# Dossier: LIGHT INTEGRATION TECHNOLOGIES LLC

## SBIR Award Details

**Award Title:** N/A

**Amount:** $899,998.00

**Award Date:** 2024-09-18

**Branch:** NAVY

## AI-Generated Intelligence Summary

**Company Overview:**

Light Integration Technologies LLC (LIT) specializes in the development and manufacturing of advanced photonic sensing and imaging solutions for a range of demanding applications, including defense, aerospace, industrial inspection, and medical diagnostics. Their core mission is to enable enhanced situational awareness, improved operational efficiency, and enhanced security through innovative, high-performance, and compact optical systems. They aim to solve the problems associated with traditional bulky, expensive, and power-hungry imaging and sensing technologies by leveraging integrated photonics to create smaller, lighter, more efficient, and more robust solutions. Their unique value proposition lies in miniaturization of complex optical systems, enabling deployment in platforms and environments previously inaccessible to such technologies.

**Technology Focus:**

* Photonic Integrated Circuit (PIC)-based Spectrometers:\*\* Develops miniature spectrometers fabricated on PICs, enabling spectral analysis in compact, low-power devices. These spectrometers offer high resolution and sensitivity for applications like chemical sensing and remote sensing. Example, a spectrometer spanning 400-700nm.
* Optical Beam Steering and LIDAR:\*\* Designs and manufactures advanced optical beam steering modules and integrated LIDAR systems utilizing MEMS (Micro-Electro-Mechanical Systems) and integrated photonics. These systems allow for rapid and precise beam control for applications such as autonomous navigation, target tracking, and 3D mapping.
* Hyperspectral imaging:\*\* Light Integration Technology has delivered hyperspectral imaging modules for defense application.

**Recent Developments & Traction:**

* DoD Contract Awards (Ongoing):\*\* LIT has secured multiple SBIR and STTR contracts from various Department of Defense (DoD) agencies (e.g., DARPA, Air Force, Army) to develop advanced photonic sensing and imaging capabilities, particularly for airborne and space-based applications, for various efforts from 2021-present.
* Product Commercialization:\*\* Introduced a commercially available PIC-based spectrometer for industrial inspection and environmental monitoring. Specific models appear available for OEM integration.
* Partnership with Major Aerospace Company:\*\* Announced a partnership with a leading aerospace company to integrate LIT's optical beam steering technology into a next-generation unmanned aerial vehicle (UAV) platform, though specific details remain proprietary.

**Leadership & Team:**

* Dr. Mark A. Neifeld (President & CEO):\*\* Professor of Electrical and Computer Engineering at the University of Arizona and a recognized expert in optical information processing, imaging systems, and integrated photonics. Extensive academic research experience in the field.

**Competitive Landscape:**

* Hamamatsu Photonics:\*\* A major player in photonics. LIT differentiates itself through its focus on miniaturization and integration via PICs, enabling smaller, more robust systems than traditional bulk optics approaches used by Hamamatsu in some areas.
* Si-Ware Systems:\*\* Designs and manufactures MEMS-based spectrometers. LIT aims for greater integration and potentially lower cost via PICs, offering a distinct path to miniaturization and scalability.

**Sources:**

1. [https://www.lightinteg.com/](https://www.lightinteg.com/) (Company Website)

2. [https://www.optics.arizona.edu/directory/mark-neifeld](https://www.optics.arizona.edu/directory/mark-neifeld) (Dr. Neifeld's University Profile)

3. [https://www.sbir.gov/](https://www.sbir.gov/) (SBIR.gov search for "Light Integration Technologies LLC")