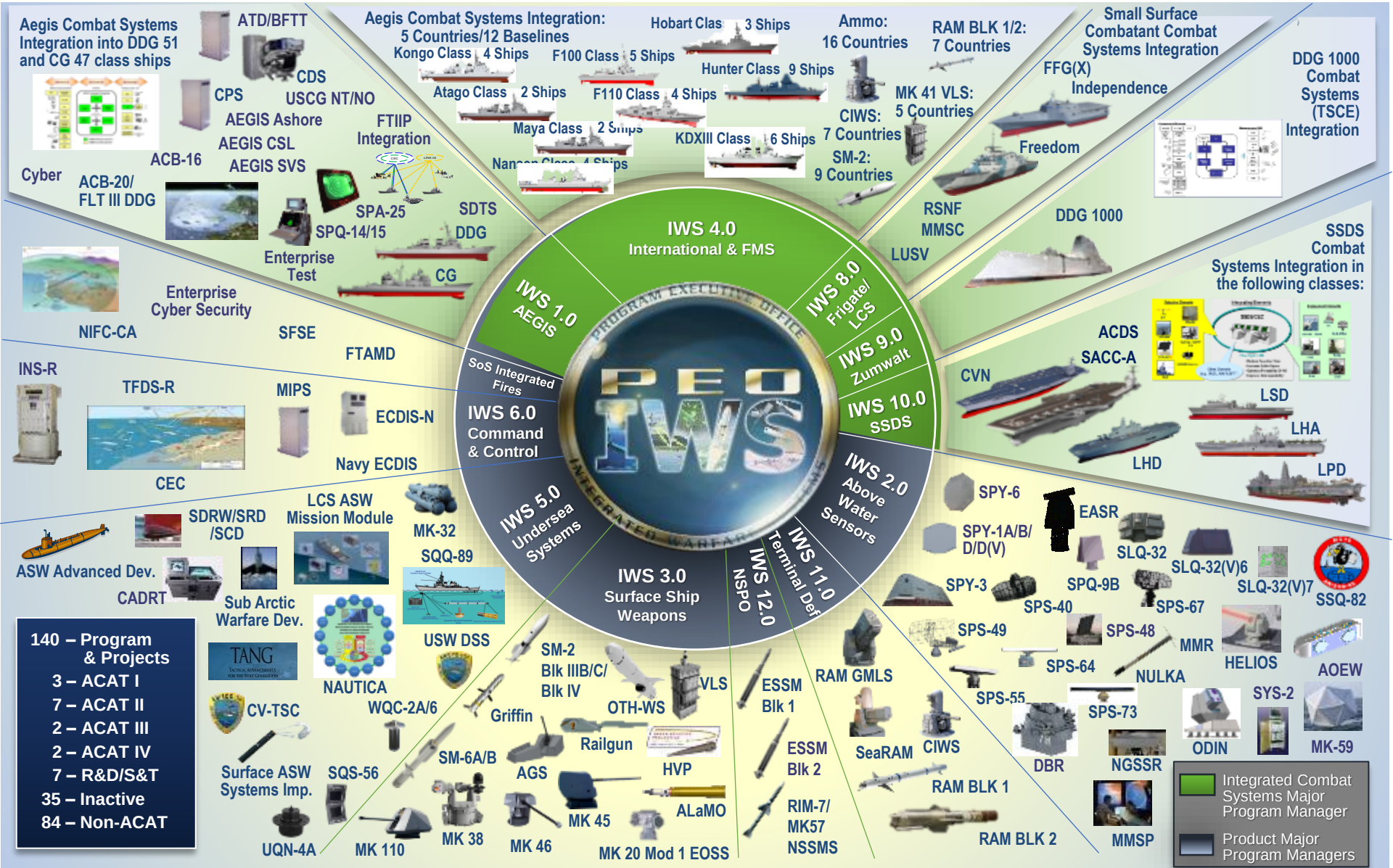
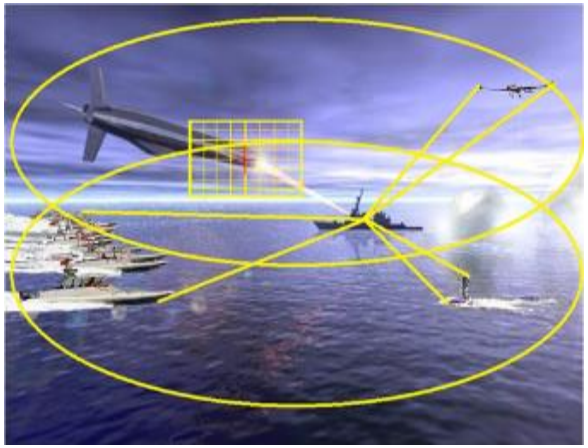
PEO IWS Programs and Projects



PEO IWS 2.0

NAVSEA SBIR/STTR

PEO IWS



Topic Number: N221-041

Topic Title: Compact High Power Mid-Wave Infrared (MWIR) Laser System

Technology Objective: Develop a compact high power laser system that provides broad spectral coverage across both atmospheric transmission windows in the mid-wave infrared band.

Technological Challenge/Risk: Achieving a "laser system" comprised of multiple lasers that emit across the entire portions of the MWIR band.

Transition Program: SEWIP

Topic Author: Lawrence Dressman

Topic Number: N221-044

Topic Title: Compact, High Performance Mid-Wave Infrared (MWIR) Sensor for Intermittent Deployment

Technology Objective: Develop a compact and high performance mid-wave infrared (MWIR) imaging sensor for intermittent deployment in environments where attrition is expected.

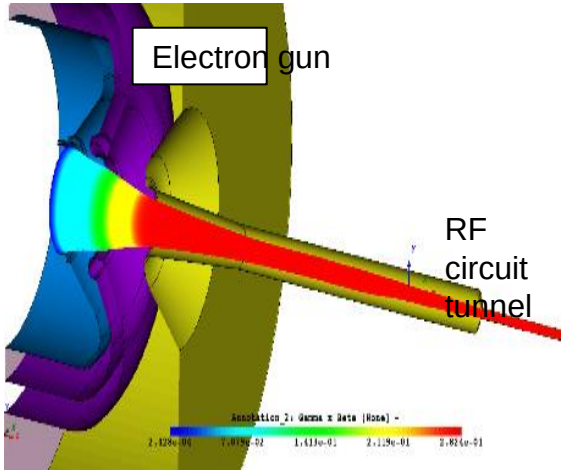
Technological Challenge/Risk: Achieving a short term MTBF and production cost that is acceptable and consistent with program cost drivers and concepts of operation.

Transition Program: SEWIP

Topic Author: Lawrence Dressman

NAVSEA SBIR/STTR

PEO IWS



Topic Number: N221-037

Topic Title: Compact Electron Beam Focusing System for Millimeter Wave Sources

Technology Objective: Develop a low-voltage, high-current, round-beam electron gun that significantly reduces the size and weight of high-power W-band traveling-wave tube amplifiers.

Technological Challenge/Risk: Achieving the desired size and weight while producing a high quality electron beam with the required beam transport.

