Opportunity Title: Development of infrared detectors and focal plane arrays for space instruments
Opportunity Reference Code: 0167-NPP-MAR22-JPL-PlanetSci

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0167-NPP-MAR22-JPL-PlanetSci

Application Deadline 3/1/2022 6:00:00 PM Eastern Time Zone

Description Infrared Photonics group is working on development of new generation of mid- and long-wavelength infrared imagers and spectrometers for future Earth and planetary science missions. These imagers, based on semiconductor detectors, will provide enhanced sensitivity, better spatial and spectral resolutions, and higher operating temperatures than currently existing technologies. These devices utilize novel unipolar barrier detector architectures as well as new materials such as GaSb-based alloys and superlattices. [1, 2, 3] The postdoctoral researcher will have an unique opportunity to work on different aspects of the infrared technology including: (1) Design and bandgap engineering of semiconductor superlattices; (2) Material characterization; (3) Device microfabrication; (4) Single pixel detector and focal plane array characterization; (5) Integration and testing of infrared cameras and spectrometers. The specific research project will be selected based on the researcher interests and experience.

References:

1. D. Z. Ting, A. Soibel, S. A. Keo, C. J. Hill, J. M. Mumolo, L. Hí¶glund, J. Nguyen, A. Khoshakhlagh, Sir B. Rafol, J. K. Liu, and S. D. Gunapala, ""Mid- and Long-Wavelength Barrier Infrared Detectors,"" in The Wonder of Nanotechnology: Quantum Optoelectronic Devices and Applications, M. Razeghi. L. Esaki, and K. von Klitzing, Eds., SPIE Press, Bellingham, WA, pp. 379-405 (2013). 2. D. Z.-Y. Ting, A. Soibel, L. Hoglund, J. Nguyen, C. J. Hill, A. Khoshakhlagh, and S. D. Gunapala; Type-II Superlattice Infrared Detectors; Advances in Infrared Photodetectors; Semiconductors and semimetals 84, 2011. 3. Rogalski, P. Martyniuk, and M. Kopytko, Appl. Phys Rev. 4, 031304 (2017).

Location:
Jet Propulsion Laboratory
Pasadena, California

Field of Science: Planetary Science

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:

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- U.S. Citizens;
- U.S. Lawful Permanent Residents;
- Foreign nationals who are in the U.S. at the time of application and on a valid J1 visa; and,
- Foreign nationals, asylees or refugees in the U.S. at the time of application with a valid EAD card and pending I-485 or I-589 forms.

These temporary eligibility limitations have been put in place due to inaccessible U.S. consulates and travel restrictions resulting from the COVID-19 pandemic. Foreign nationals have made many substantive contributions to NASA, as well as to the greater scientific community throughout the life of the NPP. Therefore, we look forward to the time when the program will be open, once again, to all qualified scientists and engineers.

Eligibility Requirements

- **Degree:** Doctoral Degree.