**Opportunity Title:** Agnostic Biosignatures and Planetary Mass Spectrometry
**Opportunity Reference Code:** 0194-NPP-MAR26-GSFC-Astrobio

**Organization** National Aeronautics and Space Administration (NASA)

**Reference Code** 0194-NPP-MAR26-GSFC-Astrobio

**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:**

This work is intended to expand our understanding of how the chemical complexity of a molecule identified in a planetary ocean worlds environment may be an indicator of the presence of biology. We will compare the structure of organic compounds produced abiotically such as those extracted from meteorite samples with complex organic compounds produced by living systems. We will utilize tandem mass spectrometer techniques in association with a variety of separation and ionization techniques to explore the hypothesis that there is a certain level of complexity beyond which abiotic production is unlikely. This work will be done in close coordination with Dr. Sarah Johnson leading a team exploring agnostic approaches to life detection (49th Lunar and Planetary Science Conference 19-23 March, 2018, Contribution No. 2083, id.2294) and a research team at the University of Glasgow led by Leroy Cronin that utilizes graph theory to explore molecular complexity (Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences, vol. 375, issue 2109, p. 20160342, 2017, DOI:10.1098/rsta.2016.0342).

**Location:**
Goddard Space Flight Center
Greenbelt, Maryland

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**Field of Science:**Astrobiology

**Advisors:**
William Brinckerhoff
William.B.Brinckerhoff@nasa.gov
301-614-6397

**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.