Transition Program: Future EW Systems

Topic Author: Lawrence Dressman

Topic Number: N22A-T015

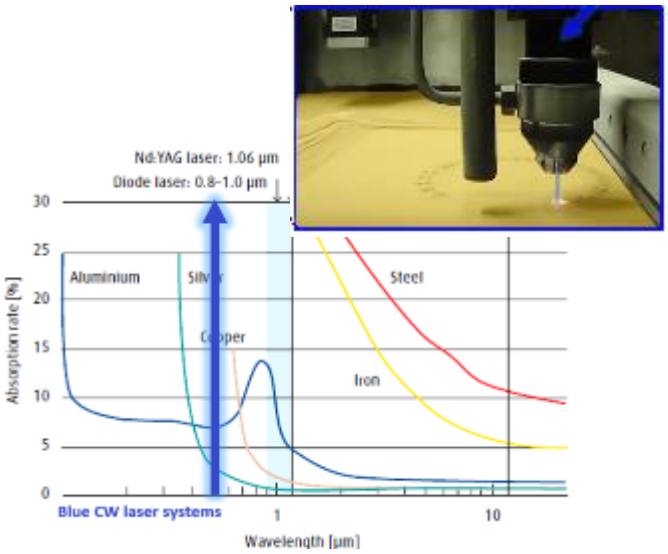
Topic Title: Additive Manufacturing (AM) of High Performance Copper-Based Components and Materials

Technology Objective: Develop additive manufacturing (AM) processes to produce high performance copper-based components and materials.

Technological Challenge/Risk: Achieving the required surface finish and tolerance in small structures without resort to “clean-up” machining or processes.

Transition Program: New manufacturing technology directly to the industrial base.

Topic Author: Lawrence Dressman



NAVSEA SBIR/STTR

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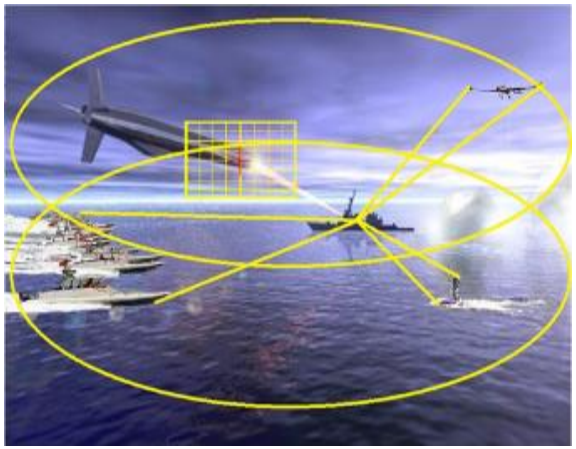


Topic Number: N22A-T013

Topic Title: Damage-Free High Power Emission from Indium Phosphide Based Solid State Waveguides in the Long Wave Infrared

Technology Objective: Develop technology that enables reliable emission of high power, single lateral mode, long wave infrared (LWIR) laser beams from Indium Phosphide (InP) based solid state waveguides.

Technological Challenge/Risk: Achieving a LWIR semiconductor laser output coupling technology with a 5X+ increase in power handling capability.

Transition Program: SEWIP

Topic Author: Lawrence Dressman

Topic Number: N22A-T014

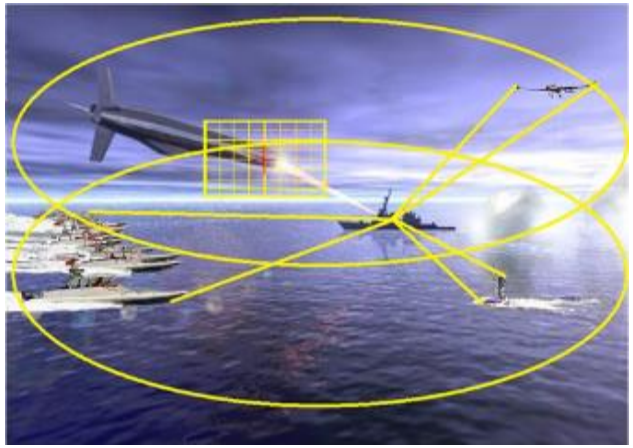
Topic Title: Visible to Near Infrared (VNIR) Laser Array with Integral Wavelength Beam Combining

Technology Objective: Develop an array of visible to near-infrared (VNIR) lasers with integral (on-chip) wavelength beam combining for a single, high quality output beam.

Technological Challenge/Risk: Achieving the required power and beam quality in a compact format wavelength beam combined laser array at affordable cost.

Transition Program: SEWIP

Topic Author: Lawrence Dressman



PEO IWS 3.0

NAVSEA SBIR/STTR

PEO IWS

Topic Number: N221-029

Topic Title: Artificial Intelligence (AI)/Machine Learning (ML) Applications to STANDARD Missile Maintenance Data

Technology Objective: Apply AI/ML techniques to develop a decision aide that automates and modernizes SM maintenance processes and procedures with the goal of reducing life cycle costs and manpower while maintaining readiness.

Technological Challenge/Risk: Format disparities in available data may preclude curating data without modification.

Transition Program: STANDARD Missile

Topic Author: Joe Steinberg

Topic Number: N221-043

Topic Title: Enhanced Performance Radome Materials for High Speed Missiles

Technology Objective: Develop a common radome architecture for multiple future missile systems which provides a significant increase in thermostructural capability while maintaining electrical performance across wide frequency bands.

Technological Challenge/Risk: Providing radome material solution(s) meeting the demanding flight environment while maintaining structural and electronic requirements of the missile system.

Transition Program: Navy Missiles like STANDARD Missile and SM-6

Topic Author: David Lyons

NAVSEA SBIR/STTR

PEO IWS

Topic Number: N221-051

Topic Title: Enhanced Performance Fin and Control Surface Materials for High Speed Missiles

Technology Objective: Develop a common fin and control surface architecture which provides a significant increase in thermostructural capability for multiple future missile systems.

Technological Challenge/Risk: Providing control surface material solution(s) meeting the demanding flight environment while maintaining structural and electronic requirements of the missile system.

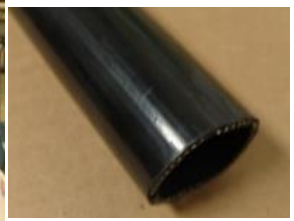
Transition Program: Navy Missiles like STANDARD Missile and SM-6

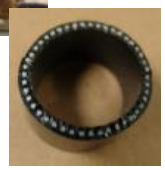
Topic Author: David Lyons

PEO IWS 5.0

NAVSEA SBIR/STTR

PEO IWS





Topic Number: N221-055

Topic Title: Improved Towed Array Acoustic Hose

Technology Objective: Develop a towed array acoustic hose that meets or exceeds all performance requirements while preventing permanent deformation (creep), reducing water permeability, and increasing resilience against physical damage and increasing useful life.

Technological Challenge/Risk: Building a hose that meets current performance (including strength and acoustic) requirements without sacrificing in some or all of the problematic areas (creep, toughness, useful life, water permeability) is extremely difficult.

Transition Program: Next Generation SURTASS

Topic Author: Robert Cutler

Topic Number: N221-027

Topic Title: Undersea Warfare Tactical Advantage Support Kit (TASK)

Technology Objective: Develop a capability that embeds hints for system usage within the Anti-Submarine Warfare (ASW) system to support proficiency and mission success.

