

Opportunity Title: Laboratory Studies of Solar System and ISM-relevant Ices
spanning Near- to Far-infrared Wavelengths

Opportunity Reference Code: 0260-NPP-NOV23-GSFC-Astrophys

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0260-NPP-NOV23-GSFC-Astrophys

How to Apply All applications must be submitted in [Zintellect](#)

Application Deadline 11/1/2023 6:00:59 PM Eastern Time Zone

Description Description:

The Planetary Systems Laboratory (693) in the Solar System Exploration Division (690) at NASA's Goddard Space Flight Center (GSFC) seeks a qualified postdoctoral applicant to work in the Spectroscopy for Planetary ICes Environments (SPICE) laboratory. This position is strictly laboratory based, with the NPP project aim to generate both outer solar system and ISM-relevant ice analogs by performing laboratory IR transmission spectroscopy spanning the far- to near-IR.

To enhance the science return from past flight missions (e.g., ISO, Herschel, Cassini), current missions (e.g., SPHEREx, JWST, New Horizons), and to prepare for upcoming missions (e.g., Dragonfly, Astrophysics Far-IR Probe), a dedicated laboratory effort to determine the optical and chemical properties of pure, layered, and co-condensed ices embedded within a wide variety of astrophysical environments (e.g., outer solar system, protoplanetary and debris disks, etc.) is vital. This is especially true for dedicated experiments performed at far-IR wavelengths longward of ~20 μm , over a large range of temperatures representing a diverse set of astrophysically-relevant environments, especially for water ice-containing co-condensed mixtures. The far-IR is a robust spectral region that comprises low energy intermolecular and lattice vibrational modes of many astrophysically-relevant ices, which provides unique views of the ice composition, ice structure, porosity, and its thermal history.

Since pure and layered ice experiments do not reproduce the characteristics of co-condensed ices, targeted co-condensed experiments must be performed to determine the ice band position, shape, and strength, as well as its optical properties, which are all innately unique to co-condensed ices, especially at far-IR wavelengths. Thus, a large emphasis of this NPP project will be placed on co-condensation studies.

Field of Science: Astrophysics

Advisors:

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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:



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<https://www.nasa.gov/oirr/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

Eligibility Requirements • **Degree:** Doctoral Degree.