

Effective immediately, all new Cornell hires, regardless of work location, must be fully vaccinated with an FDA- or WHO- authorized or approved COVID-19 vaccine or have obtained a university-approved disability/medical or religious exemption by December 8, 2021, or before their start date if after December 8.

Cornell Center for Atmospheric Sciences and Planetary Research seeks a postdoctoral scientist with knowledge on Earth and planetary materials, melting processes, and experience with experimental petrology/geochemistry and infrared spectroscopy. The postdoc will be part of the interdisciplinary Carl Sagan Institute (CSI) at Cornell University and work with Lisa Kaltenegger (Astronomy) and Esteban Gazel (Earth and Atmospheric Sciences) in a project supported by the Heisting-Simons foundation to experimentally explore the composition of exosolar lava planets. We have two years of postdoctoral support as well as opportunities to present in international conferences and be part of professional development programs at Cornell. Ideally, we would like the postdoctoral scientist to start in spring 2022.

Earth started as a lava planet, covered by a magma ocean sustained by the energy of accretionary impacts. Since then, the direct connections to our origin as a lava world are mostly lost. However, the exciting discovery of hundreds of lava worlds around other stars opens new opportunities to explore what those planets are made of, as well as our primordial planetary origin through the study of their composition. The first observations from the surface of a lava world (LHS 3844) were recently done using the Spitzer Space Telescope. This significant breakthrough demonstrates that we will be able to observe the surface of more lava worlds in the future. Nevertheless, the biggest challenge we face as new data become available is that we cannot interpret the observations made by current (Spitzer and Hubble) and upcoming telescopes (e.g., James Webb Space Telescope) without a library of experimentally observed spectra of hot and molten surfaces and their potential outgassed atmospheres. The project "Laboratory Exploration of Lava Worlds" will provide these critical experimental data to explore the surface and atmospheric compositions of lava planets and help identify tell-tale signs of different materials to give us insight for the interpretations of future exoplanet observations.

The postdoctoral associate will conduct the experiments, produce measurements of the reflectivity and emission spectrum of representative composition surfaces as well as their chemistry, and interpret/model results, with the goal of providing the data necessary for future observations of lava worlds. The project requires bi-weekly presentations with advancement on the project to the PIs and during the CSI monthly meetings, the publication of results in peer-reviewed journals, and the development of a catalog of spectra that will be released by the end of the project.

Applicants are encouraged to contact the PIs to discuss the project. Applications must be submitted through Academic Jobs Online.

Diversity and inclusion have been and continue to be a part of our heritage. Cornell University is a recognized EEO/A employer and educator.

*Diversity and Inclusion are a part of Cornell University's heritage. We are a recognized employer and educator valuing AA/EEO, Protected Veterans, and Individuals with Disabilities. We also recognize a lawful preference in employment practices for Native Americans living on or near Indian reservations.*