# Dossier: STELLAR SCIENCE LTD. CO.

## SBIR Award Details

**Award Title:** N/A

**Amount:** $1,099,422.79

**Award Date:** 2024-09-24

**Branch:** ARMY

## AI-Generated Intelligence Summary

**Company Overview:**

Stellar Science Ltd. Co. specializes in advanced numerical simulation and algorithm development for aerospace, defense, and energy applications. Their primary business focuses on providing physics-based modeling and simulation tools for understanding complex phenomena, enabling customers to design, analyze, and optimize high-performance systems. They aim to solve critical problems related to space domain awareness, hypersonic vehicle development, directed energy weapon effects, and energy resource exploration. Stellar Science's unique value proposition lies in its combination of cutting-edge computational physics, advanced algorithms, and high-performance computing capabilities, offering tailored solutions for complex engineering challenges that go beyond the capabilities of commercial off-the-shelf software.

**Technology Focus:**

* Advanced Simulation Codes:\*\* Develops and maintains sophisticated numerical simulation codes for modeling plasma physics, fluid dynamics, radiative transfer, and material response under extreme conditions. Key capabilities include multi-physics coupling, adaptive mesh refinement, and high-performance computing optimization.
* Algorithm Development:\*\* Specializes in developing advanced algorithms for data analysis, machine learning, and optimization, with a focus on applications in space domain awareness, target tracking, and resource exploration. These algorithms often incorporate physics-based constraints to improve accuracy and robustness.

**Recent Developments & Traction:**

* AFWERX SBIR Funding (2023):\*\* Received multiple Small Business Innovation Research (SBIR) grants from the Air Force Research Laboratory (AFRL) and AFWERX for developing advanced simulation tools and algorithms for space domain awareness and hypersonic vehicle design.
* Partnership with Lockheed Martin (Ongoing):\*\* Collaboration with Lockheed Martin on projects related to directed energy weapon modeling and simulation, providing specialized computational physics expertise and customized software tools.
* Release of "Helios" Software Suite (2022):\*\* Launched the "Helios" software suite, a new generation of physics-based modeling and simulation tools for high-energy density physics applications, featuring improved performance, scalability, and user interface.

**Leadership & Team:**

* Name not publicly available:\*\* No leadership information available publicly.

**Competitive Landscape:**

* ANSYS:\*\* While ANSYS offers general-purpose simulation tools, Stellar Science differentiates itself through its deep domain expertise in specialized areas like plasma physics and directed energy, providing customized solutions and advanced algorithms tailored to specific customer needs.
* Los Alamos National Laboratory (LANL):\*\* While LANL develops simulation codes for internal research, Stellar Science focuses on commercializing and supporting these technologies for broader industry applications, offering tailored services and collaborative development opportunities.

**Sources:**

1. [https://www.stellarscience.com/](https://www.stellarscience.com/)

2. [https://www.sbir.gov/](https://www.sbir.gov/) (Searched for Stellar Science under awarded contracts)

3. [https://www.zoominfo.com/c/stellar-science-ltd-co/347075935](https://www.zoominfo.com/c/stellar-science-ltd-co/347075935)