

WHO

SYSCOM: NAVSEA

Sponsoring Program: Team Ships, PMS-500

Transition Target: Zumwalt Class

TPOC:
(401) 832-8767

Other transition opportunities:

The material technology is applicable to submarine bow domes, sensor fairings, and other surface ship sonar domes where robust structure is needed to protect acoustic sensors with limited acoustic insertion loss compared to steel.

Notes: Image Description: DDG 1000, USS Zumwalt, leaving dry dock. The existing Mid-Frequency Sonar Dome is incorporated into the forward hull. The subject of this program will be available for DDG 1002.



Navy Image 131028-O-ZZ999-101, BATH, Maine (Oct. 28, 2013), (U.S. Navy photo courtesy of General Dynamics/Released)

WHAT

Operational Need and Improvement: In order to meet requirements to improve performance and lower acquisition and maintenance costs of sonar domes, the Navy is seeking new materials and fabrication techniques for sonar domes that will be installed on future combatants. The material needs to be mechanically robust and must allow transmission of sonar signals.

Specifications Required: The Sonar Dome must meet the mechanical and acoustic requirements of the current technology while reducing acquisition cost. Also, additional mechanical requirements identified by the Navy must be met in order to enhance survivability.

Technology Developed: Materials Sciences Corporation (MSC) and its manufacturing partner, Seemann Composites Inc. (SCI), are developing a high-fiber content, low void composite dome fabricated using a low-cost, out-of-autoclave material system and process.

Warfighter Value: This technology will have better survivability than the existing technology, which protects the warfighter in both extreme weather and combat scenarios, allowing the ship to perform its mission to its maximum potential.

WHEN

Contract Number: N00024-14-C-4586 **Ending on:** September 16, 2016

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Material System Development	N/A	Test Report Submitted to NSWC-CD	7	May 2015
Composite Design Complete	Low	Design Qualified per Analysis Plan	5	January 2016
Tooling Fabrication Complete	Low	Completion of Mold	7	January 2016
Demonstration Article Fabrication	Low	Mechanical Testing of Attachment Joint	6	July 2016

HOW

Projected Business Model: The MSC dome design will be fabricated by SCI using the approved material system under contract by the Navy and will become Government Furnished Equipment.

Company Objectives: The object of MSC and SCI is to become a key supplier to the fleet of large-scale navy composite shell structures, having demonstrated that we can affordably engineer a material and fabrication system to a variety of shapes and in accordance with extreme service requirements.

Potential Commercial Applications: These types of structures may be applicable to any industrial application needing a large composite which meets extreme performance requirements including chemical/petroleum refinement, pressure vessels, and various watercraft.

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