

Opportunity Title: Technology Development: Engineering: Detector and Sensor Development

Opportunity Reference Code: 0111-NPP-NOV23-GSFC-TechDev

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0111-NPP-NOV23-GSFC-TechDev

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

- Description**
1. Development of sensors/detectors and large format focal plane arrays for ground-based, airborne and flight instruments.
 2. Development of Micro Electro Mechanical Systems (MEMS) devices for scientific observations in space. The incumbent develops various MEMS devices through device fabrication, packaging, assembly, and system testing. The end products are flight-ready devices and systems including object selector arrays for telescope applications, gas and fluidic control systems supporting chemical analysis type of instruments, and various sensing devices for detection of wind, pressure, electrical and/or magnetic field, etc.
 3. Research , develop and produce custom low temperature detectors/devices to enable space-based science missions, or to mature such technology through ground-based instrument opportunities. Device operating temperatures are typically less than 1 degree kelvin, and as low as 0.030 kelvin. Applications range from x-ray microcalorimeters for x-ray imaging spectroscopy to long-wavelength bolometer arrays in the far infrared, submillimeter, or millimeter bands. Detector technologies include superconducting transition edge sensors, microwave kinetic inductance detectors, silicon thermistors, metallic magnetic calorimeters, superconducting tunnel junction detectors, and micromachined silicon structures. Array fabrication and multiplexing schemes are of particular interest.
 4. Research and develop a whole host of advanced custom detector technology for NASA 's scientific missions that covers a wide range of the EM spectrum:

* The microwave, submillimeter, and far-infrared spectral region is covered with silicon micromachined bolometers, high Tc bolometers and high performance HgCdTe photovoltaic/photoconductor detector arrays. For the near-IR region state-of-the-art GaAs QWIP, InSb arrays and APDs technology is constantly being developed and refined.

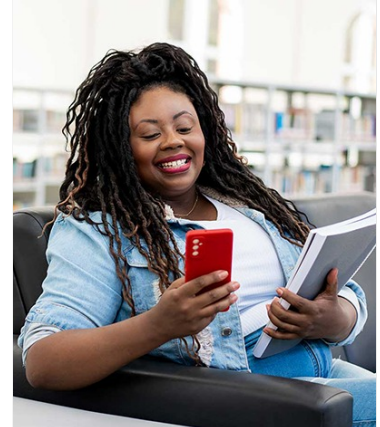
* For the visible spectral range, a variety of custom silicon CCDs and Si

Location:

Goddard Space Flight Center
Greenbelt, Maryland

Field of Science:Technology Development

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/oijr/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.