Opportunity Title: Solar System Exploration: Mars Organic Analysis and Curiosity's SAM Instrument
Opportunity Reference Code: 0002-NPP-NOV23-GSFC-PlanetSci

Organization National Aeronautics and Space Administration (NASA)

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

Description The Sample Analysis at Mars (SAM) instrument on the Curiosity rover incorporates a multi-column gas chromatograph mass spectrometer (GCMS) that is used to analyze the composition of organic compounds released from rocks. In addition, to GCMS experiments on compounds thermally released using evolved gas analysis (EGA) from powdered rocks and soils SAM utilizes chemical derivatization and thermochemolysis techniques based on solvents and reagents sealed in several SAM cups.

A variety of laboratory studies are carried out in support of these experiments on Mars. Instruments are commercial GCMS systems, SAM breadboards, and a high fidelity SAM testbed. The objective is to conduct GCMS and derivatization and thermochemolysis studies on terrestrial analogues. In addition, characterization is needed for a range of calibrants using the specific columns and experiment conditions used by the SAM experiment on Mars. These studies will extend the groundbreaking discoveries of SAM of organics on Mars and contribute to the interpretation of existing data and future data to be secured as the Curiosity rover moves further up Mount Sharp in Gale crater.

Location:
Goddard Space Flight Center
Greenbelt, Maryland

Field of Science: Planetary Science

Advisors:
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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

Eligibility Requirements

- **Degree:** Doctoral Degree.

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