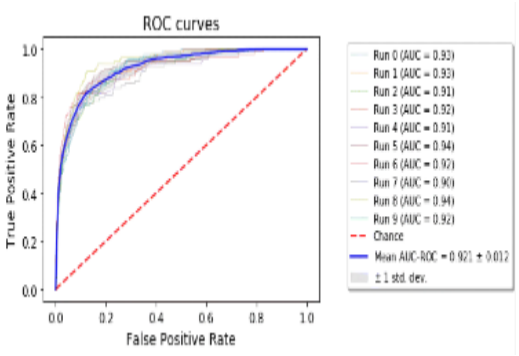
Technological Challenge/Risk: Maintaining ASW proficiency is challenging. Integrating an embedded assistant within heterogeneous combat systems poses unique challenges.

Transition Program: UYQ-100 (USW-DSS)

Topic Author: Meg Stout

NAVSEA SBIR/STTR

PEO IWS



Topic Number: N221-036

Topic Title: Exploitation of Ephemeral Features in Sonar Classification Algorithms

Technology Objective: Develop automated classification techniques that improve performance with ephemeral features in active and passive sonar systems.

Technological Challenge/Risk: Finding a way to exploit off-the-shelf classifier technology, have practical implementation and training procedures, and handle features that occur rarely or frequently.

Transition Program: USW-DSS

Topic Author: Meg Stout

Topic Number: N221-025

Topic Title: Advanced Technologies for Automated Replay and Reconstruction of Theater Undersea Warfare (TUSW) Mission Data

Technology Objective: Automate ability to replay Theater USW information across up to 180 days

Technological Challenge/Risk: Current processes to reconstruct Theater USW information are cumbersome. Seek architecture to support recording USW data across all combatants and automating reconstruction to support analysis.

Transition Program: USW-DSS

Topic Author: Chidambar Ganesh

NAVSEA SBIR/STTR

PEO IWS

Topic Number: N22A-T009

Topic Title: Sonar Dome Anti-Fouling Tracking and Prediction Tool

Technology Objective: Develop a capability to collect, analyze, and predict levels of Tributyltin Oxide (TBTO) in deployed sonar domes.

Technological Challenge/Risk: TBTO remains the only viable means of preventing biofouling on sonar domes. Developing a solution to track maintenance and predictions of TBTO efficacy.

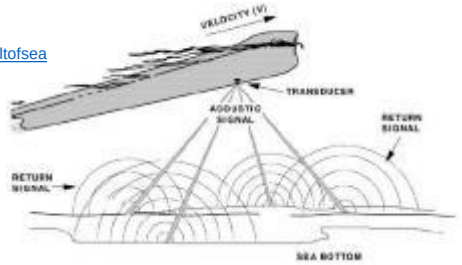
Transition Program: Stand alone tool for tracking TBTO data in radomes

Topic Author: Patric Lockhart

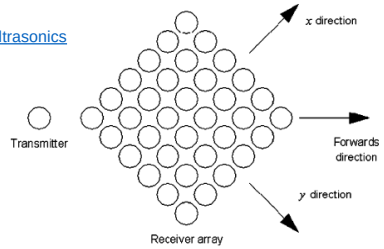
PEO IWS 6.0

NAVSEA SBIR/STTR
PEO IWS

source: cultofsea



source: ultrasonics



Topic Number: N221-046

Topic Title: Velocity-Over-Ground Sensor for Inertial Navigation System (INS) Error Reduction

Technology Objective: Develop a velocity-over-ground sensor capability that accurately and covertly measures velocity relative to the ground for surface and subsurface naval platforms.

Technological Challenge/Risk: Use of active sonar may be a covertness issue for lower frequency Doppler and Correlation Velocity Log (DVL and CVL) options. Ensuring positioning, velocity, attitude, and timing information is available to the warfighter to provide readiness and sustainment in surface and subsurface naval platforms is needed.

Transition Program: Navigation Systems

Topic Author: Kelly Prim

Topic Number: N221-050

Topic Title: Advanced Cyber Threat Hunting Toolkit for Deployed Tactical Platforms

Technology Objective: Develop an open architecture, modular cyber search, detection, attribution, and mitigation toolkit to directly support cyber threat hunt on tactical platforms

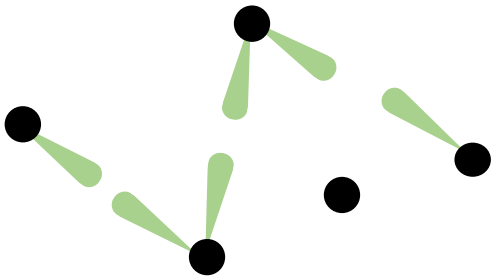
Technological Challenge/Risk: Traditional enterprise cyber technologies often cannot be employed within tactical control systems. Sophisticated adversary attacks create the need for custom advanced threat search and detection capabilities.

Transition Program: Navigation and Combat System cyber solutions

Topic Author: Thomas Lorenzen

NAVSEA SBIR/STTR

PEO IWS



Network with Single and Dual Beam Antennas

Topic Number: N221-035

Topic Title: Multi-Beam Antenna Scheduling Optimization

Technology Objective: Develop an algorithmic approach to optimally schedule transmit/receive communications in a command-and-control network using multi-beam antennas.

Technological Challenge/Risk: Some existing antennas are single beam, and network scheduling algorithms reflect that fact. Multi-beam antennas introduce the challenge of how to optimally schedule this more capable resource.

Transition Program: MACE FNC

Topic Author: Jay Fitzsimmons

Topic Number: N221-026

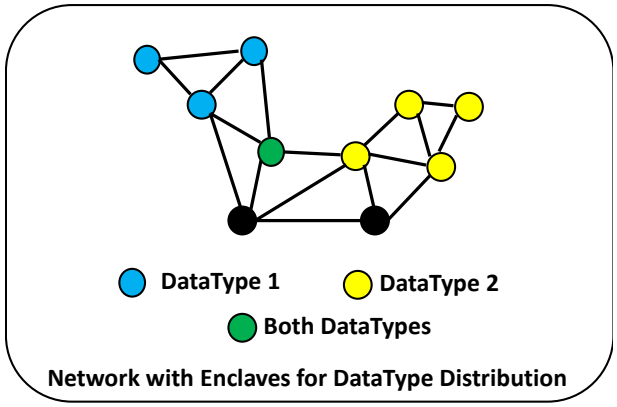
Topic Title: Automated Network Cluster Generation

Technology Objective: Develop an algorithm that automatically identifies clusters of nodes that should participate in specific information flows.

Technological Challenge/Risk: Existing command and control networks share all information across all nodes. A given level of throughput can only service a limited number of nodes. To increase the number of nodes (network size), a method is needed to define subsets of nodes (clusters) that need to transmit / receive certain information flows.

