

**Opportunity Title:** Astrophysics: Studies of Exozodiacal Dust Using Thermal Infrared Nulling Interferometry

**Opportunity Reference Code:** 0148-NPP-NOV23-GSFC-Astrophys

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

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

**Description** Habitable extrasolar planets will likely be found amidst a diffuse background of exozodiacal dust. This warm debris dust originates in the breakdown of asteroids and comets, directly indicating the presence of a planetary system. However, if the dust is too plentiful it will greatly impair direct imaging and spectroscopy of Earth-like exoplanets by future large telescopes. An assessment of warm dust around nearby stars is needed and is now getting underway at the Large Binocular Telescope (LBT) near Tucson, Arizona. NASA has funded the construction of a 10 micron nulling interferometer for the LBT - the LBTI - and has selected a science team to assist the University of Arizona in conducting a sensitive survey for exozodiacal

dust around nearby stars. This HOSTS survey (Hunt for Observable Signatures of Terrestrial planetary Systems) will take place over 2013-2016 and includes three science team members from the Goddard Exoplanets and Stellar Astrophysics Laboratory.

NASA Postdoctoral Fellowship applications are invited from candidates with a background in circumstellar disk studies, thermal infrared instrumentation, or interferometry. The successful candidate will work with Goddard scientists and the broader HOSTS team to conduct the observations, calibrate the data, and model the results in the context of other thermal IR measurements (Spitzer, Herschel, and WISE) and dust dynamical theory. In addition to the nulling interferometry at 10 microns, parallel observations at 4 microns will search for self-luminous exoplanets in the HOSTS survey targets. The overall goal of this work is to measure the quantity and spatial extent of warm exozodiacal dust, and potentially also detect mineral spectral features.

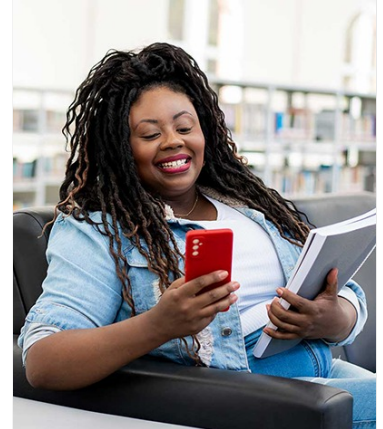
**Location:**

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.