

Opportunity Title: Nuclear Fuels and Materials Development for Space Nuclear Propulsion

Opportunity Reference Code: 0020-NPP-NOV26-MSFC-MatPhysSci

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 11/1/2026 6:00:59 PM Eastern Time Zone

Description About the [NASA Postdoctoral Program](#)

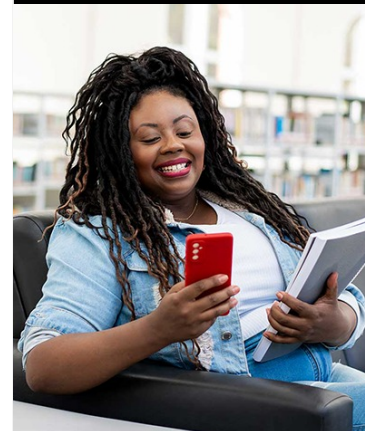
The [NASA Postdoctoral Program \(NPP\)](#) offers unique research opportunities to highly-talented scientists to engage in ongoing NASA research projects at a NASA Center, NASA Headquarters, or at a NASA-affiliated research institute. These one- to three-year fellowships are competitive and are designed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

Description:

Nuclear thermal propulsion is one of the most promising propulsion mechanisms that brings numerous advantages for human exploration and deep space missions. This concept is fundamentally superior to chemical propulsion systems due to its vast energy potential per unit mass present in nuclear fuel and its high exhaust velocities that can be achieved with hydrogen propellant that overcome the performance of higher molecular weight combustion products characteristic in chemical systems. Nuclear thermal propulsion intends to be incorporated for deep space missions and human exploration in the upcoming years.

The following position involves nuclear fuel design and development to support NASA's Space Nuclear Propulsion Program. The opening emphasizes on research, fabrication, and testing of nuclear fuels and materials of interest at elevated temperatures and under a hot hydrogen environment.

The synthesis of materials of interest includes nuclear fuels, refractory metals, and ultra-high temperature ceramics (UHTC's). Samples will be analyzed and undergo characterization activities including microscopy, combustion, and X-ray diffraction analyses. The position involves collaborative activities with the U.S. Dept of Energy National Laboratories,



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private sector, and academia.

Field of Science: Materials and Physical Sciences

Advisors:

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Qualifications Previous experience in the following areas: high temperature applications, powder processing, and vacuum systems.

Excellent record of previous research as demonstrated by publications in peer-reviewed journals.

Ability to write technical reports, scientific journal articles, and research proposals.

Point of Contact [Mikeala](#)

Eligibility • **Citizenship:** LPR or U.S. Citizen

Requirements • **Degree:** Doctoral Degree.