zintellect
climb higher

Opportunity Title: ICAR - OxyMoRon: Understanding dioxygen production and consumption in apparently anoxic environments
Opportunity Reference Code: 0042-NPP-NOV26-ABProg-Astrobio

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0042-NPP-NOV26-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 11/1/2026 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.

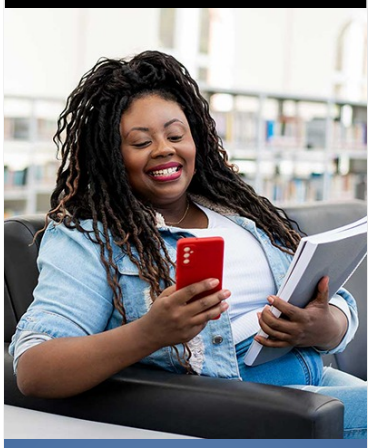
Description:

Molecular oxygen (O2) has been central to Earth's biogeosphere and the evolution of complex life. While O2 is traditionally attributed to photosynthesis, growing evidence shows that it is also produced in the absence of light through "dark oxygen production" (DOP), occurring abiotically and microbially in environments long considered anoxic, including marine and terrestrial subsurface systems. Despite many independent observations, DOP lacks a systematic assessment, and its mechanisms and biogeochemical and ecological impacts remain poorly understood.

This project asks whether any environments in Earth's biosphere are truly devoid of O2. The OxyMoRon consortium brings together complementary expertise in microbial ecology, physiology, bioinformatics, and geochemistry to study DOP across four key environments: marine and terrestrial subsurface habitats and O2-deficient marine and lacustrine waters. We will investigate DOP across scales, from genes and metabolisms to ecosystems, combining meta-omics, phylogenetics, isotope and microelectrode analyses, and laboratory and field studies.

Our aims are to identify the microbes and metabolisms responsible for DOP, quantify O2 sources and production rates, and test whether DOP

NPP NASA Postdoctoral Program
ORAU Pathfinder



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
GET IT ON Google Play
Download on the App Store

Opportunity Title: ICAR - OxyMoRon: Understanding dioxygen production and consumption in apparently anoxic environments
Opportunity Reference Code: 0042-NPP-NOV26-ABProg-Astrobio

creates aerobic niches in apparently anoxic environments. Using novel isotope and mass spectrometry approaches, we will link DOP to aerobic metabolisms in situ and in culture. Overall, this work seeks to redefine global O2 dynamics and the role of dark O2 production in shaping Earth's biosphere.

Field of Science: Astrobiology

Advisors:

Emil Ruff
eruff@mbl.edu
774-228-0662

Maria Pachiadaki
mpachiadaki@whoi.edu
774-327-8533

Ketil Koop-Jakobsen
kkoopjakobsen@mbl.edu
(508) 289-7998

Ranjani Murali
ranjani.murali@unlv.edu
917-971-0662

Scott Wankel
sdwankel@whoi.edu
650-575-3209

Valerie De Anda
valdeanda@gmail.com
361-416-0452

Valier Galy
vgaly@whoi.edu
508-524-4417

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,

Opportunity Title: ICAR - OxyMoRon: Understanding dioxygen production and consumption in apparently anoxic environments
Opportunity Reference Code: 0042-NPP-NOV26-ABProg-Astrobio

- 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

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

Point of Contact Mikeala

Eligibility Requirements

- **Degree:** Doctoral Degree.