

Opportunity Title: Instrumentation Opportunity for New Millimeter Camera with Antenna-coupled MKID Array

Opportunity Reference Code: 0050-NPP-NOV23-JPL-PlanetSci

Organization: National Aeronautics and Space Administration (NASA)

Reference Code: 0050-NPP-NOV23-JPL-PlanetSci

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

Description: Our group's research is mainly instrumentation development for astrophysics and cosmology applications. In particular we are actively developing sensitive multi-frequency MKID arrays and instruments to conduct our own observations of clusters of galaxies for the studies of Sunyaev-Zeldovich effect. The MKID concept was invented and developed at JPL with the support of DRDF, NASA and R&TD funds. As such, it is truly a local product and is unique. Working with our collaborators from Caltech and University of Colorado, Boulder, we have recently been awarded a NSF grant for building a 4-color millimeter camera as a facility instrument for CSO, using MKID technology. We expect to bring our development to the next technological level, i.e., the system level, where issues with optical performance of MKID array and warm multiplexed readout electronics for the entire array will be demonstrated.

We are seeking an applicant to play a leading role in 1. the development of the RF electronics required to read out the detector signals from a 4-color 8' FOV camera for the Caltech Submillimeter Observatory using MKIDs, 2. the commissioning of the cryogenic system required for this camera, and 3. the adaption of the existing Bolocam software pipeline to analyze data from this camera.

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/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



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application with 1) a valid EAD card and 2) I-485 or I-589 forms in pending status

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