Opportunity Title: Development of Next-generation Multi-spectral IR/far-IR Radiometers using Thermopile Arrays for Space Applications
Opportunity Reference Code: 0105-NPP-NOV23-JPL-EarthSci

Organization National Aeronautics and Space Administration (NASA)

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Application Deadline 11/1/2023 6:00:59 PM Eastern Time Zone

Description One of JPL's most important and successful product line instruments is the remote-sensing multi-spectral IR/far-IR radiometer using uncooled thermopiles arrays. Such instruments have been selected for Mars Reconnaissance Orbiter (MCS), Lunar Reconnaissance Orbiter (Diviner) and ExoMars 2016 (EMCS). Additionally, it will be proposed for several future New Frontier (e.g. Trojan Tour & Rendezvous) and Discovery missions and a concept has been submitted for the model payload of the Reconnaissance Package on the Europa Clipper mission. It has also been identified as a critical tool to perform global and long-term observations of Earth's climate. Therefore, our team is actively pursuing flights of this class of instrument on various platforms including the International Space Station, CubeSats, and A-Train satellites.

The enabling technology for this radiometer is the uncooled thermopile arrays developed at JPL. To date, JPL's thermopile arrays are comprised of relatively large pixels (240x480 square microns) with a modest format size (21x6 elements). By developing new larger format arrays with smaller pixels, it is possible to field radiometers with 1000s of pixels. These new radiometers will be compact due to the small uncooled pixels and will have retain adequate sensitivity and spatial/spectral resolution for future Earth, planetary and small bodies missions.

The details of the architecture and functionality of these new radiometers is currently under study and we are seeking postdoctoral researchers to assist in all phases of the design, fabrication, integration, and testing of the various components of these new instruments. Our team is particularly focused on the development of new focal plane assemblies (FPAs) and the integration of these FPAs into novel filter and grating optical systems. We are seeking a researcher who can work well in a dynamic team of scientists, instrumentalists, and technologists to develop radiometers optimized for various space

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applications.

Location:
Jet Propulsion Laboratory
Pasadena, California

Field of Science: Earth 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

This opportunity may require the following: 1- Mandatory drug testing; 2-Random drug testing; 3- Testing prior to initiation of fellowship appointment.

Eligibility Requirements

- **Degree:** Doctoral Degree.