

**Opportunity Title:** Astrophysics: Cosmic Microwave Background and Diffuse Galactic Emission

**Opportunity Reference Code:** 0018-NPP-NOV23-GSFC-Astrophys

**Organization** National Aeronautics and Space Administration (NASA)

**Reference Code** 0018-NPP-NOV23-GSFC-Astrophys

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

**Description** ?The Observational Cosmology Laboratory at Goddard Space Flight Center has several active projects to measure the cosmic microwave background (CMB) and diffuse Galactic and extragalactic emission at decimeter through sub-millimeter wavelengths. These include development of suborbital balloon payloads (PIPER, EXCLAIM, Dust Buster), mission concept development for future space missions (PIXIE, Phoenix, PICO), and analysis of archival data to model Galactic emission from synchrotron, dust, and so-called anomalous microwave emission. Scientific goals include:

\* Measurements of CMB polarization to search for evidence of an inflationary epoch in the early universe

\* Measurements of distortions from the CMB blackbody spectrum to determine the energy budget of the universe and search for new physics beyond the Standard Model

\* Measurements of far-IR emission lines to determine the star formation history of the universe

\* Measurements of polarized emission from interstellar dust to determine its composition and emission mechanisms

\* Models of diffuse synchrotron emission to determine the origin of the observed radio synchrotron background

In support of these goals, research opportunities exist for development of flight hardware, analysis of archival data, and the analysis and design of future missions at decimeter to far-IR wavelengths.

**Location:**

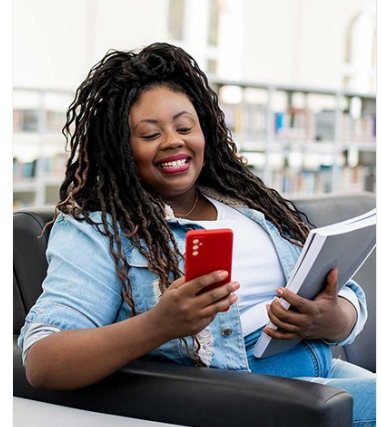
Goddard Space Flight Center  
Greenbelt, Maryland

**Field of Science:**Astrophysics

**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.