

Opportunity Title: Surface and Subsurface Chemistry of Ocean Worlds of the Outer Solar System

Opportunity Reference Code: 0108-NPP-NOV23-JPL-Astrobio

Organization National Aeronautics and Space Administration (NASA)

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

Description This research opportunity involves coupling spacecraft data from instruments such as the Galileo Near Infrared Mapping Spectrometer [NIMS], Cassini Visible and Infrared Mapping Spectrometer [VIMS], and the Cassini Ion & neutral mass spectrometer [INMS], with laboratory experiments and radiative transfer modelling to determine the surface composition of worlds like Europa and Enceladus. Radiolytic processing of the icy surfaces of these moons creates mixtures of new compounds, and also creates defects in materials that may provide spectroscopic clues to the surface composition. This work involves making careful spectroscopic measurements to generate library spectra, coupled with radiative transfer modelling to deconvolve mixtures. A strong background in infrared spectroscopy and RT modelling is critical. Capability with the PDS and S/C data is desirable, as is experience with hardware and working in a laboratory environment.

Location:

Jet Propulsion Laboratory
Pasadena, California

Field of Science: Astrobiology

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



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