Opportunity Title: Modeling structure of active galactic nuclei for improvement of space geodesy results

Opportunity Reference Code: 0320-NPP-MAR26-GSFC-EarthSci

Organization	National Aeronautics and Space Administration (NASA)
Reference Code	0320-NPP-MAR26-GSFC-EarthSci
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:

This opportunity is closed to applicants who are Senior Fellows (5-years or more past PhD).

Very Long Baseline Interferometry (VLBI) is the astronomical technique that is used for a number of applications in space navigation, Earth sciences, and astrophysics. Provided the observed radio sources is point-like, VLBI can reach a millimeter level of accuracy.

The major objective of the proposed opportunity is to develop methods of data analysis that mitigate the violation of the assumption that a radio source is point-like. It was known since 1980s that all active galactic nuclea observed with VLBI are extended sources. The presence of extended source structure cause systematic errors in VLBI results. The current methods of data analysis ignore this effect. NASA heavily contributes to the on-going international geodetic VLBI observing program for determination of terrestrial coordinate system, celestial coordinate system, and determination of the Earth orientation parameters with the highest accuracy. The presence of unaccounted source structure affects the accuracy of results, and therefore, the agency is interested in mitigation of this source of errors. The agency maintainers a dataset of other 100,000 radio images of radio sources. One of the goals of the proposed research

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opportunity is to investigate to which extent one can mitigate the impact of
source structure contribution using existing radio images.

This work is in a junction of astrophysics and Earth science (space
geodesy).

Field of Science: Earth Science

Advisors:

Leonid Petrov

Leonid.Petrov@nasa.gov

(301) 614-5611

**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

Qualifications The applicants with experience in imaging VLBI data will receive favorable
consideration. The proposed research involves heavy computation under
open source Linux environment. The successful applicant knows Fortran or
C and is willing to master his or her skill in modern Fortran programming
language.

Point of Contact Mikeala

**Eligibility
Requirements**
- **Degree:** Doctoral Degree.