Opportunity Title: Thin Film Materials and Optical Coatings for Advanced Ultraviolet Instrumentation
Opportunity Reference Code: 0223-NPP-MAR23-JPL-TechDev

Organization
National Aeronautics and Space Administration (NASA)

Reference Code
0223-NPP-MAR23-JPL-TechDev

Application Deadline
3/1/2023 6:00:00 PM Eastern Time Zone

Description
Ultraviolet remote sensing instrumentation requires a wide variety of optical coatings in the design of a complete optical system, ranging from broadband reflective mirror coatings, to many-multilayer, all-dielectric structures for components like dichroic beamsplitters and narrowband filter coatings. Specialty UV coatings operating at wavelengths shorter than 200 nm are not widely available from commercial suppliers and generally require the use of humidity-sensitive materials like LiF, AlF_3, and LaF_3. This project will support ongoing research at JPL in new methods for the fabrication of these thin film coatings focused on the use of atomic layer deposition (ALD) and atomic layer etching (ALE). Such coatings may be deposited on optical components like mirrors and diffraction gratings, or integrated on advanced CCD/CMOS detector systems. Applicants with interest and expertise in thin film coatings and ALD/ALE techniques would support delivery of these components to sub-orbital and orbital space instrumentation and identify new directions for this research. Work would be performed at JPL's Microdevices Laboratory using existing and/or newly constructed vacuum deposition chambers. Possible activities include the development of new ALD and ALE processes, optical characterization of the resulting thin films, electro-optical characterization of detector systems, hardware modification of custom vacuum chambers, and software modification of control systems to support both deposition and characterization.

Location:
Jet Propulsion Laboratory
Pasadena, California

Field of Science: Technology Development

Advisors:
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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:

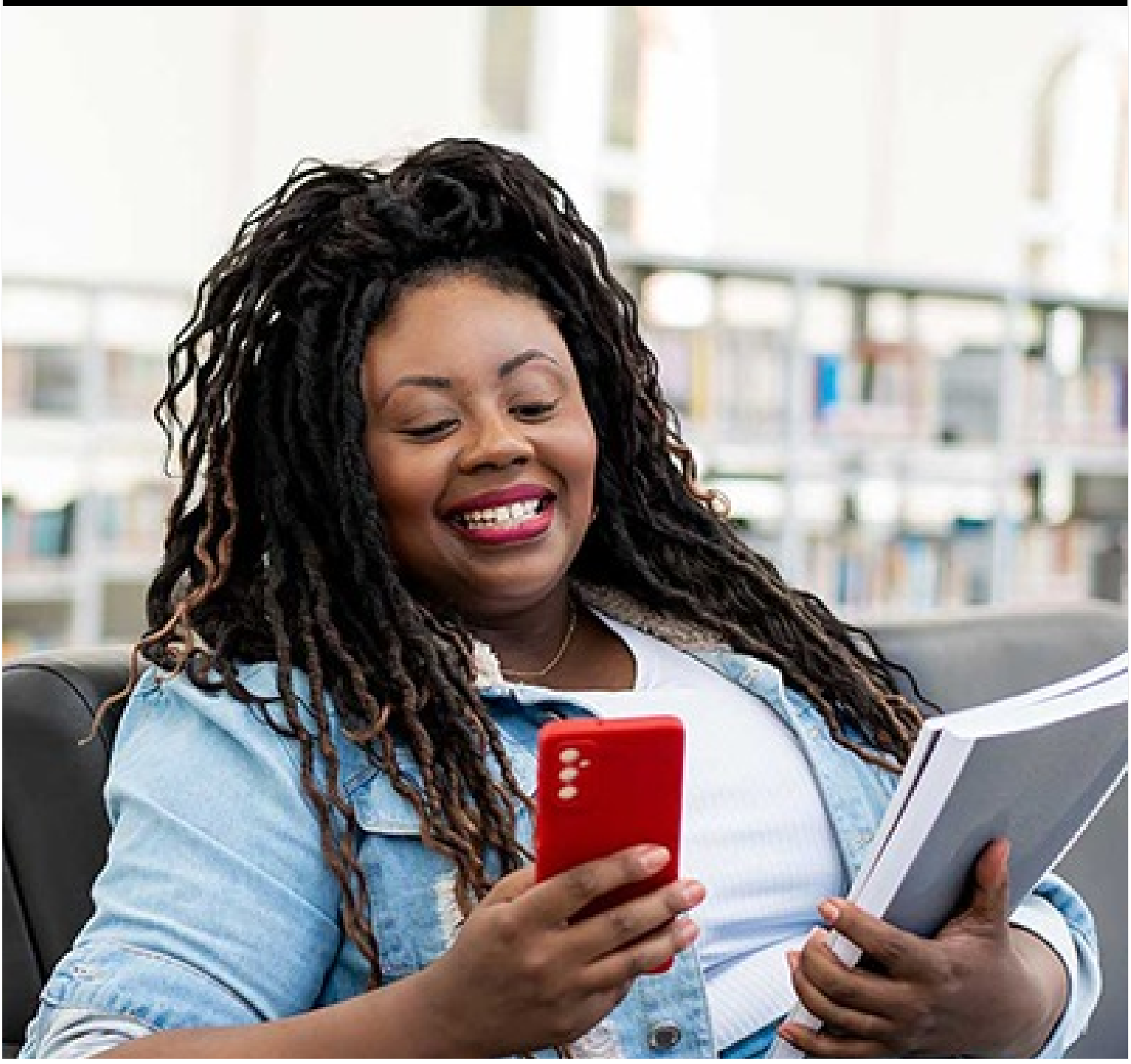
- U.S. Citizens;
- U.S. Lawful Permanent Residents (LPR);
- Foreign Nationals eligible for an Exchange Visitor J-1 visa status; and,
- Applicants for LPR, asylees, or refugees in the U.S. at the time of application with 1) a valid EAD card and 2) I-485 or I-589 forms in pending status

Eligibility Requirements
- **Degree:** Doctoral Degree.

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NPP NASA Postdoctoral Program

ORAU Pathfinder



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