Transition Program: Clustering in Navy Program of Record Network

Topic Author: Jay Fitzsimmons

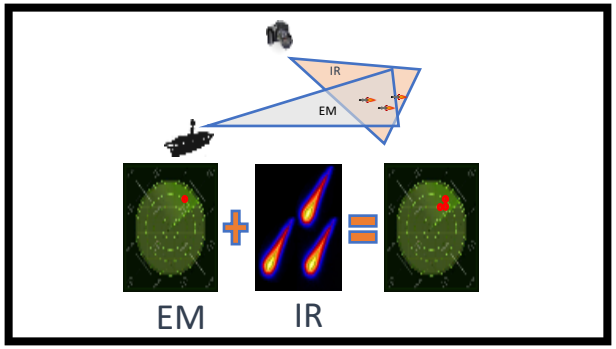


Network with Enclaves for DataType Distribution

PEO IWS 10.0

NAVSEA SBIR/STTR

PEO IWS



Topic Number: N221-061

Topic Title: Kill Assessment and Closely Spaced Object Resolution with Elevated Electro-Optic/Infrared (EO/IR)

Technology Objective: Develop an Electro-Optical/Infra-Red (EOIR) imaging system with capability to provide Kill Assessment (KA) and Raid Counting from an elevated position.

Technological Challenge/Risk: Developing a way to establish an off board sensor to obtain a perspective off board of threat complexes to increase resolution of closely spaced objects

Transition Program: Ship Self-Defense System (SSDS)

Topic Author: Tom Pilkerton

22.1/22A SBIR/STTR Topic Workshop

Jennifer Greenwood
SBIR/STTR Technology Manager
PEO USC Science and Technology

PEO USC Portfolio

Littoral Combat Ship (LCS)


LCS 2 Variant

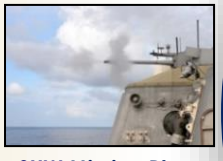

LCS 1 Variant


In-Service Support (Ships & Mission Packages)


LCS Training


MCM USV


MH-60


SUW Mission Pkg


MHUs


UISS


MQ-8 Fire Scout


MCM Mission Pkg


Knifefish


ASW Mission Pkg


AN/AQS-20


MCM 1 SMCM

Frigate


FFG 62

Foreign Military Sales


MMSC

Unmanned Maritime Systems


LUSV


MUSV


Sea Hunter



GHOST FLEET


LDUUV


XLUUV/AUP


RAZORBACK

Naval Special Warfare


High Speed Assault Craft


MK11 SDV


VAS and Small Arms

Expeditionary Missions


CREW & CUAS


Joint EOD


Underwater EOD


Anti-Terrorism Afloat


MMUBA

Mine Warfare


CDM


Hammerhead


Quickstrike


MH-53 AMCM


AMNS


ALMDS


Barracuda

MIW C2

AQS-24

COBRA

What We Are Looking To Fund

R&D to close technology gaps or overcome significant technical hurdles:

- Investigate applications of novel technical solutions/approached
- Demonstrate feasibility/viability of new capabilities
- Incremental improvements to existing capabilities
- Solve and mitigate obsolescence issues
- Moderate technical risk, early-stage development
- Potentially game-changing technologies

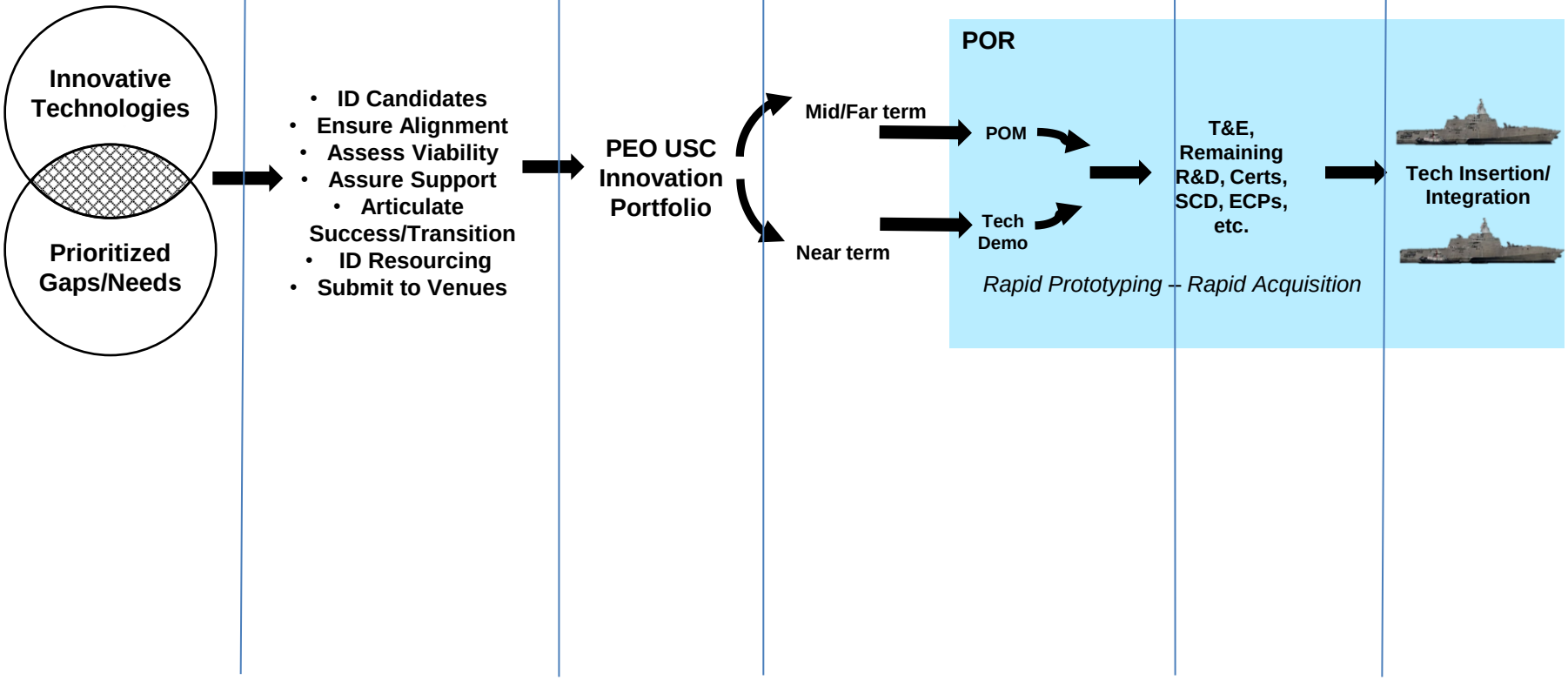
What We Are Not Looking to Fund

- Basic research (i.e., research with the primary goal of knowledge creation)
- Analytical or "market" studies of existing technologies or products/services
- Engineering solutions without innovation
- Projects where there is no strong chance of transition success

How to Participate

- **Step 1: Determine your firm's eligibility**
  - Review complete eligibility requirements in the SBIR Policy Directive – Chapter 6: Eligibility and Application (Proposal) Requirements
  - For SBA's Guide to SBIR/STTR Program Eligibility, please search for SBIR Eligibility at https://www.sbir.gov/ (You must use the search function on the top right had side of the page.)
- **Step 2: Find a Topic**
  - Review the current announcements at https://www.dodsbirsttr.mil/submissions/login to identify topics of interest. Be sure to review both the DoD Announcement Instructions and the agency-specific Instructions.
- **Step 3: Participate in the BAA Pre-release**
  - During the BAA pre-release period, communication between small businesses and topic authors is highly encouraged.
- **Step 4: Prepare Your Proposal**
  - All proposals are screened to determine responsiveness with submission requirements published in the DoD SBIR/STTR Program Announcement and instructions. Proposals that do not comply with the requirements are considered non-responsive and are not evaluated. Proposals that do comply with the requirements are evaluated by engineers and/or scientists to determine the most promising technical and scientific approaches.
- **Step 5: Submit Proposal**
  - All SBIR/STTR proposals must be prepared and submitted electronically through the DoD SBIR/STTR Electronic Submission website at https://www.dodsbirsttr.mil/submissions/ and in accordance with the program announcement.

