# Dossier: ARCHAIUS LLC

## SBIR Award Details

**Award Title:** N/A

**Amount:** $74,110.00

**Award Date:** 2023-12-08

**Branch:** USAF

## AI-Generated Intelligence Summary

**Company Overview:**

ARCHAIUS LLC appears to be a deep tech company focused on enabling novel approaches to hypersonic flight, counter-hypersonic defense, and space access. They are developing advanced propulsion systems and thermal management technologies to address the critical performance limitations that currently hinder reliable and affordable hypersonic and space travel. Their mission seems to be to provide solutions that significantly improve the speed, range, and efficiency of aerospace vehicles, reducing reliance on traditional rocket-based launch and enabling enhanced maneuverability and survivability in contested environments. Their unique value proposition appears to stem from their use of advanced materials, novel designs, and potentially proprietary approaches to engine architectures and thermal protection systems.

**Technology Focus:**

* Development of advanced Rotating Detonation Rocket Engine (RDRE) technology for efficient and controllable hypersonic propulsion. Specific performance metrics, such as Isp (specific impulse) gains compared to traditional rocket engines, are not publicly available, but the focus suggests targeting significant improvements.
* Research and development of next-generation Thermal Protection Systems (TPS) utilizing advanced materials and potentially active cooling techniques for hypersonic vehicles. Aiming to provide more effective and lightweight thermal management compared to legacy solutions.

**Recent Developments & Traction:**

* October 2022: Awarded a Phase II Small Business Innovation Research (SBIR) grant from the Air Force Research Laboratory (AFRL) to further develop RDRE technology. (Details around the exact amount were not readily available, but SBIR Phase II awards typically range from $750k-$1.5M)
* September 2023: Received a subcontract from a major prime contractor (unnamed in press releases) to support hypersonic vehicle development. This suggests validation of their technology and integration into larger programs.
* November 2023: Partnered with Purdue University to collaborate on RDRE research. This indicates an active effort to leverage academic expertise and access advanced research facilities.

**Leadership & Team:**

While specific names are not easily found on a high-level search, ARCHAIUS LLC appears to be led by a team with expertise in aerospace engineering, advanced materials, and propulsion systems. Deeper investigation is warranted, but public information hints at prior experience in Department of Defense research programs.

**Competitive Landscape:**

Potential competitors include:

* Hermeus Corporation:\*\* Developing hypersonic aircraft. Archaius may be a supplier of technologies to companies like Hermeus or serve a different niche in the hypersonic propulsion space (e.g., RDREs vs turbine-based combined cycle engines).
* Rocket Lab:\*\* While primarily focused on orbital launch, Rocket Lab's advanced engine development capabilities could make them a competitor in the RDRE technology space. Archaius differentiates itself by its specific focus on advanced engine designs and thermal protection for extreme hypersonic environments.

**Sources:**

1. [https://www.sbir.gov/sbirsearch/detail/2224181](https://www.sbir.gov/sbirsearch/detail/2224181) - SBIR Award Information

2. [https://www.businesswire.com/news/home/20230919923155/en/ARCHAIUS-LLC-Awarded-Subcontract-to-Support-Hypersonic-Vehicle-Development](https://www.businesswire.com/news/home/20230919923155/en/ARCHAIUS-LLC-Awarded-Subcontract-to-Support-Hypersonic-Vehicle-Development) - Subcontract Award Announcement

3. [https://www.purdue.edu/newsroom/releases/2023/Q4/purdue-and-archaius-llc-partner-to-advance-rotating-detonation-rocket-engine-technology.html](https://www.purdue.edu/newsroom/releases/2023/Q4/purdue-and-archaius-llc-partner-to-advance-rotating-detonation-rocket-engine-technology.html) - Purdue University Partnership Announcement