

WHO

SYSCOM: NAVSEA

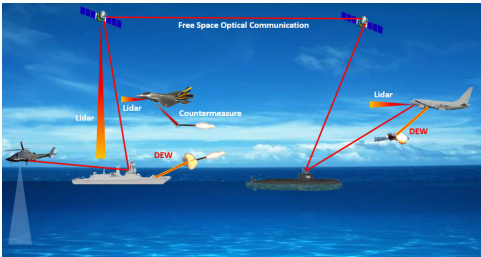
Sponsoring Program: NAVSEA

Transition Target: SUB 073

TPOC: (401) 832-6887

Other Transition Opportunities: Boeing, GE Aviation, L3Harris, Lockheed Martin, Northrup Grumman, Raytheon Intelligence & Space, and Sierra Nevada Corporation.

Notes: The laser system will be deployed ultimately in a submarine or other Navy platform to advance the future Navy warfighting capability. Both the power specifications and wavelength of operation and electrical to optical (EO) efficiency will be tested at a NSWC Dahlgren, Navy High energy laser (HEL) test facility.



WHAT

Operational Need and Improvement: Fiber lasers offer the best combination of output power, beam quality, and wall plug efficiency compared to any alternate technologies such as semiconductor lasers or solid state lasers.

Specifications Required: Highly efficient kW class fiber lasers operating in the 2-micron transmission window are useful as high energy lasers in Directed Energy applications.

Technology Developed: The objective is to develop scalable high-efficiency kW-class Ho3+-doped germanate fiber laser that can be used to achieve 10's kW continuous-wave laser source at 2um via spectral beam combining.

Warfighter Value: Lower electrical requirements and reduced heat generation/simplified thermal management the laser system.

WHEN

Contract Number: N68335-22-C-0189

Ending on: Feb 04, 2023

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Develop a 100-W Ho-doped germanate fiber laser at 2050 nm with efficiency > 60%	Low	> 100-W 2050 nm laser was measured	4	2nd QTR FY23
Develop a 250-W Ho-doped germanate fiber laser with efficiency > 70%	Medium	Output power > 250 W, Laser efficiency > 70%	4	2nd QTR FY24
Develop a 1 kW Ho-doped germanate fiber laser at 2050 nm with efficiency > 80%	Medium	Output power > 1 kW, Laser efficiency > 80%.	4	2nd QTR FY25

HOW

Projected Business Model: Partnership with prime/system integrator is the most direct path for transition. NP Photonics laser is essential element in the system – but operational system will need beam director and advanced thermal management to fully take advantage of this technology. This part is more naturally developed by prime.

Company Objectives: Transitioning NP Photonics fiber laser technology to Navy applications is a primary pillar of our growth strategy and an element of how we identify and develop commercial applications.

Potential Commercial Applications: There is a potential for dual use of this system for cutting/welding, optical communication and use in space or airborne platforms. One of the most important characteristics of this wavelength is that it will be less affected by the atmospheric operation near marine wave boundary layer (MWBL) and its eye-safe operation from scattered light.