Opportunity Title: Laboratory Studies of Chemistry on Titan's Surface
Opportunity Reference Code: 0094-NPP-MAR26-JPL-PlanetSci

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0094-NPP-MAR26-JPL-PlanetSci

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 3/1/2026 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:

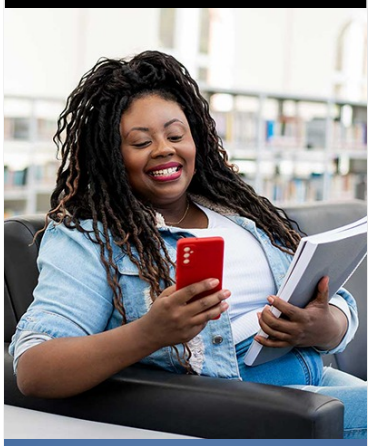
Titan, Saturn's largest moon, possesses a thick nitrogen atmosphere and a surface dominated by organic molecules. Our group performs a wide array of experiments to study the chemical processes that control the evolution and composition of Titan's surface. Solubility, precipitation, photochemistry and low temperature thermal reactions are studied using infrared, Raman and ultraviolet spectroscopies, optical microscopy, synchrotron x-ray diffraction and neutron diffraction.

Current research focuses on the formation of organic co-crystals at low temperature, and the reactivity of carbon dioxide with amines to form carbamic acid. We are also developing ultraviolet and infrared fiber optic probes for the in situ chemical characterization of Titan's lakes.

Experience in spectroscopy, ultrahigh vacuum techniques, and/or experimental physical chemistry is desired.

Malaska, M.J. and R. Hodyss, Dissolution of benzene, naphthalene, and biphenyl in a simulated Titan lake. Icarus, 2014. 242: p. 74-81.
Cable, M.L., T.H. Vu, R. Hodyss, M. Choukroun, M.J. Malaska, and P. Beauchamp, Experimental determination of the kinetics of formation of the benzene-ethane co-crystal and implications for Titan. Geophysical Research Letters, 2014. 41(15): p. 5396-5401.
Tuan Hoang, V., M.L. Cable, M. Choukroun, R. Hodyss, and P. Beauchamp,

NPP NASA Postdoctoral Program
ORAU Pathfinder



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Formation of a new Benzene-Ethane Co-Crystalline Structure Under Cryogenic Conditions. Journal of Physical Chemistry A, 2014. 118(23): p. 4087-4094.

Location:
Jet Propulsion Laboratory
Pasadena, California

Field of Science: Planetary Science

Advisors:
Robert Hodyss
Robert.P.Hodyss@jpl.nasa.gov
818-205-4990

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

Point of Contact Mikeala

Eligibility Requirements

- **Degree:** Doctoral Degree.