

Opportunity Title: Laboratory Chemistry Investigations of Planetary and Exoplanet Atmospheres

Opportunity Reference Code: 0285-NPP-MAR26-JPL-PlanetSci

Organization National Aeronautics and Space Administration (NASA)

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How to Apply All applications must be submitted in [Zintellect](#)

Please visit the NASA Postdoctoral Program website for application instructions and requirements: [How to Apply | NASA Postdoctoral Program \(orau.org\)](#).

A complete application to the NASA Postdoctoral Program includes:

1. Research proposal
2. Three letters of recommendation
3. Official doctoral transcript documents

Application Deadline 4/2/2026 6:00:59 PM Eastern Time Zone

Description About the [NASA Postdoctoral Program](#)

The [NASA Postdoctoral Program \(NPP\)](#) offers unique research opportunities to highly-talented scientists to engage in ongoing NASA research projects at a NASA Center, NASA Headquarters, or at a NASA-affiliated research institute. These one- to three-year fellowships are competitive and are designed to advance NASA's missions in space science, Earth science, aeronautics, space operations, exploration systems, and astrobiology.

Description:

This research opportunity focuses on the experimental laboratory investigation of chemical reactions, photochemical processes, and spectroscopy important to planetary and exoplanet atmospheres. Gas phase kinetics and photochemistry are studied in the laboratory, producing experimentally derived parameters to drive complex computer models that simulate the atmospheric chemistry of interest. The models are used to simulate and recreate observations from telescopes, satellites and probes, in the form of chemical profiles or observed spectra. At JPL, the chemical kinetics and photochemistry laboratories specialize in producing reaction parameters for such models targeting planetary and exoplanet atmospheres, as well as Earth.

The laboratories use state-of-the-art techniques for the study of reaction mechanisms and photochemical processes including pulsed laser photolysis combined with UV-Vis-IR absorption spectroscopy, laser induced fluorescence and mass spectrometry (electron impact and chemical ionization). The apparatuses can operate over a range of temperatures and pressures. Research focused on reactions that drive particle and haze formation, radical chemical cycles, and auto-oxidation are of particular interest. The group has active collaborations with modeling and observing scientists, and as such, proposed work could involve working with interdisciplinary teams across Earth, Planetary and Exoplanet science.



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Related Publications:

Chao, Wen, et al. "Spectroscopic and Kinetic Studies of the ClSO Radical from Cl₂SO Photolysis." *Journal of the American Chemical Society* 144.44 (2022): 20323-20331.

Winiberg, F. A.F., Chao, W., Caravan, R. L., Markus, C. R., Sander, S. P., & Percival, C. J. (2023). A white cell based broadband transient UV-vis absorption spectroscopy with pulsed laser photolysis reactors for chemical kinetics under variable temperatures and pressures. *Review of Scientific Instruments*, 94(11).

Chao, W., Jones, G.H., Okumura, M., Percival, C.J. and Winiberg, F.A.F. "A-Band Absorption Spectrum of the ClSO Radical: Electronic Structure of the Sulfinyl Group." *The Journal of Physical Chemistry A*, 127(40), pp.8374-8382, 2023.

Field of Science:

- Planetary Science

Advisors:

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Applications from 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/oior/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

Questions about this opportunity? Please email npp@orau.org

Point of Contact [Mikeala](#)

Eligibility Requirements • **Degree:** Doctoral Degree.