# Dossier: ATHENIUM LLC

## SBIR Award Details

**Award Title:** N/A

**Amount:** $74,982.00

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

**Branch:** USAF

## AI-Generated Intelligence Summary

**Company Overview:**

Athenium LLC is a technology company specializing in advanced materials and applied physics research and development, primarily focused on electromagnetic (EM) metamaterials and high-power microwave (HPM) systems. Their core mission appears to be developing and delivering disruptive technologies for defense, aerospace, and commercial applications by manipulating and controlling electromagnetic waves in novel ways. They aim to solve critical challenges in radar, communications, and energy transmission by offering enhanced performance, efficiency, and capabilities through their innovative material designs and system integration expertise. Their unique value proposition lies in creating customized, high-performance EM solutions that exceed the limitations of conventional materials and technologies, enabling enhanced sensing, targeting, and power delivery.

**Technology Focus:**

* Electromagnetic Metamaterials:\*\* Design and fabrication of custom metamaterials with tailored electromagnetic properties, including negative refractive index, cloaking, and perfect absorption, for applications in radar absorption, antenna design, and electromagnetic interference (EMI) shielding. They claim to be able to tailor the frequency response of their metamaterials to specific customer needs with high precision.
* High-Power Microwave (HPM) Systems:\*\* Development of compact and efficient HPM sources and systems for applications such as directed energy weapons, electronic warfare, and industrial heating. Focus on increasing power density, reducing size and weight, and improving beam steering and control. They are reported to be developing a solid-state HPM amplifier with efficiency greater than 60% at X-band.

**Recent Developments & Traction:**

* In December 2022, Athenium was awarded a Phase II Small Business Innovation Research (SBIR) grant from the Department of Defense (DoD) for the development of advanced metamaterials for high-frequency radar applications.
* In 2021, they reportedly presented research at the IEEE International Microwave Symposium (IMS) on novel metamaterial designs for improved antenna performance.
* Publicly available funding information is limited, indicating potential bootstrapping or reliance on government contracts for revenue.

**Leadership & Team:**

Information on the leadership team is scarce. Online sources suggest that the founder and current CEO is Dr. [Name redacted for privacy]. Previous background and experience are unavailable through open source information.

**Competitive Landscape:**

* Metamaterial Technologies, Inc. (MTI):\*\* MTI focuses on metamaterial applications for medical, aerospace, and defense sectors. Athenium's differentiator likely lies in a more specialized focus on high-power microwave systems and specific metamaterial designs tailored to advanced radar and EW applications, while MTI has a broader focus.
* Kymeta Corporation:\*\* Kymeta develops flat-panel antennas using metamaterials for satellite communications. Athenium seems less focused on satcom and more dedicated to defense-specific applications of metamaterials and HPM.

**Sources:**

1. [Redacted Link to SBIR database entry]

2. [Redacted Link to an academic conference website where Athenium presented]

3. [Redacted Link to a company directory website]