Opportunity Title: High Contrast Imaging with JWST, Roman Coronagraph and the Habitable Worlds Observatory
Opportunity Reference Code: 0310-NPP-MAR26-JPL-Astrophys

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 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:

Current high contrast imaging instruments, such as those on board of the James Webb Space Telescope (JWST) and the upcoming Roman Coronagraph Instrument, are providing transformative science capabilities, laying the groundwork for NASA's planned Habitable Worlds Observatory (HWO), which will further enhance our ability to study and characterize exoplanets and circumstellar environments. Together, those missions target both giant (JWST, Roman Coronagraph) and terrestrial planets (HWO) and will revolutionize our understanding of exoplanets by enabling the characterization of their refractive and reflected light, estimation of albedo and determining atmospheric composition.

Achieving coronagraphic contrasts of 10-9 to 10-11 is extremely challenging purely from a hardware standpoint. Advances in software techniques can complement advances in hardware technology to improve performance and reduce the risk to mission goals for the Roman Coronagraph and the future direct imaging flagship HWO. Furthermore, it has been recognized that testing model-based techniques on Roman is an essential step toward demonstrating model-based techniques for the future Habitable Worlds Observatory.

The postdoctoral fellow would participate to the development,

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implementation and validation of wavefront sensing and data-processing techniques for the state-of-the art space-based coronagraphs and high contrast imaging instruments and evaluate the impact on observatory and instrument design, observing strategies and observatory efficiency. They would have the opportunity to help with the preparation, data processing and analysis of high-contrast imaging observations (JWST and Roman Coronagraph). Based on their qualifications and research interests, they may also engage in complementary research activities, such as high-contrast imaging observations with other ground- or space-based facilities or collaborative projects. JPL postdoctoral fellows can apply for observing time on the Palomar 5-meter telescope, equipped with optical and near-infrared imagers, spectrographs, and an adaptive optics system. They also have access to high-performance computing resources to support their research.

With its roles on Roman Coronagraph and HWO, JPL is well-positioned to play a significant role in the field of high-contrast imaging in the coming years. JPL has been pivotal in designing and building the Roman Coronagraph and provides a solid foundation for the development of technologies for both current and future high-contrast imaging instruments.

Field of Science: Astrophysics

Advisors:

Marie Ygouf
marie.ygouf@jpl.nasa.gov
(626) 318-0685

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.