

Opportunity Title: Laboratory Kinetics of Relevance to the Earth's Atmosphere

Opportunity Reference Code: 0172-NPP-NOV23-JPL-EarthSci

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0172-NPP-NOV23-JPL-EarthSci

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

Description This research opportunity is focused on the study of elementary reactions and photochemical processes important in Earth atmosphere. We focus on radical-radical reactions that control the oxidizing capacity of the earth's troposphere. Our work also includes the study of mechanisms for the formation of urban smog and the degradation of tropospheric air quality by pollutants and biogenic hydrocarbons. We use state-of-the-art techniques for the study of reaction mechanisms and photochemical processes including laser photolysis and discharge-flow, combined with detection by laser-induced fluorescence, cavity ringdown and frequency modulation spectroscopy and chemical ionization mass spectroscopy.

References:

L. Sheps, B. Rotavera, A.J. Eskola, D.L. Osborn, C. A. Taatjes, K. Au, D.E. Shallcross, M. A. H. Khan and C. J. Percival (2017). The Reaction of Criegee Intermediate CH₂OO with Water Dimer: Primary Products and Atmospheric Impact. PCCP, 19, 21970- 21979. C.J. Percival, O. Welz, A.J. Eskola, J.D. Savee, D.L. Osborn, D.O. Topping, D. Lowe, S. R. Utembe, A. Bacak, G. McFiggans, M.C. Cooke, P. Xiao, A.T. Archibald, M.E. Jenkin, R.G. Derwent, I. Riipinen, D.W.K. Mok, E.P.F. Lee, J.M. Dyke, C.A. Taatjes and D.E. Shallcross (2013) Regional and global impacts of Criegee intermediates on atmospheric sulphuric acid concentrations and first steps of aerosol formation, Faraday Discussions, 165, 45-73. CA Taatjes, O. Welz, A.K. Eskola, J.D. Savee, A.M. Scheer, D.E. Shallcross, B. Rotavera, E.P.F. Lee, J.M. Dyke, D.K.W. Mok, D.L. Osborn and C.J. Percival (2013) Direct Measurements of Conformer-Dependent Reactivity of the Criegee Intermediate CH₃CHOO, Science, 340, 177-180.

Location:

Jet Propulsion Laboratory
Pasadena, California

Field of Science:Earth 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

This opportunity may require the following: 1- Mandatory drug testing; 2-Random drug testing; 3- Testing prior to initiation of fellowship appointment.

Eligibility Requirements

- **Degree:** Doctoral Degree.