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Opportunity Title: Integrated Photonics for Lidar Instruments
Opportunity Reference Code: 0025-NPP-NOV23-LRC-TechDev

Organization National Aeronautics and Space Administration (NASA)

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

Description Laser remote sensing techniques offer key advantages over passive and active radio-wave measurements for many space applications. These advantages include excellent spatial resolution, nonreliance on natural light sources, ability to choose the operational wavelength and pulse duration for optimizing the required measurements, and the ability to aim and scan. Therefore, it is not surprising that NASA is considering lidar technology for a wide range of applications as both scientific instruments, helping to meet the earth and planetary science objectives, and as guidance and navigation sensors, enabling future ambitious robotic and crewed space travels. These instruments and sensors would benefit tremendously from emerging integrated photonics technology. The miniaturization and modularization of lidar subsystems by utilizing Photonic integrated circuits (PICs) will drastically reduce the size, power and cost of current lidar instruments and create opportunities for developing advanced lidars with capabilities that are not presently attainable.

The intent of this research is to develop PICs specifically designed for atmospheric sensing and navigation lidar instruments meeting NASA's needs. These instruments include coherent wind and CO2 lidars, Doppler velocity and range sensors, and 3-D imaging lidars.

An opportunity exists for qualified candidates to participate in these and related research tasks pertaining to advancements of lidar subsystems by utilizing latest developments in Photonic integrated Circuits (PICs) for atmospheric sensing and navigation lidar applications. Candidates with prior experience with lidar system development, photonic integrated circuits, and familiarity with active remote or navigation sensing are especially encouraged to apply.

Location:
Langley Research Center
Hampton, Virginia

Field of Science: Technology Development

Advisors:
Farzin Amzajerdian
f.amzajerdian@nasa.gov
757-864-1533

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