Innovation Process



22.1 PEO USC SBIR Topics

N221-028 – Unmanned Harbor Piloting

- PMS 406, Unmanned Maritime Systems Program Office
- Develop an autonomous precision harbor piloting system that allows unmanned surface vehicles (USVs) to navigate safely within a channel, harbor, or strait without human intervention

N221-031–Distributed Mission Effectiveness and Readiness Management System

- PMS 515, Guided Missile Frigate Program Office
- Develop a distributed mission effectiveness and readiness management system data analytics tool to integrate FFG 62 Model Based Systems Engineering (MBSE and Model Based Product Support (MBPS) artifacts and/or data to present a mission effectiveness viewpoint of a single FFG 62 ship based on system readiness data.

22.1 PEO USC SBIR Topics

N221-032 – 3D Operator Decision Aides for Ship Control Systems

- PMS 515, Guided Missile Frigate Program Office
- Develop an automated operator decision aide capability for ship control systems that improves situational understanding through the use of a single 3D visualization system to reduce cognitive burden; enable and provide an aggregate viewpoint of system and platform health; and enable data-driven decision making.

N221-033 – Perception System for Situational Awareness and Contact Detection for Unmanned Underwater Vessels

- PMS-408, Maritime Expeditionary MCM Unmanned Undersea Vehicle
- Develop a sense and avoid perception system for unmanned underwater vessels (UUVs) to support the safe maneuvering and navigation in both the surface and the undersea domains.

22.1 PEO USC SBIR/STTR Topics

N221-059– Directional Acoustic Communications Transmitters

- PMS 406, Unmanned Maritime Systems Program Office
- Develop directional acoustic transmitters that can be scaled for use on medium, large, and extra-large unmanned undersea vehicles (UUVs).

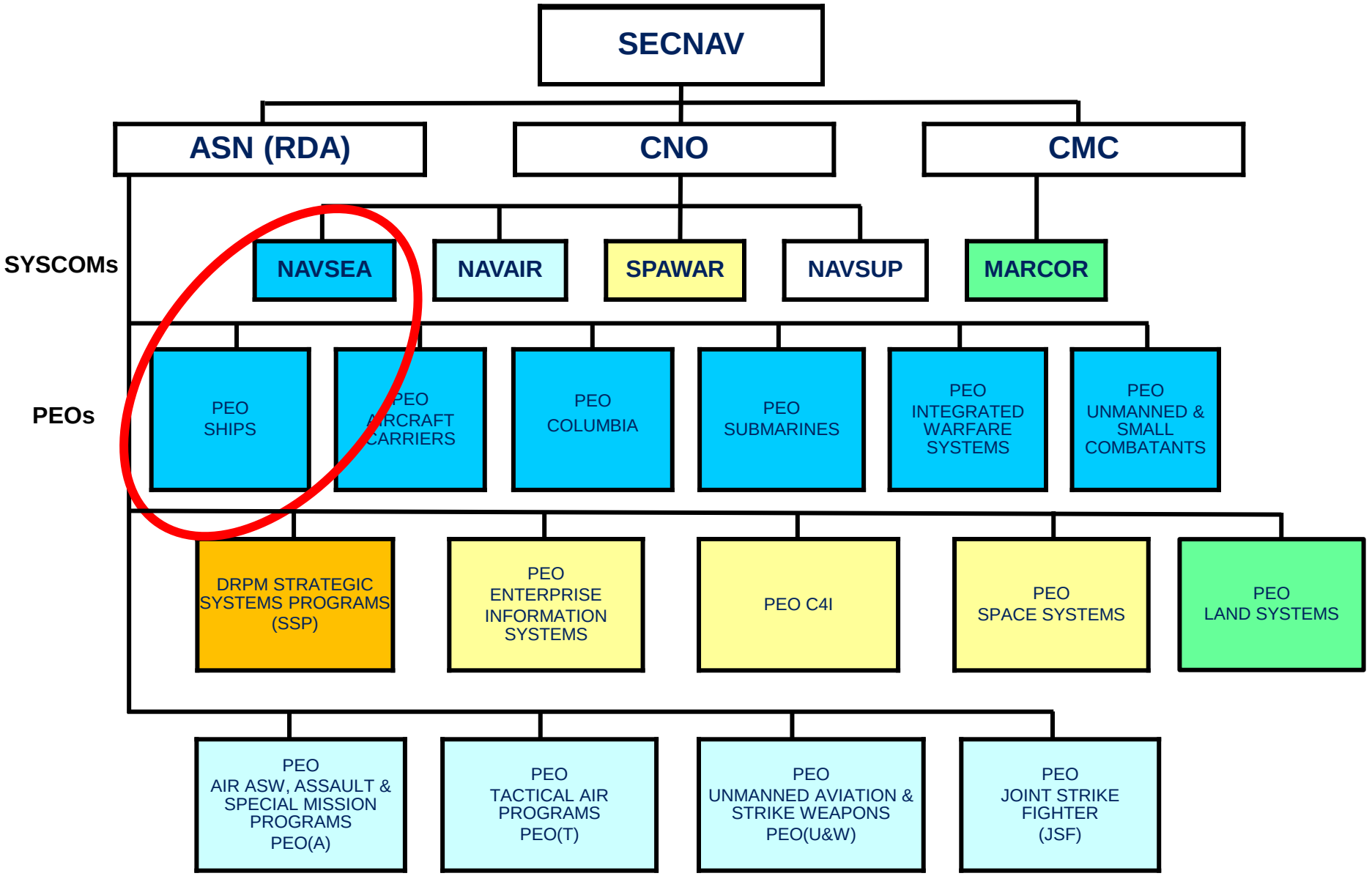
N22A-T012 – Survivable Minefield Mission Data Module (STTR)

- PMS-408, Both the Maritime Expeditionary Standoff Response (MESR) Family of Systems and Maritime Exp
- Develop a hardened data module that can withstand blast effects from detonation of underwater explosives while preserving accumulated mission essential data from Unmanned Undersea Vehicles (UUV) and Remotely Operated Vehicles (ROV) systems.

Resources

- The Small Business Administration has several local partners to train and support potential SBIR/STTR applicants.
  - https://www.sbir.gov/local-assistance
- SBIR/STTR solicitations and helpful resources.
  - https://sbir.defensebusiness.org
- DoD SBIR/STTR Innovation Portal (DSIP)
  - https://www.dodsbirsttr.mil
- Where to find information about DoN SBIR?
  - https://www.navysbir.com

Navy Program Executive Offices & Systems Commands



PEO Ships Overview

- Eight major program offices supporting the execution of:
  - (8) ACAT I, (2) ACAT II, (6) ACAT III, (3) ACAT IV, (4) pre-ACATs, (30+) non-ACAT

- 45 Battle Force Ships currently under construction or contract

SEA 21 Mission Overview

SEA 21 integrates sustainment and maintenance strategies, modernization plans, training needs, and technical, logistics, and programmatic efforts to best manage the lifecycle of U.S. and partner Navy surface ships and systems from fleet introduction through transfer or disposal.

