

WHO

SYSCOM: SSP

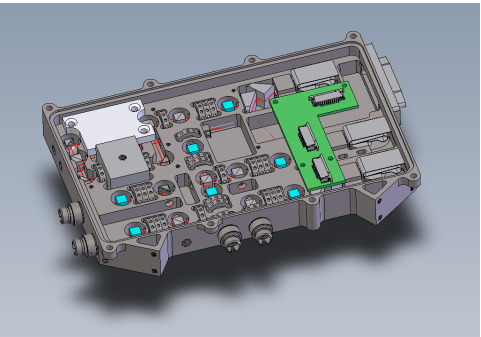
Sponsoring Program: SSP

Transition Target: Long-term inertial navigation on either shipboard or missile platforms

TPOC: SSP.SBIR@ssp.navy.mil

Other Transition Opportunities: WSN-12 shipboard navigator, satellite navigation

Notes: The same atom-based quantum sensors can be used for gravimetry for the detection of subterranean structures, unobservable by other means.



SAILS 3D model

WHAT

Operational Need and Improvement: The technology will provide unprecedented inertial sensing performance by measuring all components of the acceleration vector from a single point with strategic-grade performance, exceeding the accuracy of present acceleration sensors.

Specifications Required: The developed Simplified Atom Interferometer Laser System should perform sufficiently well to support strategic grade navigation while featuring a low SWaP and a high ruggedization.

Technology Developed: Physical Sciences, Inc. develops the Simplified Atom Interferometer Laser System that is capable of generating all optical pulses needed for precise Atom Interferometry (AI) providing sufficient optical powers, accurate pulse-timing, low phase and intensity noise of optical pulses. The optical system is currently in the development stage and features a low SWaP, ruggedization level suitable for military applications, and performance necessary for AI.

Warfighter Value: Accurate navigation. Navigation in GPS-denied environment.

WHEN

Contract Number: N68335-23-C-0169 Ending on: Jul 15, 2024

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Demonstration of functioning prototype	Medium	Satisfying KPPs	4	4th QTR FY24
Demonstration of Alpha version prototype	Medium	Satisfying KPPs	4	1st QTR FY25
Delivery of Alpha version to customer	Low	Satisfying KPPs	4	2nd QTR FY25

HOW

Projected Business Model: Licensing technology to DoD prime contractors in the inertial sensor and military platform market including Northrop Grumman, Honeywell, Raytheon, Lockheed Martin, and Collins Aerospace.

Company Objectives: To develop a Simplified Atom Interferometer Laser System (SAILS) that could support strategic grade atom interferometer while featuring low SWaP and high ruggedization.

Potential Commercial Applications: Navigation, navigation in GPS-denied environments (submarines, space), gravimetry (detection of karsts and voids, the determination or improvement of terrestrial geoid, and oil and gas exploration).