

Opportunity Title: Astrophysics: Astronomical Polarimetry from the Far-Infrared through Millimeter

Opportunity Reference Code: 0101-NPP-NOV23-GSFC-Astrophys

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0101-NPP-NOV23-GSFC-Astrophys

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

Description Astronomical polarimetry from the far-infrared through millimeter is an increasingly exciting field. In the far-infrared, polarimetry provides a tool to explore dust grain physics and the role of magnetic fields in the star formation process. At longer wavelengths, polarimetry provides a way to probe physical conditions in the early Universe. In particular, polarization signatures in the Cosmic Microwave Background (CMB) are believed to be tell-tale signs of an inflationary epoch when the Universe was a mere $\sim 10^{-32}$ seconds old. Detection of such a signature would provide direct evidence for inflation. and therefore this is an active area of research for cosmologists.

To detect this extremely small polarized signal from inflation, it is necessary to develop very clean polarimeters in which control of systematic errors is extremely important. The main components of these polarimetric systems will be polarization modulators and polarized detector elements. Currently, we are pursuing novel modulation techniques and highly-symmetric polarized detectors, with plans to deploy them in ground, balloon-borne, and space borne missions. A successful applicant will have experience in far-infrared, submillimeter, and/or microwave astronomy. There are opportunities for involvement in both the technology development and in the fielding of the technology for astrophysical measurements.

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/oijr/export-control>.

Eligibility is currently open to:



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- 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.