International Fleet Support (PMS 326)
Provides support and follow-on technical assistance to foreign navies and coast guards, including management of the ship transfer process, ensuring effective and efficient execution of surface ship foreign military sales.

Surface Training Systems Program Office (PMS 339)
Leads and integrates planning, policy, acquisition, lifecycle management, research and development and technical insertion of existing and future surface training systems.

Surface Ship Modernization Program Office (PMS 407)
Leads and integrates policy, planning and execution of surface ship modernization through oversight of advanced planning of availabilities, integration of new technologies, and planning yard functions.

Surface Ship Readiness and Sustainment Program Office (PMS 443)
Provides lifecycle management, enabling surface ships to maintain operational readiness and sustain warfighting capability throughout their service life through development of programmatic, logistical, technical and engineering services and products.

LCS Fleet Introduction & Sustainment (PMS 505)
Integrates ship and mission package fleet introduction, logistics, training, modernization and maintenance strategies to deliver and sustain LCS combat capability to the fleet.

Inactive Ships Directorate (SEA 21I)
Manages the inactivation, storage, and disposal of conventionally powered U.S. Navy ships and craft that have reached the end of their service life.

Surface Ship Maintenance Engineering Planning Program (SURFMEPP)
Provides centralized lifecycle maintenance engineering, class maintenance and modernization planning, and manages maintenance strategies, ensuring all surface ships have an articulated, technically rigorous and engineered maintenance oversight process to achieve expected service life.

N221-034 - Combatant Craft Autonomy - Command & Control

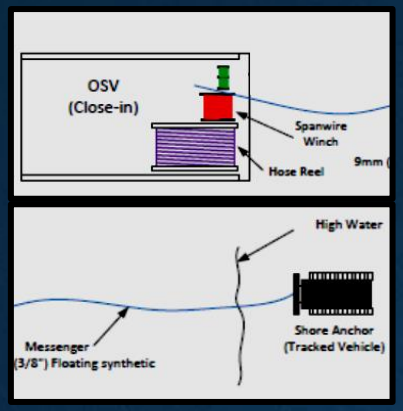
Develop autonomous capabilities to support combatant craft missions, such as high value unit escorts. Navy needs further development of sensors, perception software, and command and control systems before autonomous combatant craft can be suitable in operationally relevant scenarios.

Transition Program: PMS 300, Boats and Craft

N221-039 – Flexible Unmanned Vehicle Stowage System

Develop flexible stowage to accommodate different system configurations allowing future Unmanned Vehicle (UxV) missions to have a minimal impact to daily ship operations and optimize the use of shipboard space, minimize development costs, and standardize operations

Transition Program: PMS 377, LPD 17



N221-047 – Over The Shore Messenger Line Delivery System

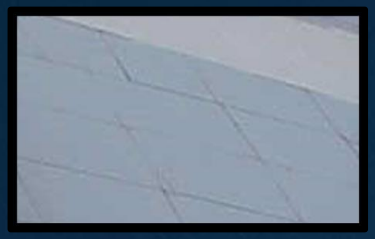
Over-the-Shore fueling capabilities are needed to support Expeditionary Advanced Base Operations. An unmanned over the shore fueling capability would eliminate the need to put personnel in surface craft at risk and would decrease the amount of time it takes to make a fuel hose connection from ship to shore.

Transition Program: PMS 325, Next Generation Logistics Ship

N221-048 – Well Deck Securing System for Landing Craft Utility

The conventional antiquated LCU shoring consists of wooden timbers, wedges, and nails. An innovative new securing system is needed to secure a 482 LT LCU in a well deck in conditions up to Sea State 8.

Transition Program: PMS 377, LPD 17



N221-049 – Radar Absorbing Material Maintainability Improvements

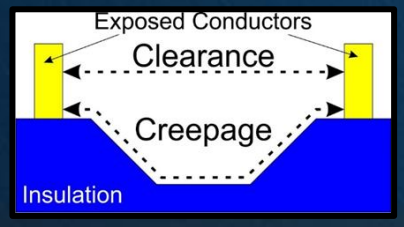
The DDG 1000 class was designed for stealth operation utilizing Radar Absorbing Material. Maintenance of RAM is an area of concern due to specialized work requirements. New maintenance and non-specialized installation procedures are expected to lower life cycle maintenance costs and increase supportability of RAM.

Transition Program: PMS 500, DDG 1000

N221-052 – Low Hazard Heat Pump for Distributed Cooling

Develop an affordable point-of-use water-to-water heat pump using a low hazard refrigerant or solid-state device. Navy seeks a new heat pump to support a distributed cooling architecture and topology where centralized chillers provide 67°F cooling water (instead of the 44°F chilled water).

Transition Program: PMS 460, DDGX



N22A-T011 – Shipboard Creepage and Clearance Analysis

Creepage and clearance are major drivers in power density of MV equipment. Clearance is the shortest "air" distance between two exposed conductors while creepage is the distance along insulation surfaces between two exposed conductors. The portable testing apparatus measurements shall enable the Navy to establish the optimal creepage and clearance requirements.

Transition Program: PMS 460, DDGX

PEO SUBS

FY22.1/A SBIR/STTR Topics

Team Submarine
PEO UWS, PEO SSN & PEO SSBN

Program Executive Office, Undersea Warfare Systems (PEO UWS)
★ RDML Ed Anderson ★
SEA 07

Program Executive Office, Attack Submarines (PEO SSN)
★ RADM David Goggins ★

Program Executive Office, Strategic Subs* (PEO SSBN)
★ RADM Scott Pappano ★

Executive Director (UWS-B)
Michael McClatchey

Executive Director In-Service Subs (SSN-C)
Michael Breslin
SEA 07B

Executive Director (SSN-B)
Lisa Radocha

Executive Director (SSBN-B)
Matt Sermon

- Chief of Staff (CoS)
  - Command Master Chief
  - Corporate Ops
  - ACIO
  - Strategic Communications
  - Chief Financial Officer
  - International Programs
  - Chief Development Office VACANT
- Director of Cyber Security
- Acquisition & Contracts
- PMS 401- Acoustic Systems
- PMS 404 - Undersea Weapons
- PMS 425 - Combat & Weapons Control
- PMS 415 - Undersea Defensive Warfare Systems
- PMS 435 - Electromagnetic Systems
- PMS 485 - Maritime Surveillance Systems
- PEO UWS Training and Readiness (PEO UWS TR)
- USE PIO
- 07Q - SUBSAFE, FBW & DSS
- 07L Logistics - In-Service PSM
- PMS 392 - In-Service Submarines: 688, 21, 22, 774
- PMS 390 - Undersea Special Mission Systems
- PMS 394 - Advanced Undersea Systems
- SUBMEPP
- PMS 450 - VIRGINIA Class New Construction
- SSN(X) SSN Next
- SUB 073 - Undersea Technology
- PMS 397 - COLUMBIA Class New Construction
- PMS 396 - In-Service SSBN, SSGN, SSBN Support & Infrastructure
- Director of Submarine Industrial Base (SIB) VACANT

