

Opportunity Title: Thermal Structure, Chemistry, and Habitability of Small Exoplanets

Opportunity Reference Code: 0130-NPP-NOV23-JPL-Astrophys

Organization: National Aeronautics and Space Administration (NASA)

Reference Code: 0130-NPP-NOV23-JPL-Astrophys

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

Description: Super-Earths and sub-Neptunes are common in our interstellar neighborhood. A handful of planets that belong to this class are among the most attractive targets for transit observations, and an inquiry into the small exoplanets is needed for planning direct imaging from both the space and the ground. Relevant science questions include: What does the atmosphere of a cold, water-rich planet look like? Will the water condense out, or maintain an atmosphere-ocean interface? Do we expect the clouds, if at all, to be just bright water clouds, or dyed with other constituents? The successful applicant will have the opportunity to work at the forefront of exoplanet atmosphere modeling, and is expected to develop a comprehensive tool to simulate the atmospheres of temperate super-Earths and sub-Neptunes, one of the most interesting classes of exoplanets. The fellow will have access to a state-of-the-art atmospheric chemistry and radiative transfer model (Hu & Seager 2014), and is welcomed, but not required, to build upon the existing model. The fellow will have the support to interact with planetary scientists and astrophysicists at both JPL and Caltech, and will fully enjoy and benefit from the intellectual environment in both institutions.

Renyu Hu and Sara Seager (2014), Photochemistry in Terrestrial Exoplanet Atmospheres III: Photochemistry and Thermochemistry in Thick Atmospheres on Super Earths, *ApJ*, 784, 63.

Location:

Jet Propulsion Laboratory
Pasadena, California

Field of Science: Astrophysics

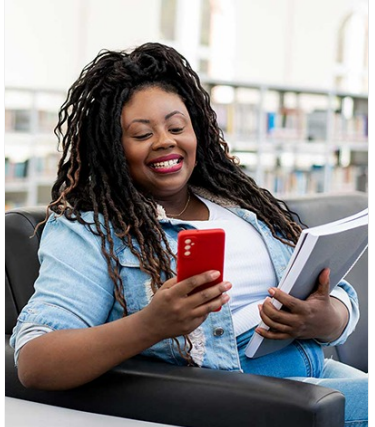
Advisors:

Renyu HU
renyu.hu@jpl.nasa.gov
818-281-9459

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,



Whether you are just starting your career or already at a senior level, ORAU offers internships, fellowships, research opportunities, and contract positions that can provide you with invaluable experience. Download the ORAU Pathfinder mobile app and find the right opportunity to propel you along your career path!

Visit ORAU Pathfinder [↗](#)



Opportunity Title: Thermal Structure, Chemistry, and Habitability of Small Exoplanets

Opportunity Reference Code: 0130-NPP-NOV23-JPL-Astrophys

- 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.