
Opportunity Title: Solid-State Gamma-ray Instrument Development for Future Astroparticle Missions

Opportunity Reference Code: 0221-NPP-NOV23-GSFC-Astrophys

Organization

National Aeronautics and Space Administration (NASA)

Reference Code

0221-NPP-NOV23-GSFC-Astrophys

Application Deadline

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

Description

High-energy gamma-ray astronomy focuses on the study of cosmic explosions, cosmic accelerators and fundamental physics. The next leap in our understanding of the extreme universe will come through observations in the energy band spanning keV to GeV. The Astroparticle physics lab at Goddard is currently developing and building next generation gamma-ray experiments and missions, on a range of scales and platforms. The next advances in these missions will be enabled through the simulation and development of radiation-hard, low-power solid state detectors, such as silicon photomultipliers (SiPMs), silicon pixel detectors, and silicon strip detectors. The team at Goddard offers opportunities to pursue topics relevant to the development of these types of detectors, including low level detector design and characterization, read-out electronics development (both analog and digital), software development (including simulations and firmware), and instrument design.

Our group has access to existing facilities and equipment needed to carry out the proposed research. These include but are not limited to electronics development and testing laboratories, detector development and testing facilities, computing and software development facilities, fabrication facilities, radioactive sources for testing, on-site machine shops, and readout electronics for testing preliminary engineering models of the instrument. The hardware developed in this opportunity is specifically focussed on the astrophysics studies enabled by future medium or high energy gamma-ray missions such as AMEGO, and is also applicable to several upcoming Heliophysics opportunities including Lunar Gateway and the PRISM opportunity.

Location:

Goddard Space Flight Center

Greenbelt, Maryland

Field of Science: Astrophysics

Advisors:

Georgia de Nolfo

Georgia.A.deNolfo@nasa.gov

301-286-1512

Jeremy S. Perkins

jeremy.s.perkins@nasa.gov

301.286.3463

Regina Caputo

regina.caputo@nasa.gov

301-286-0072

Carolyn Kierans

carolyn.a.kierans@nasa.gov

(301) 286-7628

Opportunity Title: Solid-State Gamma-ray Instrument Development for Future
Astroparticle Missions

Opportunity Reference Code: 0221-NPP-NOV23-GSFC-Astrophys

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/oior/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.

NPP

NASA Postdoctoral Program

 ORAU Pathfinder

Opportunity Title: Solid-State Gamma-ray Instrument Development for Future
Astroparticle Missions

Opportunity Reference Code: 0221-NPP-NOV23-GSFC-Astrophys



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 [↗](#)