LEGEND:
NEW
Matrixed to all PEOs
Realignment Move

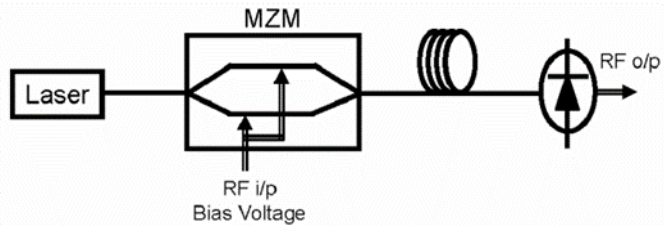
Topic Number: N221-045

Topic Title: Fiber Optic Cable for Radio Frequency (RF) Over Fiber Links

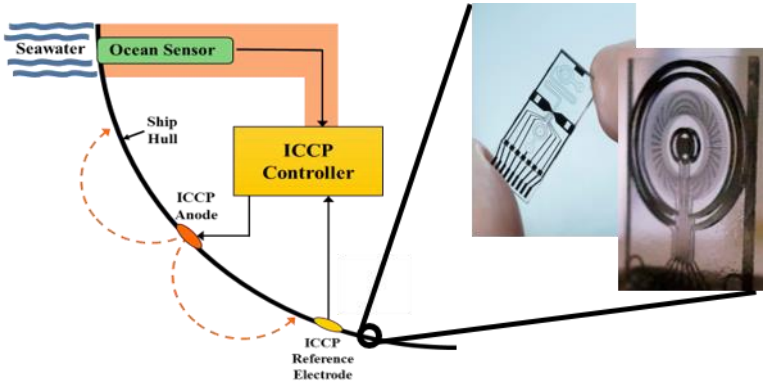
Technology Objective: Develop a military fiber optic cable for analog optical communication operating at no less than 45 GHz in air and sea platform fiber optic links.

Transition Program: PMS 397, PEO Columbia Class

Topic Author: Christopher Good, NSW CDD A31, Christopher.good@navy.mil



Source: NRL Report. Figure 1: Traditional unbalanced intensity modulation with direct detection photonic links employing a laser, Mach-Zehnder modulator (MZM), and photodetector. Polarization-maintaining optical fiber connects the laser to the MZM. A single core single-mode optical fiber connects the MZM to a single photodetector. RF i/p = RF input to the MZM. RF o/p = RF output from the photodetector. A bias voltage circuit sets the MZM operating point at quadrature



Topic Number: N221-060

Topic Title: Chip Scale Oceanographic Sensor

Technology Objective: Create a chip scale oceanographic sensor that can be integrated onto a ship or unmanned underwater vehicle hull to accurately measure ocean water chemistry in real-time.

Transition Program: PMS 397 PEO Columbia Class, PEO 450, PEO Virginia Class New Construction

Topic Author: Matthew Strom, U.S. Naval Research Lab, matthew.strom@nrl.navy.mil

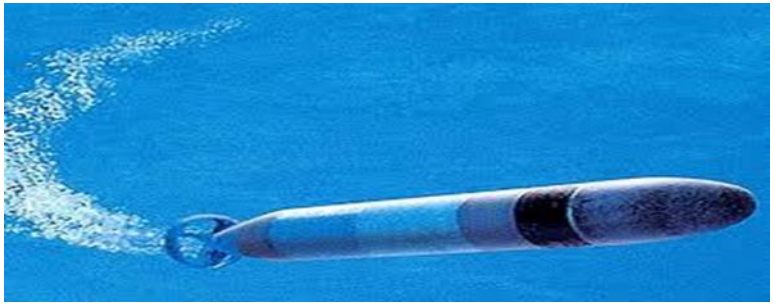
Topic Number: N221-057

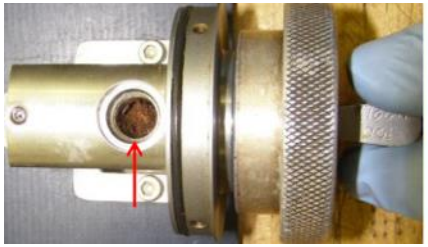
Topic Title: Alternative Power for Anti-Submarine Warfare (ASW) Targets

Technology Objective: Develop an alternate power source greater than 3.6 KWhrs in a 6 inch diameter by 30 inch length extended endurance section for the MK39 EMATT (Expendable Mobile Anti-Submarine-warfare Training Target).

Transition Program: PMS 404, Undersea Weapons

Topic Author: Vander Brito, NUWC Division Newport, Vander.Brito@navy.mil





Topic Number: N221-038

Topic Title: Navy Threshold Velocity Detector Redesign

Technology Objective: Develop a new threshold velocity detector that identifies two or more distinct velocities, uses little to no power, and reduces corrosion potential compared to the legacy device.

Transition Program: PMS 404, Undersea Weapons

Topic Author: Luke Orchardo, NUWCDIVNPT, luke.orchardo@navy.mil

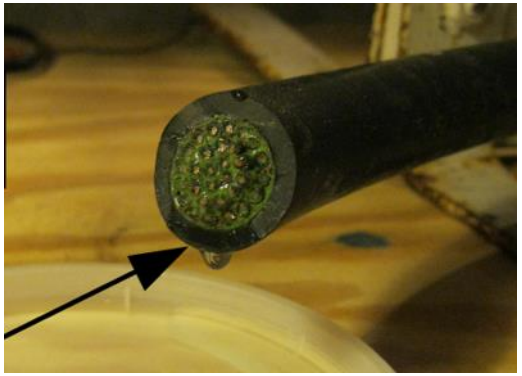
Topic Number: N221-066

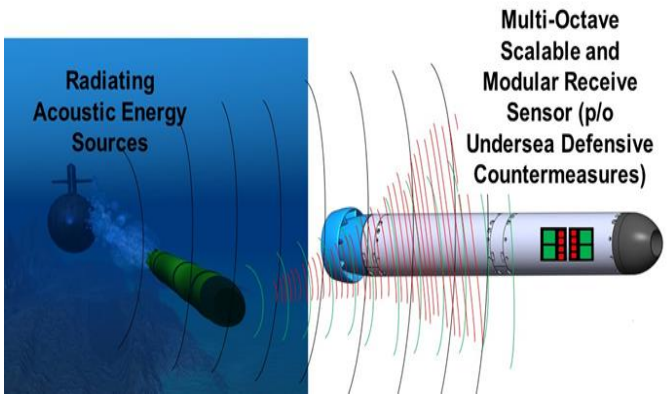
Topic Title: New Water-Blocking Chemicals/Materials for Zero Longitudinal Seawater Flow through Navy Outboard Cables

Technology Objective: Develop new outboard cable water-blocking chemicals/materials that prevent the longitudinal movement of seawater through a cable after the watertight integrity of the cable jacket or connector is breached (thereby allowing seawater to enter the interior of the cable).

