

# Department of the Navy SBIR/STTR Transition Program

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NAVSEA #19-640

Topic # N171-039

High Optical Power Hull Penetrator for Submarine Fiber Optic Systems  
TRITON SYSTEMS, INC.

## WHO

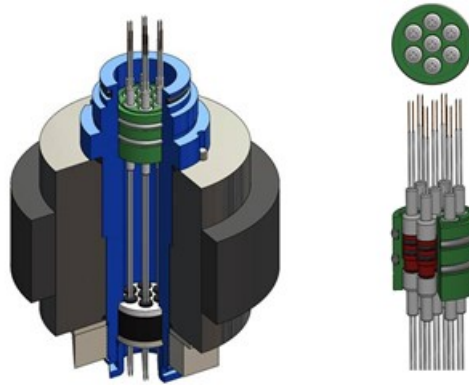
**SYSCOM:** NAVSEA

**Sponsoring Program:** SUB 073,  
Undersea Technology

**Transition Target:** U.S. Submarines

**TPOC:**  
(401)832-6887

**Other transition opportunities:**



Optical Hull Penetrator with Seven Quad Feedthroughs  
Copyright 2019, Triton Systems

## WHAT

### Operational Need and Improvement:

The Navy seeks an innovative solution to integrating high optical power system subcomponents through the submarine pressure hull.

### Specifications Required:

Deliver 30 to 100 kW of optical power through the hull.

### Technology Developed:

Hull Penetrator for a high optical power fiber optic system.

### Warfighter Value:

A high optical power system would greatly enhance a high optical power fiber optic system on a submarine.

## WHEN

**Contract Number:** N68335-19-C-0208 **Ending on:** January 31, 2020

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Requirements Definition	N/A	Requirements developed	2	May 2019
Fiber Design & Modeling	Med	Models indicate requirements will be met	3	October 2019
Design & Fabricate Component Prototype	Low	Delivery of feedthroughs	4	September 2020
Fabricate Assembly Prototype	Med	Delivery of penetrator	5	October 2021
Navy Testing	Med	Threshold of 30 kW optical power reached	6	November 2021

## HOW

### Projected Business Model:

The Penetrator for High Optical Power would be licensed to component manufacturers.

### Company Objectives:

To deliver the component in making High Optical Power for submarines a reality and to enable the technology to take root in the private commercial sector.

### Potential Commercial Applications:

Telecommunications, offshore oil & gas exploration, shipping, oceanography, subsea mining, and in other areas where high power optical transmission may be desired.

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