

Opportunity Title: Soft X-ray Imaging Applications for Space Plasma Physics

Opportunity Reference Code: 0228-NPP-NOV23-GSFC-HelioSci

Organization National Aeronautics and Space Administration (NASA)

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

Description When high charge state heavy solar wind ions such as O+8 interact with neutral atoms, e. g. H and He, soft X-rays (<1 keV) are emitted isotropically and can be imaged by wide field-of-view cameras. This process, called solar wind charge exchange (SWCX) soft X-ray emission, occurs anywhere the solar wind interacts with neutral gases and provides opportunities to image plasma structures throughout the heliosphere. NASA missions like the Lunar Environment Heliospheric X-ray Imager (LEXI) and the Cusp Plasma Imaging Detector (CuPID) CubeSat Observatory as well as international missions like the Solar wind Magnetosphere Ionosphere Link Explorer (SMILE) will image soft X-rays originating from plasma structures in the near-Earth environment. This opportunity supports a broad range of studies relevant to soft X-ray imaging applications including but not limited to modeling and interpreting observations of the solar wind charge exchange process at the Earth's magnetosphere, at its Moon, at comets and other planets, and in the interplanetary medium's helium focusing cone, simulating soft X-ray instrument responses, determining the properties of terrestrial and planetary exospheres through modeling and data analysis, and characterizing the astrophysical soft X-ray background against which SWCX is measured.

Location:

Goddard Space Flight Center
Greenbelt, Maryland

Field of Science:Heliophysics Science

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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/oiir/export-control>.



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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.