Department of the Navy SBIR/STTR Transition Program

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Topic # N132-143
Controllable and Adaptable Lateral Support System
Advanced Materials and Devices

WHO

SYSCOM: SSP

Sponsoring Program: Strategic System Programs (SSP) Launcher Branch (SP22)

Transition Target: Underwater launched weapon systems, such as the Ohio class SSGN configuraton.

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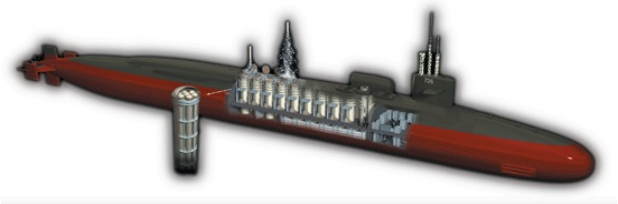

http://www.public.navy.mil/subfor/underseawarfaremagaz

Other transition opportunities: Submarine, torpedo and UAV launch systems, air and surface launched missile systems.

WHAT

Operational Need and Improvement: The current lateral support systems (LSS) are hydraulically actuated. The advanced LSS being developed under this SBIR Phase II effort is a remotely operated, controllable system that uses smart materials to protect the payload (missile canister) from shock and vibration events, while having the capability of aligning it within the missile tube. The advanced LSS reduces canister installation/removal time, increases available area within missile tube, broadens the range of payload configurations, and facilitates improved performance and flexibility.

Specifications Required: The jacking feet and pads could be replaced with advanced materials or components that can be tuned and adapted by a control system that would allow varying payloads in a configured tube without labor intensive and consumptive removal and install operations.

Technology Developed: This SBIR Phase II project will develop, manufacture, and test an advanced lateral support system (LSS) to replace the current hydraulic system. The electromechanically actuated LSS will offer controllable damping using smart materials to protect the payload from shock and vibration events, while having the capability of aligning the canister within the missile tube. The LSS is remotely operated, and does not require personnel within the missile tube during installation or extraction.

Warfighter Value: The developed LSS utilizes a smart material to provide automatically controllable shock and vibration damping for variable payload weights contained within a missile tube. Moreover, the proposed system during a power supply interruption behaves as a passive damping system

WHEN

Contract Number: N00030-15-C-0044 **Ending on:** September 30, 2016

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Feasibility demonstration	N/A	Demonstrated success in mitigating shock and vibration via prototype testing	2	September 2015
Scaled prototype testing	Low	Successful testing, modeling and simulation of shock mitigation	4	September 2016
Full scale prototype testing	Low	Demonstration of a full-scale prototype in laboratory environment	5	March 2017
Secure Phase III funding	Med	Agreement with a prime contractor for field testing	8	August 2017
Transition to Ohio class SSGN configuration	High	Completion of certification tests	9	January 2020

HOW

Projected Business Model: AMAD's vision is to generate revenue from licensing fees and royalty from commercial partners. AMAD is closely working with Northrop Grumman Corporation (NGC) to ensure their continued interest and will approach them for licensing. AMAD will provide technology and service support after licensing.

Company Objectives: AMAD's objectives are 1) Research and develop novel passive, semi-active, and active shock and vibration control devices for electromechanical systems and structures which have a practical application with the opportunity of obtaining high volume sales, and 2) to commercialize innovative products that are licensed to strategic partners for manufacturing and distribution.

Potential Commercial Applications: This LSS is designed for underwater launched weapon systems. This system can also be utilized for other applications where adaptable vibration and shock control is vita, such as submarine, torpedo and UAV launch systems, air and surface launched missile systems.

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