

**Opportunity Title:** ICAR - Retention of Habitable Atmospheres in Planetary Systems

**Opportunity Reference Code:** 0028-NPP-NOV24-ABProg-Astrobio

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

**Reference Code** 0028-NPP-NOV24-ABProg-Astrobio

**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** 11/1/2024 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 U.S. and non-U.S. 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:**

How do the properties of a planet and its host star influence its ability to retain an atmosphere? The Retention of Habitable Atmospheres in Planetary Systems (RHAPS) team is working to address this question by bringing together modelers and observers who study Earth, solar system planets, and exoplanets to model atmospheric escape via all known escape processes for a variety of star-planet scenarios. Our effort consists of four tasks: (1) Compute the stellar inputs for planetary escape for exoplanet hosting stars; (2) Improve and link models for atmospheric escape from any planet; (3) Construct a multi-dimensional model library for atmospheric escape; and (4) Apply the model library to understand the connection between atmospheric escape, habitability, and observations. Major results from the effort will include 150-200 complete sets of input conditions, a web interface to all model results, escape rates from competing models in many instances, estimates of 'atmospheric lifetimes' for each scenario, and predictions for exoplanet transit observations. Our research complements the goals of the NExSS RCN, where stellar radiation, climate, and magnetic fields are all mentioned as topics of interest.

**Field of Science:** Astrobiology

**Advisors:**

David Brain



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david.brain@lasp.colorado.edu  
303-735-5606

Kevin France  
kevin.france@lasp.colorado.edu  
410-340-8651

Yingjuan Ma  
yingjuan@ucla.edu  
310-425-4473

Mike Chaffin  
Michael.chaffin@colorado.edu

Rachel Osten  
osten@stsci.edu  
410-338-4762

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.