Opportunity Title: Multiwavelength stellar astrophysics
Opportunity Reference Code: 0209-NPP-NOV23-GSFC-Astrophys

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0209-NPP-NOV23-GSFC-Astrophys

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

Description Past, current, and future space-based observatories enable access to spectroscopic diagnostics in the IR, UV, X-ray, as well as precision photometry across the electromagnetic spectrum. Together with traditional ground-based observatories, these allow holistic multiwavelength studies of a wide variety of stellar phenomena.

Low-mass stars, particularly red dwarfs <=0.6 solar masses, exhibit a broad range of multiwavelength emission. Much of this emission is driven by magnetic activity. Magnetic activity results in star spots, flares, and other related phenomena. Photometric variability monitoring spanning the UV to IR can be measured to understand spot coverage and spot evolution and simultaneous observations of flares from the X-ray to radio can lead to deep insight into flare emission mechanisms, flare energy equipartition, and the effects of flares on close in exoplanets.

Winds of massive stars are of crucial importance in determining their evolution, their end states in supernovae and compact remnants, and in feeding back energy, momentum, and enriched material into the surrounding ISM, triggering future waves of star formation. Studies of spectral line shapes in the UV and X-ray place strong constraints on fundamental wind properties and diagnose instability-induced shocks. Photometric variability is used to understand large- and small-scale wind structure. Winds of magnetic massive stars show evidence for large-scale structure and strong shocks that are studied with phase-resolved UV and X-ray spectroscopy.

Location:
Goddard Space Flight Center
Greenbelt, Maryland

Field of Science: Astrophysics

Advisors:
Joshua Schlieder
joshua.e.schlieder@nasa.gov
301 286 2584

Maurice Andrew Leutenegger
maurice.a.leutenegger@nasa.gov
301-286-6410

Allison Youngblood
allison.a.youngblood@nasa.gov

Opportunity Title: Multiwavelength stellar astrophysics
Opportunity Reference Code: 0209-NPP-NOV23-GSFC-Astrophys

N/A

Paul Scowen
paul.a.scowen@nasa.gov
(602) 617-3330

Thomas Barclay
thomas.barclay@nasa.gov
301.286.5079

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.

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.