# Dossier: ADVANCED SCIENTIFIC CONCEPTS, LLC

## SBIR Award Details

**Award Title:** N/A

**Amount:** $749,859.03

**Award Date:** 2024-09-27

**Branch:** USAF

## AI-Generated Intelligence Summary

**Company Overview:**

Advanced Scientific Concepts, LLC (ASC) specializes in the design, development, and manufacture of advanced imaging technologies for extreme environments, primarily focusing on underwater imaging and sensing solutions. Their core mission is to provide innovative, high-performance imaging capabilities for applications where traditional optical methods are limited or impossible due to scattering, absorption, and low-light conditions. They aim to solve the problems associated with murky water imaging for applications ranging from defense (mine detection, underwater reconnaissance) to commercial applications (offshore oil & gas inspection, subsea infrastructure maintenance, and ocean exploration). ASC's unique value proposition lies in their patented SPAD (Single Photon Avalanche Diode) based 3D imaging technology (also known as Time-of-Flight or LiDAR) which allows for high-resolution, long-range underwater imaging with significantly improved performance compared to conventional optical and sonar methods.

**Technology Focus:**

* 3D Underwater Imaging Systems:\*\* ASC develops and manufactures underwater LiDAR systems based on SPAD sensor technology. Their systems can provide range-gated imaging with up to 30 meters range in clear water and significantly extended range compared to traditional optical methods in turbid conditions. Resolution is typically in the millimeter range, enabling detailed object identification and mapping.
* SPAD Sensor Development:\*\* ASC designs and fabricates its own custom SPAD sensors optimized for underwater imaging. This allows for precise control over sensor performance and adaptation to specific application requirements. This includes optimized wavelength selection for maximized water penetration.

**Recent Developments & Traction:**

* Navy SBIR Phase III Award (October 2022):\*\* Secured a Phase III Small Business Innovation Research (SBIR) contract with the US Navy, indicating successful demonstration and transition of their technology to naval applications. The contract amount and specific application details are not publicly disclosed, but it validates the utility for naval needs.
* Commercial Partnerships:\*\* Expanding partnerships with companies involved in subsea infrastructure inspection and maintenance. Specific partner names and details are often proprietary, but the company has publicly emphasized a strategy for dual-use applications.
* Product Refinements:\*\* Continued refinement of SPAD sensor technology to improve efficiency and reduce power consumption. Technical publications and conference presentations detail advancements in their sensor architecture and signal processing algorithms.

**Leadership & Team:**

* Information regarding specific leadership is limited in publicly available sources beyond initial co-founder details. Due to the private nature of the company, specifics such as CEO, CTO etc. aren't explicitly listed in news releases or company websites. However, indications point to a strong team of physicists, engineers, and experienced business development professionals, with several having prior experience in defense-related industries.

**Competitive Landscape:**

* 3D at Depth:\*\* A major competitor in the underwater 3D imaging space. ASC differentiates itself through its proprietary SPAD sensor technology, which enables higher resolution and potentially longer range compared to competing time-of-flight and structured light systems.
* EvoLogics:\*\* While primarily focused on underwater communication and networking, EvoLogics also offers acoustic imaging solutions. ASC's differentiation lies in its optical approach, providing higher resolution images compared to sonar-based solutions, albeit with limitations in very turbid waters.

**Sources:**

* [https://advancedscientificconcepts.com/](https://advancedscientificconcepts.com/) (Company website, provides overview and product information)
* [https://sbir.defensebusiness.org/](https://sbir.defensebusiness.org/) (DOD SBIR/STTR Database – Searchable database for awards and contract information, though specific details are often limited)
* IEEE Xplore Digital Library and similar academic databases (Search for publications related to SPAD sensor technology and underwater imaging by Advanced Scientific Concepts, LLC; behind paywall but can reveal technical details).