Opportunity Title: Laboratory Studies of Chemistry on Titan's Surface
Opportunity Reference Code: 0094-NPP-NOV23-JPL-PlanetSci

Organization
National Aeronautics and Space Administration (NASA)

Reference Code
0094-NPP-NOV23-JPL-PlanetSci

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

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, 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:

Opportunity Title: Laboratory Studies of Chemistry on Titan's Surface
Opportunity Reference Code: 0094-NPP-NOV23-JPL-PlanetSci

- 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

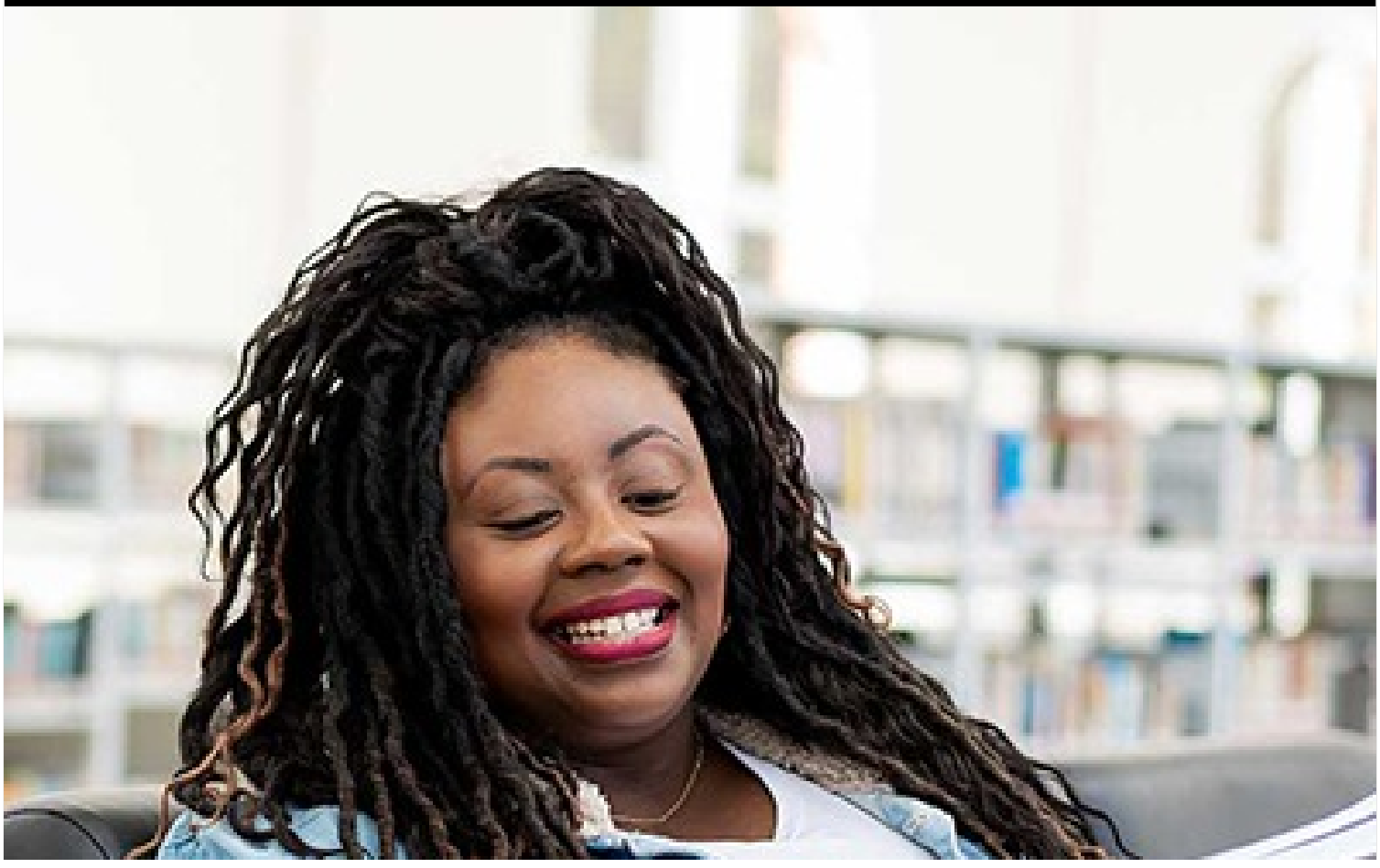
This opportunity may require the following: 1- Mandatory drug testing; 2-Random drug testing; 3- Testing prior to initiation of fellowship appointment.

Eligibility Requirements

- **Degree:** Doctoral Degree.

NPP NASA Postdoctoral Program

ORAU Pathfinder



zintellect
climb higher

Opportunity Title: Laboratory Studies of Chemistry on Titan's Surface
Opportunity Reference Code: 0094-NPP-NOV23-JPL-PlanetSci