

**Opportunity Title:** Advancement of next generation laser-based space-flight mass spectrometry

**Opportunity Reference Code:** 0239-NPP-NOV23-GSFC-TechDev

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

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**Application Deadline** 11/1/2023 6:00:59 PM Eastern Time Zone

**Description** Proposals are invited that focus on the development of novel analytical techniques and the demonstration of advanced applications for detection, identification, and characterization of organic compounds, especially prospective biomarkers, via spaceflight mass spectrometry. Of particular interest are innovations that will expand the reach of laser desorption/ablation methods and/or ion trap mass spectrometry. Studies should take advantage of existing prototype and commercial instrumentation, and related laboratory facilities, including: 1) breadboard and protoflight model of a laser-enabled Orbitrap mass analyzer called CORALS (Characterization of Ocean Residues and Life Signatures); 2) breadboard and engineering model of a protoflight Orbitrap analyzer interfaced to a dual-source linear ion trap derived from the design of the MOMA flight instrument; 3) commercial Thermo LTQ Orbitrap XL instrument equipped with a custom laser source (266 nm) that mimics the performance of the MOMA flight instrument; and, 4) commercial Thermo Q Exactive instrument equipped with a custom laser source (266 nm) that mimics the performance of the CORALS engineering model.

**Location:**

Goddard Space Flight Center  
Greenbelt, Maryland

**Field of Science:** Technology Development

**Advisors:**

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**Eligibility Requirements**

- **Citizenship:** LPR or U.S. Citizen
- **Degree:** Doctoral Degree.



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