zintellect
climb higher

Opportunity Title: Plasma Applications and Technology Development for Crewed Space and Planetary Habitation
Opportunity Reference Code: 0002-NPP-JUL25-KSC-Interdisc

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0002-NPP-JUL25-KSC-Interdisc

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 7/1/2025 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.

Job Description:

The plasma team at Kennedy Space Center (KSC) is seeking outstanding candidates to investigate plasma assisted applications for logistical waste management, agricultural production applications, lunar regolith reduction, and advanced processing. Such investigations include waste-to-gas, plant disinfection and sterilization, plant growth and germination stimulation, water treatment, and treatment of volatile organic compounds, specifically using plasma assisted technologies of various power sources. Waste-to-gas, treatment of plants for sanitation and consumption, the re-usability of water for potable and non-potable uses, extraction of oxygen from the lunar soil, and advanced processing of chemicals or surfaces are critical to support NASA‘s sustainable lunar, Gateway, ISS and deep space exploration platforms for mission success and human spaceflight.

The fellow will investigate and utilize the available plasma sources at KSC to determine effective experimental campaign parameters for each of the following focuses:

1. Plasma assisted logistical space waste conversion to gas
2. Direct plasma treatment of seeds using various plasma sources
3. Plasma sterilization of plants and equipment
4. Plasma activated water for sterilization, growth, and for potable or non-potable reuse.

Opportunity Title: Plasma Applications and Technology Development for Crewed Space and Planetary Habitation
Opportunity Reference Code: 0002-NPP-JUL25-KSC-Interdisc

5. Plasma reduction of lunar regolith for oxygen extraction and recovery
6. Assist in design and development of a plasma system for spaceflight

In addition to this project, the postdoctoral position offers opportunities to pursue research related to: safe and efficient closed loop waste and food processes, alternative product consumption, alternative plasma power supplies for advanced operation on spacecraft systems and microgravity considerations, alternative hydroponic systems and new plasma sterilization techniques. It is expected that the successful candidate will present their work at national/international conferences and will publish their results in appropriate refereed journals.

Minimum Position Requirements:

A background in plasma physics and engineering is preferred. Demonstrated expertise in the majority of the following:

1. Demonstrated expert level with low-temperature plasma systems including alternative carrier gas systems. Such systems include radiofrequency (RF), direct current (DC), pulsed DC, and alternating current (AC) plasma sources.
2. Experience in theoretical plasma physics calculations to determine plasma properties.
3. Strong background in plasma experimental testing and associated equipment.
4. Strong background in spectroscopy systems and analysis.
5. Proven ability to work independently with initiative.
6. Possesses proven strong verbal and written communication skills.
7. Experience with data validation, analytical data report generation, and/or publication of analytical results.
8. Demonstrated experience in conducting original scientific research through peer reviewed publication record.

Desired Skills:

- Education: A Ph.D. in engineering with a focus in plasma physics.
- Experience working on technology development.
- Ability to adapt to new requirements for projects and be flexible enough to learn new areas of research as needed.
- Ability to work effectively as a part of a team in a multi-disciplinary environment and interact with people with a variety of expertise.

Location:
Kennedy Space Center
Kennedy Space Center, Florida

Field of Science: Interdisciplinary/Other

Opportunity Title: Plasma Applications and Technology Development for Crewed Space and Planetary Habitation
Opportunity Reference Code: 0002-NPP-JUL25-KSC-Interdisc

Advisors:
Kenneth Engeling
kenneth.engeling@nasa.gov
(321) 861-3019

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

Point of Contact Mikeala

Eligibility Requirements
- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree.