

Opportunity Title: Astrophysics of the Dusty Universe
Opportunity Reference Code: 0294-NPP-NOV24-JPL-Astrophys

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0294-NPP-NOV24-JPL-Astrophys

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 11/1/2024 6:00:59 PM Eastern Time Zone

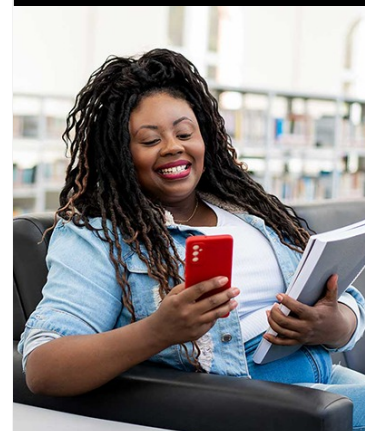
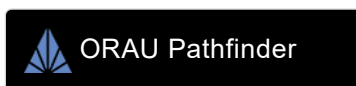
Description About the [NASA Postdoctoral Program](#)

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:

Nearly all astronomical wavelengths are affected in some way by dust. On the one hand, dust can be a powerful diagnostic tool for understanding the lifecycle of gas and metals in galaxies, the thermodynamic balance of the interstellar medium, and the formation of ices, complex molecules, and planets. On the other hand, dust distorts our view of the objects that lie behind it, whether stars, galaxies, or the Cosmic Microwave Background (CMB). Indeed, polarized emission from dust in our Galaxy is one of the principal challenges in the pursuit of a B-mode signal from primordial gravitational waves in the CMB. A better understanding of the nature of dust—e.g., its size, shape, composition, and optical properties—allows better extraction of the astrophysical information it contains and enables higher fidelity dust models to be developed for cosmological analyses.

At JPL, there are opportunities to pursue one or more of these facets of dust astrophysics, particularly as they relate to past, present, and future NASA missions. Theoretical developments on dust thermodynamics, dynamics, optical properties, and the statistical inference of dust properties are timely with ongoing dust observations from JWST and the upcoming SPHEREx satellite. Likewise, data analysis on the dust lifecycle, dust composition in nearby galaxies, ice formation and evolution, Zodiacal dust, and the connections between dust and gas are possible with data from



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: Astrophysics of the Dusty Universe

Opportunity Reference Code: 0294-NPP-NOV24-JPL-Astrophys

facilities like JWST, SOFIA, Herschel, Planck, Spitzer, and WISE, and will be relevant to possible future missions like the PRIMA far-infrared probe. Assessing the potential impact of dust on cosmological analyses, and developing strategies for mitigating them, is important for large galaxy surveys like those of Euclid and Roman as well as for potential future CMB surveys like CMB-S4 and the PICO satellite. Research opportunities can span a range of theory, data analysis, and mission development.

Field of Science: Astrophysics

Advisors:

Brandon Hensley

brandon.s.hensley@jpl.nasa.gov

626-524-7959

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

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