zintellect
climb higher

Opportunity Title: Far-Infrared Detectors for Space-Based Low-Background Astronomy
Opportunity Reference Code: 0245-NPP-JUL24-GSFC-Astrophys

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0245-NPP-JUL24-GSFC-Astrophys

Application Deadline 7/1/2024 6:00:59 PM Eastern Time Zone

Description The next generation of space-based far-IR astronomical telescopes require ultra-low noise detectors for background-limited observations with cooled optics. Detectors arrays with tens of thousands of pixels spanning the 20 - 600 μm waveband and having high optical coupling efficiency will be needed to support this vision. A detector technology has yet to be identified that can meet these requirements, which would enable revolutionary science from a future space mission such as a far-IR Probe as recommended by the 2020 Decadal Survey. We address this technology gap with focused development programs in absorber-coupled transition-edge sensor (TES) bolometers. The successful candidate will contribute to a multi-disciplinary research effort that encompasses the development of astronomical focal plane instrumentation, frequency selective electromagnetic coupling structures (photonics), superconducting detectors, as well as coherent (phononic) and non-coherent (thermal) phonon transport at low temperatures. These and other related methods are used to reduce dark noise, and increase detector coupling efficiency, detection bandwidth, and array multiplexing factor.

We also have a focused effort to increase the energy-resolution of Near-IR Kinetic Inductance Detectors (KIDs) for ultra-low-background observations of exoplanet atmospheres. The KID is a promising technology that is effectively immune to the effects of particle radiation and thermal drift in a spacecraft.

Location:
Goddard Space Flight Center
Greenbelt, Maryland

Field of Science: Astrophysics

Advisors:
Karwan Rostem
karwan.rostem@nasa.gov
(301) 286-0308

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:

Opportunity Title: Far-Infrared Detectors for Space-Based Low-Background Astronomy
Opportunity Reference Code: 0245-NPP-JUL24-GSFC-Astrophys

- 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.