

**Opportunity Title:** Astrophysics with the Neutron Star Interior Composition Explorer (NICER)

**Opportunity Reference Code:** 0162-NPP-NOV23-GSFC-Astrophys

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

**Reference Code** 0162-NPP-NOV23-GSFC-Astrophys

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

**Description** ?Neutron stars provide natural laboratories for the study of a number of important questions in fundamental physics, including the equation of state (EOS) and composition of ultra-dense matter. NASA's Neutron Star Interior Composition ExploreR (NICER) mission, operating on the International Space Station (ISS) since Summer 2017, is providing breakthrough capabilities for high throughput, fast X-ray timing and spectroscopy to probe the mysteries of neutron stars. NICER's key goals are to measure the mass and radius of neutron stars by pulse profile modeling of the soft X-ray emission from millisecond pulsars, and precision timing of accreting millisecond pulsars. NICER will also enable mass - radius constraints from spectral modeling of the thermal emission from X-ray bursts, and make definitive measurements of the stability of rotating neutron stars as clocks. NICER's capabilities will also enable a rich observing program of many classes of X-ray sources in addition to neutron stars, including accreting black holes and cataclysmic variables. Opportunities exist for research, both observational and theoretical, in areas of relevance to NICER that will support, enable and enhance the science return from NICER observations as well as existing archival X-ray timing data.

**Location:**

Goddard Space Flight Center  
Greenbelt, Maryland

**Field of Science:**Astrophysics

**Advisors:**

Tod E. Strohmayer  
Tod.E.Strohmayer@nasa.gov  
301-286-1256


Keith Charles Gendreau  
keith.c.gendreau@nasa.gov  
301-286-6188

Konstantinos Kalapotharakos  
konstantinos.kalapotharakos@nasa.gov  
301-286-7323

**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.