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Opportunity Title: Phasing of the Habitable Worlds Observatory Mirror
Opportunity Reference Code: 0288-NPP-MAR26-JPL-TechDev

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0288-NPP-MAR26-JPL-TechDev

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 3/1/2026 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:

Habitable World Observatory will be a NASA's flagship mission designed specifically to identify potentially habitable exoplanets, closely examining their atmospheres to determine if life could possibly exist. There are several different telescope architectures under study, but all of them are segmented, where the primary mirror is composed of many different mirrors. This is similar to the James Webb Space Telescope (JWST), but the segments need to be aligned in rigid body degrees of freedom to produce a wavefront error on the order of nanometers with a stability of pico-meters. This will involve the use of novel technologies such as edge sensors and laser metrology, and a cascading series of algorithms and control loops that takes the telescope from an unaligned state through several intermediate states to the final aligned state.

One way of reducing risk for the development of the telescope is to test algorithms and instrumentation on a ground-based segmented telescope such as Keck Observatory and validate models of the system's performance. We welcome applicants that are interested in determining how to align and control the HWO telescope. Possible areas of study are modeling the Keck telescope, its adaptive optics system, control systems and a science instrument. This would feed into on-sky tests and potential control algorithms for the primary mirror and adaptive optics deformable mirror. Other possibilities are proposing the use of existing instrumentation to test other aspects of the proposed wavefront sensing and control architecture for HWO.

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The HWO team spans many NASA centers and outside organizations. The applicant would be a part of this team located at JPL. Applicants are encouraged to collaborate with fellow researchers at JPL, GSFC, Keck and other partner organizations.

Field of Science:

- Technology Development

Advisors:

Lewis Roberts
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(818) 354-2503

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

Qualifications A Ph.D. in a relevant degree such as astronomy, optical sciences, etc. Applicants should have experience in phasing segmented telescopes either via modeling or in practice, or experience in optical modeling of some aspect of wavefront sensing and control.

Point of Contact Mikeala

Eligibility Requirements

- **Citizenship:** LPR or U.S. Citizen
- **Degree:** Doctoral Degree.