NAVY Transition Assistance Program

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N07-076 - Applied Physical Sciences Corp.

Vector Sensors for Submarine Towed Array Applications

NEED & CUSTOMER REQUIREMENT

Need: The Navy needs to improve the SONAR capability of its submarine fleet so that they can quickly and accurately ascertain the bearing of submerged threats. The objective of this project is to develop a miniature towed array vector sensor that employs single crystal accelerometers and integrated electronics to mitigate bearing ambiguity that is characteristic of existing arrays.

Value to the Warfighter: This system would allow submarines to instantaneously determine the bearing of submerged threats.

Operational Gap: The current system experiences left/right bearing ambiguity regarding where a target is located and requires the submarine to perform a time-consuming maneuver to determine the true bearing.

Customer Specifications: A miniature neutrally buoyant triaxial pressure-acceleration vector sensor with integrated electronics and uniform sensitivity and phase response from sensor to sensor both in production as well as during the lifetime of operation in variable conditions.

Technology Description: Triaxial pressure-acceleration vector sensor employing single crystal accelerometers with integrated preamplifiers and a pitch/roll sensor, packaged for integration into a TB-29 towed array.

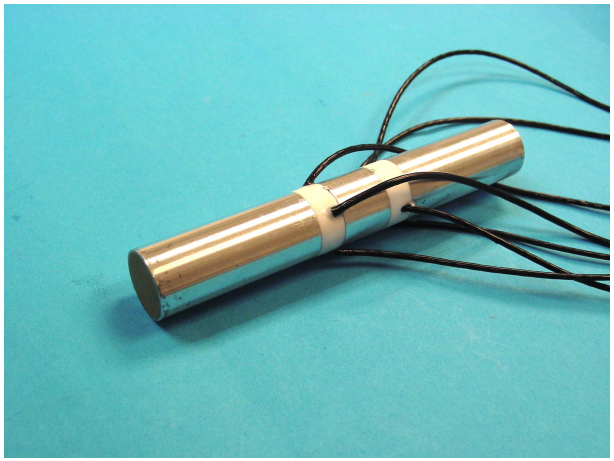
SPONSORSHIP of original SBIR/STTR Topic

SYSCOM: ONR - SBIR

Transition Target: TB-29 thin-line towed array

Original Sponsoring Program: PMS 415

TPOC Phone Number: 703-696-4112



TECHNOLOGY DEVELOPMENT MILESTONES (SBIR/STTR)

Milestone	TRL	Risk	Measure of Success	TRL Date
Single crystal accelerometer development	3	Low	Accelerometer that meets specification	Jan 2009
Prototype vector sensor development	5	Moderate	Sensor meets specification	Mar 2010
Advanced prototype vector sensor development	6	High	Sensor meets specification	Sep 2011
Qualification of vector sensor in fleet array	8	High	Sensor meets specification	Sep 2012

Open contract: N00014-09-C-0096 ending March 31, 2010

TECHNOLOGY TRANSITION OPPORTUNITIES (PHASE III)

Other Potential Applications:
Stationary lines arrays, geophysical prospecting, seismic sensing, coastal security, air-deployed sonobuoys, other towed array platforms such as the TB-16, TB-33, TB-34

Business Model:
Device production and teaming with a DoD prime contractor/large-scale systems integrator.

Objective:
Business relationships between Lockheed Martin and L-3 Communications are already in place under separate, but related work funded in connection with NAVSEA PEO-IWS-5. APS plans to work with these business entities to transition the SBIR technology to a fully integrated surveillance system.

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