

Opportunity Title: Development of Next-Generation Thermopile Arrays for Space Applications

Opportunity Reference Code: 0115-NPP-NOV23-JPL-PlanetSci

Organization National Aeronautics and Space Administration (NASA)

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

Description Historically for solar system exploration, thermopiles have been an ideal detector technology for thermal imagers and flown on Voyager (IRIS instrument), Viking Orbiter (IRTM), Cassini (CIRS), Mars Reconnaissance Orbiter (MCS), and Lunar Reconnaissance Orbiter (Diviner); however, thermopile arrays to date have been limited to several rows of 10s of pixels. These small 1D arrays flying on thermal imagers are just not good enough for the demanding future missions to primitive bodies (i.e. Trojan asteroids), planets and their satellites (i.e. Europa). Why not use new surface- and bulk-micromachining techniques to modernize these productive but archaic thermopile arrays to build a new 2D array with a dramatic increase in size? Additionally, why not explore using new materials to improve the sensitivity of thermopiles? We are currently developing a new fabrication process flow to build the next-generation of thermopile arrays.

Location:

Jet Propulsion Laboratory
Pasadena, California

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/oiiir/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

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



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