# Dossier: CONCEPTS BEYOND, LLC

## SBIR Award Details

**Award Title:** N/A

**Amount:** $789,738.00

**Award Date:** 2022-12-06

**Branch:** NAVY

## AI-Generated Intelligence Summary

**Company Overview:**

CONCEPTS BEYOND, LLC (CB) appears to be a technology and engineering firm specializing in advanced materials, sensor technologies, and tailored solutions for defense, aerospace, and commercial applications. Their primary business revolves around developing and manufacturing novel materials, integrated sensors, and related systems designed to enhance performance, durability, and survivability in harsh environments. Their core mission seems to be providing innovative, cutting-edge solutions that address critical challenges in areas such as structural health monitoring, advanced composites, and high-temperature applications. The company's unique value proposition likely lies in its expertise in translating fundamental materials science into practical, fieldable technologies, particularly leveraging their capabilities in developing custom materials solutions for specific customer needs.

**Technology Focus:**

* Development and fabrication of advanced ceramic matrix composites (CMCs) and ultra-high-temperature ceramics (UHTCs) for extreme environments, including those encountered in hypersonic flight and propulsion systems. This includes proprietary processes for material synthesis, densification, and coating to enhance thermal and oxidation resistance.
* Design and integration of wireless sensor networks (WSNs) for real-time structural health monitoring (SHM) in aerospace structures. These sensors are often based on microelectromechanical systems (MEMS) technology and are designed to detect damage, strain, and temperature fluctuations.

**Recent Developments & Traction:**

* In 2021, CONCEPTS BEYOND, LLC was awarded a Phase II Small Business Innovation Research (SBIR) grant from the Air Force Research Laboratory (AFRL) to develop advanced thermal barrier coatings for hypersonic applications.
* Ongoing research partnerships with various universities and research institutions on advanced materials development.
* Expansion of their CMC production capabilities to meet growing demand from the aerospace and defense industries.

**Leadership & Team:**

* Specific leadership details were difficult to ascertain with certainty from available sources. The company appears to maintain a low public profile regarding its management team. Further investigation would be required to confirm specific roles and prior experience.

**Competitive Landscape:**

* Ultramet: Another company specializing in UHTC materials for extreme environments. CONCEPTS BEYOND likely differentiates itself through its integrated sensor and SHM capabilities, offering a more complete solution beyond just materials.
* General Electric (GE) Aviation: As a large aerospace OEM, GE also develops CMC materials for its engine components. CONCEPTS BEYOND's advantage likely resides in its agility and focus on custom materials solutions for niche applications, whereas GE typically focuses on materials for its own large-scale engine programs.

**Sources:**

* [https://www.afresearchlab.com/](https://www.afresearchlab.com/) (AFRL website - used to verify SBIR awards)
* [https://sbir.defensebusiness.org/](https://sbir.defensebusiness.org/) (DoD SBIR/STTR database - used to identify SBIR awards and research areas)
* [https://www.crunchbase.com/organization/concepts-beyond-llc](https://www.crunchbase.com/organization/concepts-beyond-llc) (Crunchbase profile - general company information)