# Dossier: POLYCHARGE AMERICA, INC

## SBIR Award Details

**Award Title:** N/A

**Amount:** $72,812.00

**Award Date:** 2022-11-03

**Branch:** USAF

## AI-Generated Intelligence Summary

**Company Overview:**

PolyCharge America, Inc. is a company specializing in high-performance, thin-film capacitor technology aimed at revolutionizing power electronics for demanding applications, particularly in the defense, aerospace, automotive, and industrial sectors. Their core mission is to develop and manufacture superior DC link capacitors that offer increased energy density, higher temperature operation, and extended lifespan compared to traditional capacitor technologies like electrolytic or film capacitors. PolyCharge aims to solve the challenges of size, weight, power, and cooling (SWaP-C) limitations in advanced electronic systems. Their unique value proposition lies in their NanoLam™ technology, which enables them to produce exceptionally thin, high-voltage, and robust capacitors suitable for harsh environments and high-reliability applications, allowing for miniaturization and improved performance in critical power systems.

**Technology Focus:**

* NanoLam™ Technology:\*\* Patented thin-film capacitor technology enabling high energy density (reportedly up to 10x higher than traditional film capacitors) and high-temperature operation (up to 150°C or higher).
* DC Link Capacitors:\*\* Focus on DC link capacitors specifically designed for high-power inverters, converters, and other power electronic systems used in electric vehicles, renewable energy, military systems, and industrial motor drives. These capacitors are characterized by their low equivalent series resistance (ESR) and equivalent series inductance (ESL), leading to improved efficiency and reliability.

**Recent Developments & Traction:**

* 2023 (October):\*\* Secured a $1.5 million contract from the U.S. Department of Energy (DOE) for Phase II Small Business Innovation Research (SBIR) to develop high voltage capacitors for medium voltage DC-DC converters.
* 2022 (October):\*\* Received a $1 million investment from Volta Energy Technologies to accelerate the development and commercialization of their NanoLam™ technology.
* 2021 (July):\*\* Awarded a Phase I SBIR from the U.S. Navy to develop advanced capacitors for pulsed power applications.

**Leadership & Team:**

* Steven R. Carlson (CEO):\*\* Holds extensive experience in the capacitor industry, previously holding leadership positions at KEMET Corporation (now YAGEO) and Evaporated Coatings, Inc. (ECI).
* Dr. Jeffrey A. Wolf (CTO):\*\* Brings considerable expertise in thin-film technology and materials science, with a background in developing advanced capacitor materials and processes.

**Competitive Landscape:**

* TDK Corporation:\*\* A major player in the capacitor market with a broad range of capacitor technologies, including film capacitors. PolyCharge differentiates itself through its NanoLam™ technology, offering potentially superior performance in high-temperature and high-power density applications compared to standard film capacitors.
* Illinois Capacitor:\*\* Specializes in high-performance capacitors. PolyCharge's unique advantage lies in its thin-film technology, potentially enabling smaller and lighter capacitor solutions for demanding aerospace and defense applications where space and weight are critical constraints.

**Sources:**

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

2. [https://www.voltaenergytechnologies.com/poly-charge/](https://www.voltaenergytechnologies.com/poly-charge/)

3. [https://www.sbir.gov/sbirsearch/detail/2312254](https://www.sbir.gov/sbirsearch/detail/2312254)

4. [https://www.sbir.gov/sbirsearch/detail/2124578](https://www.sbir.gov/sbirsearch/detail/2124578)