

**Opportunity Title:** Emission line tomography of Protoplanetary Disks

**Opportunity Reference Code:** 0233-NPP-NOV23-GSFC-Astrophys

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

**Reference Code** 0233-NPP-NOV23-GSFC-Astrophys

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

**Description** We are developing a far-infrared long-duration Antarctic balloon-borne observatory -- the Planetary Origins and Evolution Multispectral Monochromator (POEMM) -- that is designed to address fundamental questions of how planetary systems form and evolve via spectral line tomography. POEMM will provide the first reliable measure of gas mass, gas temperature, bulk ice mass, surface energy balance, and observation of spectrally resolved water vapor at the snow line of circumstellar disks.

POEMM will obtain: high (~3 km/s) velocity resolution spectra of ~100 circumstellar disks in HD1-0, HD2-1, [OI], and low (400-500 K) excitation temperature transitions of H<sub>2</sub>O vapor. A 1% resolution channel is designed to obtain spectra of low (~150 K) energy crystalline and amorphous water ice transitions. POEMM is being proposed to NASA's Pioneer Program during 2022. Its target list is designed to overlap that of JWST and ALMA to provide a complete picture of conditions within disks that cannot be obtained by these facilities alone.

**Location:**

Goddard Space Flight Center  
Greenbelt, Maryland

**Field of Science:** Astrophysics

**Advisors:**

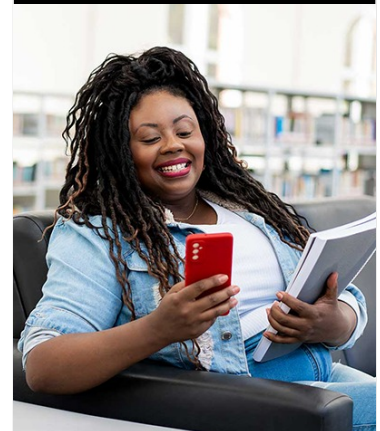
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**Applications with citizens from Designated Countries will not be accepted at this time, unless they are Legal Permanent Residents of the United States.** A complete list of Designated Countries can be found at: <https://www.nasa.gov/oirr/export-control>.

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.



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