

Opportunity Title: Passive Sounding of Solar System Bodies Using Radio

Astronomical Sources

Opportunity Reference Code: 0323-NPP-NOV26-JPL-PlanetSci

Organization National Aeronautics and Space Administration (NASA)

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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 11/1/2026 6:00:59 PM Eastern Time Zone

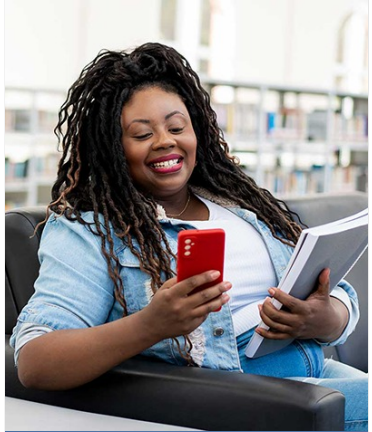
Description About the [NASA Postdoctoral Program](#)

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:

Passive radar sounding is an emerging technique that uses naturally occurring radio emissions to investigate planetary surfaces and subsurfaces, offering a low-resource, low-risk alternative to active radar systems. This approach is especially promising in environments with strong natural radio sources, such as the Jovian system, where decametric emissions (DAM) may enable passive probing of icy moons, as well as in resource-limited mission architectures, including aerial platforms like helicopters on Mars. As planetary exploration increasingly targets challenging terrains and subsurface environments, there is a growing need to assess the viability and scientific potential of passive sounding.

This research opportunity invites innovative studies to advance the scientific and technical understanding of passive radar sounding using planetary radio emissions. Areas of interest include characterizing the spectral and temporal properties of planetary emissions such as DAM; improving methods for detection, auto-correlation, and depth retrieval; validating signal reflection models through analysis of radar data; and evaluating the performance and limitations of passive sounding in realistic mission scenarios. Proposals may address applications to icy moons, but are not limited to them; passive sounding techniques may also be



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applicable to other planetary settings, including Mars, where resource-constrained platforms such as helicopters could benefit from instrumentation that avoids the need for high-power transmitters.

Field of Science: Planetary Science

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/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@oraui.org

Qualifications

- Background in radar science, radar remote sensing, or radar system design
- Experience with planetary science data analysis, especially radar sounding (e.g., MARSIS, SHARAD, or analogous terrestrial systems)
- Familiarity with radio frequency (RF) systems, radio wave propagation, and signal processing techniques
- Expertise in radio astronomy, particularly in analyzing natural radio emissions (e.g., Jovian DAM or planetary magnetospheric emissions)
- Proficiency in time-series analysis, spectral estimation, and autocorrelation methods applied to geophysical or astrophysical datasets
- Experience working with spacecraft instrument data, calibration techniques, or simulation of spaceborne radar systems
- Strong programming skills (e.g., Python, MATLAB, or C++) for signal analysis, data processing, and modeling
- Ability to contribute to interdisciplinary work spanning planetary science, electrical engineering, and signal processing

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Point of Contact [Mikeala](#)

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