pressure. Resulting samples are then analyzed using a range of analytical techniques which include infrared (IR) spectroscopy and microscopy, gas chromatography coupled to mass spectrometry (GC-MS), fluorescence microscopy, and X-ray absorption near-edge structure (XANES) spectroscopy. We also have national and international collaborations to use other analytical instruments in order to study the organic materials produced in our experiments and determine their chemical and isotopic compositions. The study of these materials provides us with qualitative and quantitative information to: (1) interpret astronomical observations; (2) interpret data taken from extraterrestrial samples (cosmic dust, meteorites, samples returned by spacecraft missions such as Hayabusa2 and OSIRIS-REx); (3) interpret data obtained by missions going to other Solar System objects; (4) help improve existing astrophysical and astrochemical models which need experimental inputs; and (5) guide instrument development for future missions. For more information on the Astrophysics & Astrochemistry Laboratory, visit our Web site at http://www.astrochem.org.

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Field of Science: Cosmochemistry

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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

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

Eligibility Requirements

- **Degree:** Doctoral Degree.