zintellect
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Opportunity Title: Laboratory and Computational Investigations of Isotope Effects on Planetary Bodies
Opportunity Reference Code: 0264-NPP-MAR26-JPL-PlanetSci

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0264-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 4/2/2026 6:00:59 PM Eastern Time Zone

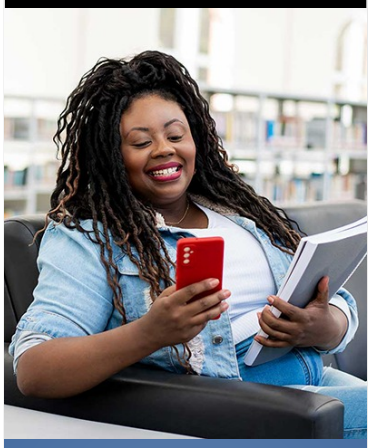
Description **About the NASA Postdoctoral Program**

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:

The isotopic compositions of minerals, organics, liquids, and gaseous species from an array of planetary bodies throughout the Solar System have enabled critical insights into the provenances of as well as the physical and chemical processes that have modified those materials. Our group combines laboratory experiments, analytical measurements, mathematical modeling, and computational chemistry to investigate such processes and the isotopic signatures that they impart on simple organic and inorganic molecules in both terrestrial and extraterrestrial rocks and minerals. Postdoctoral fellows would contribute to this work in two ways: 1) performing laboratory experiments to determine isotopic fractionations in relevant planetary environments (e.g., carbon or hydrogen isotopic fractionation in simple hydrocarbons between Titan's lakes and its atmosphere, adsorption-driven fractionation of hydrogen and oxygen isotopes between adsorbed water and the martian atmosphere) and/or 2) performing high-fidelity quantum- and statistical-mechanical as well as molecular dynamics simulations of the same (and other) fractionations to elucidate the underlying chemical physics drivers of such processes.

These and other, comparable projects are highly cross-disciplinary in nature and at the cutting edge of isotope geochemistry. The incorporation of techniques from computational chemistry in particular is essentially a new way of approaching questions in planetary science and isotope

NPP NASA Postdoctoral Program
ORAU Pathfinder

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geochemistry. The most recent Planetary Science & Astrobiology Decadal Survey emphasizes the role of laboratory returned-sample analyses—particularly isotopic data—as a major focus for future NASA research and missions. Current work in our group supports several active missions, including MSL (Curiosity) and OSIRIS-REx, as well as missions in development (Mars Sample Return) and those still in the concept phase.

Field of Science:

- Planetary Science

Advisors:

Amy Hofmann
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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

Point of Contact Mikeala

Eligibility Requirements

- **Degree:** Doctoral Degree.