Opportunity Title: Observing Supermassive Black Holes at X-rays and Other Wavelengths
Opportunity Reference Code: 0019-NPP-MAR26-MSFC-Astrophys

Organization National Aeronautics and Space Administration (NASA)

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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 3/1/2026 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:

A broad variety of opportunities exist for research to study electromagnetic emission from accretion driven by supermassive black holes, and from supermassive black hole environments. This research is heavily driven by X-ray observations from space-based observatories such as Chandra, XMM-Newton, IXPE, NuSTAR and more, but also takes a broad, multi-wavelength approach including ultraviolet, optical, and infrared imaging and spectroscopy, particularly by Hubble and potentially the James Webb Space Telescope (JWST), as well as radio. These observations probe a variety of spatial scales and physical conditions. Datasets of particular interest include:

1) High angular resolution studies of nearby active galactic nuclei, and of the powerful winds and light echos generated via black hole accretion

2) X-ray and ultraviolet spectroscopy of stars tidally disrupted by supermassive black holes

3) X-ray polarimetry of blazar jets and other active galactic nuclei processes

4) An extremely deep Chandra survey within the JWST continuous viewing zone.

There is also interest in advancing new technologies and concepts for

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space-based X-ray observatories.

Field of Science: Astrophysics

Advisors:

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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

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

Qualifications

Experience in designing, proposing and obtaining new observations from space-based astrophysical observatories.

Experience with astrophysical X-ray CCD spectroscopy, particularly with Chandra and especially imaging spectroscopy that makes use of PSF modeling. Knowledge of NuSTAR, XMM-Newton, Swift and XRISM are also desirable.

Experience with astrophysical X-ray polarimetry and IXPE.

Experience with astrophysical observations in other bands such as radio, infrared (e.g. JWST), optical and particularly ultraviolet spectroscopy with Hubble.

Experience with astrophysical observations that use narrow line imaging and integrated field unit techniques.

Experience with and knowledge of supermassive black holes, including: surveys, populations, and models of evolution. Accretion physics and processes. The physics and phenomenology of accretion-driven outflows and winds. Feedback processes in active galactic nuclei. Tidal disruption events, the physics of their formation and evolution, and their observational signatures. Sources of X-ray polarization from astrophysical observations of supermassive black holes (e.g magnetic fields in jets, reflection from surrounding media).

Experience with raytracing for X-ray optics. Knowledge of X-ray observatories and interest in exploring new mission concepts or instrumental techniques.

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Point of Contact Mikeala

Eligibility Requirements

- **Degree:** Doctoral Degree.