

**Opportunity Title:** Chemistry in Star-Forming Regions

**Opportunity Reference Code:** 0040-NPP-NOV23-JPL-Cosmochem

**Organization** National Aeronautics and Space Administration (NASA)

**Reference Code** 0040-NPP-NOV23-JPL-Cosmochem

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

**Description** Molecules are important tracers, not only of chemical composition but also physical conditions. In addition, they regulate the heating and cooling of gas, and control its ionization balance. They therefore play a crucial role in the star formation process, and in the evolution of protostellar disks.

Theoretical astrochemistry at JPL uses sophisticated chemical networks to model the chemistry of gas and ices in protostellar disks and molecular cloud cores. The emphasis is on the observational signatures of the different stages of evolution, and on the development of complex organic or pre-biotic chemistry. There are close interactions with both the hydrodynamical modeling group and with observers at the lab.

Refs: Woods, P. & Willacy, K. (2007) Benzene formation in the inner regions of protostellar disks, ApJ, 655 L49 Willacy, K. (2007) Chemistry of multiply deuterated molecules in protoplanetary disks I. The outer disk, ApJ, 660, 441

**Location:**

Jet Propulsion Laboratory  
Pasadena, California

**Field of Science:** Cosmochemistry

**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/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.



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