Opportunity Title: Astrophysics: Theoretical Cosmic-Ray Astrophysics
Opportunity Reference Code: 0080-NPP-NOV26-GSFC-Astrophys

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0080-NPP-NOV26-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 11/1/2026 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:

Cosmic rays make up a plasma of relativistic particles that pervade the galaxy and constitute a considerable fraction of its energy density. Theoretical cosmic-ray research in the Laboratory for High-Energy Astrophysics focuses on the source material out of which the cosmic rays are accelerated, on the mechanisms that accelerate the particles, and on how the particles propagate through the galaxy from their sources to the Earth. A developed Monte Carlo computer code is used to study the acceleration process by plasma shocks, while mathematical models have been designed to describe how charged particles move through randomly disordered magnetic fields. Current research centers on shock acceleration theories and how they may explain the energy spectrum of these high-energy particles. Models of cosmic-ray propagation through the galaxy are also studied to determine how the cosmic-ray beam changes its chemical composition by colliding with the interstellar gas. This helps us to deduce the composition at the acceleration sites so that they can be identified with potential sources such as supernova shock waves. Current research also considers the role of cosmic rays in the origin of the light elements Li, Be, and P. Further work is also in progress to find a better understanding of the cosmic-ray ""knee"", a break in the cosmic ray spectrum at about 3 X 10^{15} eV. Such studies are related to the Structure and Evolution of the Universe theme by the study of the transformations of matter and energy as exhibited

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in the cosmic radiation.

Location:
Goddard Space Flight Center
Greenbelt, Maryland

Field of Science: Astrophysics

Advisors:
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301-614-5546

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

Point of Contact Mikeala

Eligibility Requirements

- **Degree:** Doctoral Degree.