Opportunity Title: Staring at the sun: Using disc-integrated solar spectra to model stellar activity for exoplanet detection
Opportunity Reference Code: 0269-NPP-NOV26-JPL-Astrophys

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0269-NPP-NOV26-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 11/1/2026 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:

Our group uses high resolution ground-based optical and near-infrared solar spectra to diagnose and model different manifestations of stellar activity. Nearby sun-like stars are a crucial sample of targets for future NASA flagship direct imaging missions, as these are the prime candidates for directly imaging exo-Earths. Surveying these stars with ground-based extremely precise radial velocity (ERPV) measurements is critical in this pursuit, as EPRVs provide the necessary planet masses and detections to support future imaging missions such as the Habitable-Worlds Observatory (HWO). However, detection of a true Earth analog via Doppler EPRV measurements is currently beyond our reach, buried beneath a wealth of systematic stellar noise, Earth's atmosphere, and instrumental limits. This project focuses on using solar spectra from a variety of EPRV instruments to better understand the connection between physical processes in the solar photosphere and the high resolution EPRV spectra at a variety of timescales (daily to yearly). The data to be analyzed will be from a combination of facilities, including the the Keck Planet Finder (KPF), PARVI, and NEID instruments, each of which has (or will soon have) a dedicated solar feed that delivers hundreds of daily disc-integrated spectra to the instrument.

The successful applicant will work closely with a team of field-leading exoplanet detection experts to analyze high resolution spectroscopic data

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of the Sun from a variety of ground-based optical and near-infrared facilities. The research will focus on leveraging a library of high-resolution spectra of the Sun to derive and test different spectroscopic measurement metrics and techniques aimed at identifying stellar activity signals in radial velocity time series.

Field of Science: Astrophysics

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@orau.org

Point of Contact Mikeala

Eligibility Requirements

- **Degree:** Doctoral Degree.