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Opportunity Title: Astrophysics: Advanced Techniques for X-Ray Spectroscopy
Opportunity Reference Code: 0003-NPP-MAR26-GSFC-Astrophys

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0003-NPP-MAR26-GSFC-Astrophys

How to Apply All applications must be submitted in Zintellect

Please visit the NASA Postdoctoral Program website for application instructions and requirements: How to Apply | NASA Postdoctoral Program (orau.org)

A complete application to the NASA Postdoctoral Program includes:

1. Research proposal
2. Three letters of recommendation
3. Official doctoral transcript documents

Application Deadline 4/2/2026 6:00:59 PM Eastern Time Zone

Description **About the NASA Postdoctoral Program**

The NASA Postdoctoral Program (NPP) offers unique research opportunities to highly-talented scientists to engage in ongoing NASA research projects at a NASA Center, NASA Headquarters, or at a NASA-affiliated research institute. These one- to three-year fellowships are competitive and are designed to advance NASA's missions in space science, Earth science, aeronautics, space operations, exploration systems, and astrobiology.

Description:

We have pioneered the development of cryogenic microcalorimeters for high resolution, non-dispersive x-ray spectroscopy. An array in the current generation of microcalorimeters typically has 36 pixels with better than 6-eV resolution and we are now working in several directions to fabricate arrays with many more pixels (100-1000) and with higher spectral resolution (2 eV). Some of the specific technologies we are pursuing use doped silicon, superconducting transition edge sensors, and magnetic calorimeters. We are also expanding the capability of these devices by optimizing pixel design for specific energy ranges (i.e., soft and hard x-rays). We have several cryogenic facilities that can reach 50 mK for this work and access to state-of-the-art processing facilities for device fabrication. This technology is being developed principally for space applications, but we are also using this to support a vigorous program in laboratory astrophysics using an electron beam ion trap to simulate astrophysical plasmas. This work provides some of the atomic physics data needed for modelling celestial spectra and also valuable operational and calibration experience with these very sensitive spectrometers.

Location:

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Goddard Space Flight Center
Greenbelt, Maryland

Field of Science: Astrophysics

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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.

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

Questions about this opportunity? Please email npp@orau.org

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Point of Contact Mikeala

Eligibility Requirements

- **Degree:** Doctoral Degree.