Opportunity Title: Study of returned extraterrestrial samples
Opportunity Reference Code: 0216-NPP-NOV23-JPL-PlanetSci

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0216-NPP-NOV23-JPL-PlanetSci

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

Description We are in an exciting era that diverse samples are being returned by multiple missions. A geological sampling of Mars will be performed by the Mars 2020 mission and returned in the near future. Two missions are returning or already successfully returned samples from the surface of asteroids. These samples greatly expand the collection of returned extraterrestrial samples, which offer scientists the best opportunity to understand the origin, evolution, and processes of the solar system. This opportunity is to join Dr. Yang Liu at JPL to study surface and interior processes of the parent bodies from which samples were collected and returned. Example science areas include but are not limited to volatiles, mineralogy, petrology, and geochemistry of these returned materials. The successful candidate will be expected to identify and carry out an innovative research program in one or more of these science areas, or that could stimulate new research areas.

For references, see

Ma, C., Liu, Y. 2019. Discovery of a zinc-rich mineral on the surface of lunar orange pyroclastic beads. American Mineralogist 104, 447-452.

Liu, Y., Chen Y., Guan Y., Eiler, J.M., Ma C., Rossman, G.R., Zhang, Y. 2018. Impact-melt hygrometer for Mars: The case of shergottite Elephant Moraine (EETA) 79001. Earth & Planetary Science Letters, 490, 206-215.

Liu, Y., Baziotis, I.P., Asimow, P.D., Bodnar, R.J., Taylor, L.A., 2016b. Mineral chemistry of the Tissint meteorite: Indications of two-stage crystallization in a closed system. Meteoritics & Planetary Science, 51, 2293-2315.

Liu Y., Guan Y., Zhang Y., Rossman G.R., Eiler J.M., Taylor L.A. 2012a. Direct measurement of hydroxyl in the lunar regolith and the origin of lunar surface water. Nature Geoscience, 5, 779-782.

Liu, Y., Floss, C., Day, J.M.D., Hill, E., and Taylor, L.A., 2009a. Petrogenesis of lunar mare basalt meteorite Miller Range 05035. Meteoritics & Planetary Science, 44, 261-284.

Liu, Y., Park, J., Schnare, D., Hill, E., and Taylor, L.A., 2008a. Characterization of lunar dust for toxicological studies. II: Texture and shape characteristics. Journal of Aerospace Engineering, 21, 272-279.

Location:
Jet Propulsion Laboratory
Pasadena, California

Field of Science: Planetary Science

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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.