

NEWS RELEASE

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For Immediate Release

Princeton Infrared Technologies Selected by Space Development Agency To Develop A Room Temperature 3-12 μ m Imaging System Using Non-Degenerate Two-Photon Absorption

MONMOUTH JUNCTION, NJ – SEPTEMBER 24, 2024 – Princeton Infrared Technologies, Inc. (PIRT), global experts and innovators in indium gallium arsenide (InGaAs) imaging technology, announces it has been selected by the Space Development Agency (SDA) for a Phase II SBIR contract focused on the development of uncooled MWIR and LWIR imaging using custom InGaAs detector array based on non-degenerate two photon absorption (NTA) technology.

PIRT, along with team members from the University of California Irvine (UCI), will develop a room temperature imaging system with detectivity from 3 to 12 μ m spanning mid-wave infrared (MWIR) and longwave infrared (LWIR) spectral ranges using NTA for standoff imaging spectroscopy and ranging. This novel detection strategy was recently discovered at UC Irvine and allows the detection of infrared light using nonlinear optical effects directly on a large bandgap semiconductor chip. The technology overcomes many fundamental hurdles in MWIR/LWIR detection.

In this program, the team will deliver a 1280x1024 resolution camera using a custom In_xAl_{1-x-y}Ga_yAs array integrated with specialty wide spectral optics. In partnership with UC Irvine team, the system will be used to demonstrate video rate imaging across three spectral octaves in infrared region (3 to 12 μ m), specifically standoff hyperspectral imaging of cold or hot objects without the imaging disruption from object's emissions in this wavelength band. Moreover, using inherent gated detection nature of the NTA process, the joint team will demonstrate volumetric chemical imaging in massively parallel wide field fashion.

Martin Ettenberg, Founder & CTO of Princeton Infrared Technologies, notes, “Winning the contract from the Space Development Agency to develop an imager using two-photon absorption is not just a victory for our expertise, but a testament to our commitment to unlocking new dimensions of this technology. This partnership with UCI and the Space Development Agency launches us into a new era of space imaging. This technology has incredible implications for not just imaging in space but in many commercial applications down here on earth.”

About Princeton Infrared Technologies, Inc.

Specialists in indium gallium arsenide (InGaAs) imaging technology, Princeton Infrared Technologies, Inc. focuses on design and manufacture of both shortwave infrared cameras, and one- and two-dimensional imaging arrays. All products are created in the company’s fabless environment under strict testing and quality control guidelines, providing innovative and cost-effective detectors that image in the visible, near- and shortwave-infrared wavelengths. Application areas include spectroscopy for sorting materials, moisture detection, thermal imaging, night vision, and laser imaging for military, industrial, and commercial markets.

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