

**Opportunity Title:** Life Detection in Water-Ice Matrices

**Opportunity Reference Code:** 0001-NPP-MAR26-JPL-PlanetSci

**Organization** National Aeronautics and Space Administration (NASA)

**Reference Code** 0001-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 \(oraу.org\)](#).

A complete application to the NASA Postdoctoral Program includes:

1. Research proposal
2. Three letters of recommendation
3. Official doctoral transcript documents

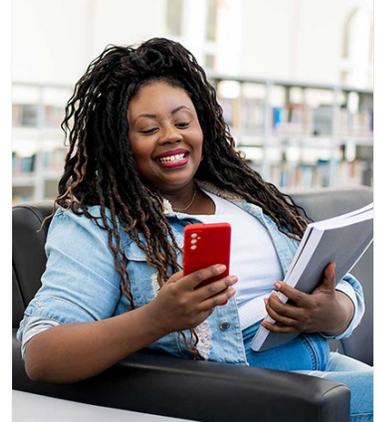
**Application Deadline** 3/1/2026 6:00:59 PM Eastern Time Zone

**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:**

Planetary scientists often rely on the polar ice-covered regions on Earth as analogs for the polar regions of Mars. Ancient ice cores dated using stable isotopes of trapped gases are studied to characterize the types of cold-adapted bacteria or archaea living within them. Our laboratory is developing two types of in situ life detection instruments. The first instrument is used for identifying and then characterizing microbes within ice using ultraviolet fluorescence followed by analysis with quantum dot labeled antibodies using flow cytometry. The second instrument is being developed to analyze gases trapped within ice such as carbon dioxide and methane. This instrument may use cavity ring down or photoacoustic spectroscopy coupled to mid-infrared sources to perform concentration and isotopic ratio measurements. Both instruments are being designed to screen large volumes of melt-ice for putative life, bioremnants, or their metabolic products as the cryobot descends into the ice. In order to make these instruments a reality, candidates with interest and expertise relating to laser systems, nonlinear optics, pattern recognition, and software engineering are encouraged to apply and would assist us in designing, building and testing our prototypes. Applicants with interest and expertise in isotopic dating of ice, molecular methods, and in planetary science are also encouraged to apply as they would be invaluable in characterizing the ice samples used in the experiments and helping us formulate the science



Whether you are just starting your career or already at a senior level, ORAU offers internships, fellowships, research opportunities, and contract positions that can provide you with invaluable experience. Download the ORAU Pathfinder mobile app and find the right opportunity to propel you along your career path!

Visit ORAU Pathfinder 



**Opportunity Title:** Life Detection in Water-Ice Matrices

**Opportunity Reference Code:** 0001-NPP-MAR26-JPL-PlanetSci

justification for these instruments by drawing parallels between our work with ancient ice cores and the potential science return of our instruments during exploration of polar regions of Mars for the icy moons of Jupiter (Europa, Ganymede, and Callisto), Saturn (Enceladus) or Pluto (Charon).

**Location:**

Jet Propulsion Laboratory  
Pasadena, California

**Field of Science:** Planetary Science

**Advisors:**

James L Lambert  
James.L.Lambert@jpl.nasa.gov  
818-354-4181

**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@oraui.org](mailto:npp@oraui.org)

**Point of Contact** [Mikeala](#)

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