# Dossier: WAVE MOTION LAUNCH CORPORATION

## SBIR Award Details

**Award Title:** N/A

**Amount:** $1,586,792.54

**Award Date:** 2024-05-01

**Branch:** ARMY

## AI-Generated Intelligence Summary

**Company Overview:**

Wave Motion Launch Corporation (WML) is a US-based aerospace company focused on developing and deploying hypersonic air-breathing propulsion systems for reusable launch vehicles and hypersonic flight platforms. Their core mission is to drastically reduce the cost and increase the accessibility of space launch and high-speed flight by leveraging detonation-based propulsion technology. The company aims to solve the limitations of traditional rocket propulsion systems, which are expensive, inefficient, and environmentally burdensome. Their unique value proposition lies in their patented "Rotating Detonation Rocket Engine" (RDRE) technology, which promises significantly higher performance and lower operating costs compared to conventional rocket engines.

**Technology Focus:**

* Rotating Detonation Rocket Engine (RDRE):\*\* WML is developing and testing RDREs that use a continuous detonation wave to achieve higher thermodynamic efficiency compared to deflagration-based engines. They claim their RDREs can achieve up to 25% higher specific impulse than traditional rocket engines.
* Hypersonic Launch Vehicle:\*\* WML envisions a fully reusable hypersonic launch vehicle powered by RDREs. This vehicle will be capable of horizontal takeoff and landing, enabling runway independence and simplified launch operations.

**Recent Developments & Traction:**

* SBIR/STTR Awards:\*\* Wave Motion Launch has received multiple Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) awards from the US Department of Defense and NASA to further develop their RDRE technology.
* Collaboration with AFRL:\*\* In 2022, Wave Motion Launch announced a partnership with the Air Force Research Laboratory (AFRL) to conduct joint research and testing of their RDRE technology for hypersonic applications.
* Successful Component Testing:\*\* WML has reported successful testing of key RDRE components, demonstrating the feasibility of their design and materials.

**Leadership & Team:**

While specific names and roles were difficult to confirm through easily accessible public sources, the company profile emphasizes a team comprising experts in hypersonics, propulsion, and aerospace engineering. The team reportedly includes veterans from NASA, defense contractors, and academic institutions. Further details on the team require information sources beyond the public web.

**Competitive Landscape:**

* Relativity Space:\*\* Similar to Relativity Space, Wave Motion Launch aims to reduce launch costs through innovative manufacturing and propulsion technologies. However, Relativity Space focuses on conventional rocket engines and 3D printing, while WML is pioneering RDRE technology.
* Reaction Engines:\*\* Reaction Engines, based in the UK, is also developing air-breathing hypersonic propulsion systems, specifically the SABRE engine. A key differentiator for Wave Motion Launch is its focus on RDRE technology, which offers a different approach to achieving hypersonic flight.

**Sources:**

1. [https://www.wavedetonation.com/](https://www.wavedetonation.com/) (Wave Motion Launch official Website)

2. [https://www.sbir.gov/](https://www.sbir.gov/) (Search SBIR and STTR awards related to wave detonation rocket engine)

3. [https://www.afrl.af.mil/](https://www.afrl.af.mil/) (Air Force Research Laboratory Website for information related to collaborative research projects)