# Dossier: NONLINEAR MATERIALS CORP

## SBIR Award Details

**Award Title:** N/A

**Amount:** $74,995.00

**Award Date:** 2023-04-28

**Branch:** USAF

## AI-Generated Intelligence Summary

**Company Overview:**

Nonlinear Materials Corporation (NLM) develops and manufactures advanced nonlinear optical (NLO) materials and devices for a variety of applications, primarily focused on defense and aerospace. Their core mission revolves around enabling high-performance laser systems with enhanced capabilities, including advanced sensing, directed energy, and secure communication. They aim to solve limitations associated with existing NLO materials, such as low efficiency, limited wavelength range, and susceptibility to damage. Their unique value proposition lies in their proprietary crystal growth and processing techniques which result in novel materials with superior optical properties and improved performance in demanding environments. NLM focuses on creating tailored solutions for specific customer needs, providing both bulk crystals and integrated optical components.

**Technology Focus:**

* Advanced Nonlinear Optical Crystals:\*\* NLM specializes in the growth and fabrication of high-quality nonlinear optical crystals, particularly cesium lithium borate (CLBO) and lithium triborate (LBO). These crystals are used for frequency conversion of lasers, allowing lasers to operate at different wavelengths. NLM claims to have superior crystal growth methods, resulting in crystals with higher damage thresholds and wider transparency ranges compared to commercially available alternatives.
* Integrated Optical Devices:\*\* Beyond bulk crystals, NLM also manufactures integrated optical devices utilizing their NLO materials. These devices include Pockels cells, optical parametric oscillators (OPOs), and other custom-designed components. The integration of these materials into packaged devices allows for more compact and efficient laser systems.

**Recent Developments & Traction:**

* DoD Contract Awards:\*\* NLM has secured multiple Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) contracts from various branches of the Department of Defense (DoD) related to advanced laser technologies. These contracts focus on developing new NLO materials and devices for applications such as laser radar (LIDAR) and directed energy weapons. (Specific contract dates and amounts are not readily publicly available)
* Partnerships with Defense Contractors:\*\* NLM has established partnerships with larger defense contractors to integrate their NLO materials and devices into complete laser systems. Specific partnership details are limited in publicly available information, but they appear to be integral to their go-to-market strategy.

**Leadership & Team:**

While specific names and titles are not readily available in a concentrated format from initial web searches, the company's online presence emphasizes a team comprised of experts in materials science, laser physics, and crystal growth. It is likely that leadership includes individuals with Ph.D. level expertise and experience in developing advanced optical materials for defense applications.

**Competitive Landscape:**

* CASTECH:\*\* CASTECH is a major global supplier of NLO crystals. NLM differentiates itself by focusing on high-performance, custom-designed solutions and tailored crystal growth processes for specific applications, whereas CASTECH offers a wider range of more standardized products.
* Raicol Crystals:\*\* Raicol Crystals is another competitor in the NLO crystal market. NLM's key differentiator is its focus on advanced crystal growth techniques and its demonstrated ability to secure and execute contracts with the US Department of Defense.

**Sources:**

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

2. (Publicly accessible information regarding SBIR/STTR awards through DoD databases, though specific project details and award amounts are often limited)

3. (Patent databases for identifying filed patents related to novel NLO materials and techniques, but specific URLs change frequently)