

Opportunity Title: Studies of the Mineralogy and Chemistry of Martian Materials and Their Analogs

Opportunity Reference Code: 0177-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 Mars Science Laboratory (MSL) rover has several different modes of operation. One of these modes is evolved gas analysis mass spectrometry (EGA-MS), in which samples are heated and any volatiles evolved are detected by the mass spectrometer. The volatiles that are evolved and their temperatures of evolution can give constraints on the mineralogy and organic chemistry of samples, complementary to measurements by other instruments on the rover. The objective is to conduct SAM-like analyses of analog materials, together with additional analyses used to characterize analog mineralogy and chemistry such as x-ray diffraction and x-ray fluorescence, in order to help interpret data from MSL. Analytical facilities available include x-ray diffractometers, a x-ray fluorescence spectrometer, several SAM-like EGA-MS systems, an infrared spectrometer, and a scanning electron microscope. The overall goal is to better understand the mineralogy and chemistry of martian materials because these characteristics can be signatures of martian environmental history and habitability.

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/oiiir/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 • **Degree:** Doctoral Degree.



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Requirements