Transition Program: PMS 415, Undersea Defensive Warfare Systems

Topic Author: Dr. Thomas Ramotowski, NUWCDIVNPT, thomas.ramotowski@navy.mil





Topic Number: N221-065

Topic Title: Low Cost, Small Form Factor Scalable Receive Array

Technology Objective: Apply innovative technology to develop a five-band compact Modular Expansive Spectrum Passive Receiver (MESPR) to address gaps in fielding passive sensor recognition and countermeasure algorithms.

Transition Program: PMS 415, Undersea Defensive Warfare Systems

Topic Author: Mark Minucci, NUWCDIVNPT C85, Mark.Minucci @navy.mil

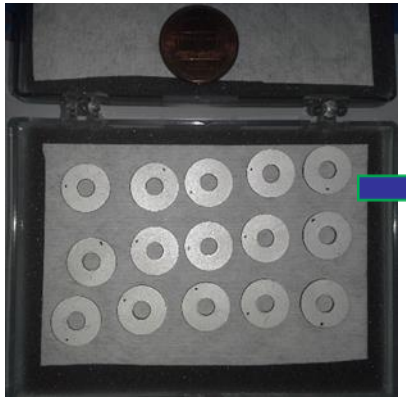
Topic Number: N221-058

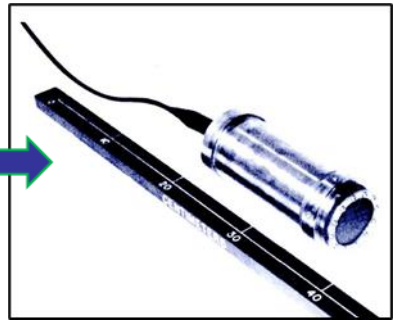
Topic Title: Electronic Warfare Human Machine Interface Training

Technology Objective: Develop a game-based, dynamic Electronic Support Measures (ESM) training prototype utilizing TI-20 AN/BLQ-10 automation, displays and capabilities to include realistic scenarios and environmental factors enabling stress-habituation.

Transition Program: PMS 435, Electromagnetic Systems

Topic Author: Jonathan Da Silva, PMS 435, jonathan.dasilva@navy.mil





Topic Number: N221-042

Topic Title: Advanced Piezoelectric Materials in Maritime Surveillance Systems

Technology Objective: Integrate recent advances of piezoelectric materials with increased sensitivity into robust deep water passive sensors, thereby enabling greater detection ranges and wider areas of surveillance coverage.

Transition Program: PMS 485, Maritime Surveillance Systems

Topic Author: Michael Zarnetske, NUWC, michael.zarnetske@navy.mil

NAVSEA SBIR/STTR
PEO SUB

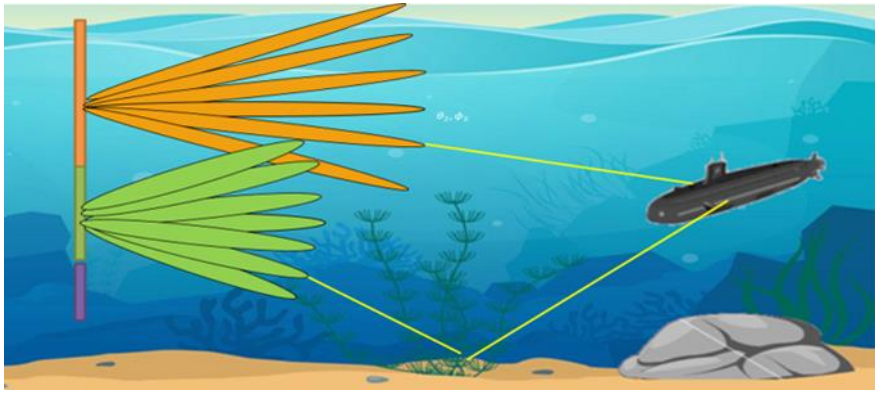
Topic Number: N221-056

Topic Title: Autonomous, Unmanned Avoidance of Active Acoustics Harassment of Marine Mammals

Technology Objective: Investigate and develop a conceptual design for a model prototype with a low-power, autonomous marine mammal harassment mitigation or avoidance capability during active sonar operations of unmanned, autonomous Deployable Surveillance Systems (DSS), whose feasibility is demonstrated using modeling and simulation (M&S).

Transition Program: PEO SUB PMS 485, Maritime Surveillance Systems

Topic Author: R. Katz and A. Johnson. richard.katz@navy.mil; anne.Johnson@navy.mil



Topic Number: N221-053

Topic Title: Multi-Aperture Vector Sensor Vertical Array Processing Enhancements to Reduce Operator Workload

Technology Objective: Develop automation technology to fuse together vector sensor multi-axis direction information with high-resolution multi-aperture/multi-frequency vertical sensor beams.

Transition Program: PEO PMS 485, Maritime Surveillance Systems

Topic Author: Christian Hempel, NUWCNPT Code 15, christian.hempel@navy.mil

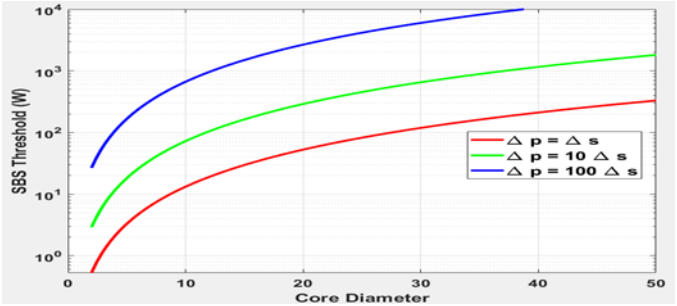
Topic Number: N221-063

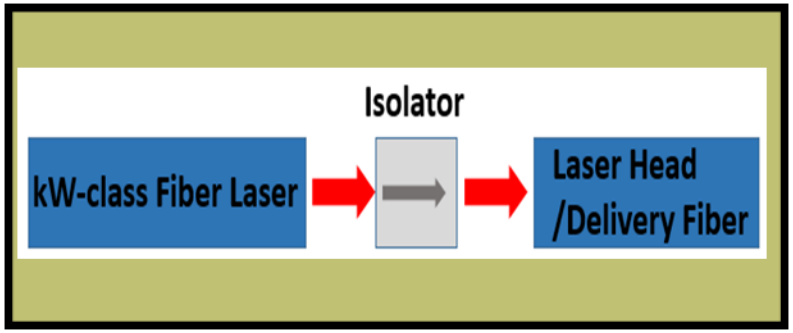
Topic Title: Nonlinear Mitigated Gain Fiber Development for KW-class Fiber Lasers

Technology Objective: Develop Stimulated Brillouin Scattering (SBS) mitigated rare-earth-doped fibers supporting the advancement of narrow-linewidth kW-class fiber amplifiers essential for future HEL weapons.

Transition Program: SUB073, Advanced Submarine Systems Development

Topic Author: Tariq Manzur; NUWC. tariq.manzur@navy.mil





Topic Number: N22A-T010

Topic Title: kW-Level Fiber Optical Isolator for Submarine High Energy Laser Amplifier

Technology Objective: Design and develop a compact and robust fiber optical isolator for kW-class fiber lasers/amplifiers.

Transition Program: SUB073, Advanced Submarine Systems Development

Topic Author: Dr. Tariq Manzur; NUWC, tariq.manzur@navy.mil

NAVSEA
Headquarters & Directorates
(HQ & DIR)

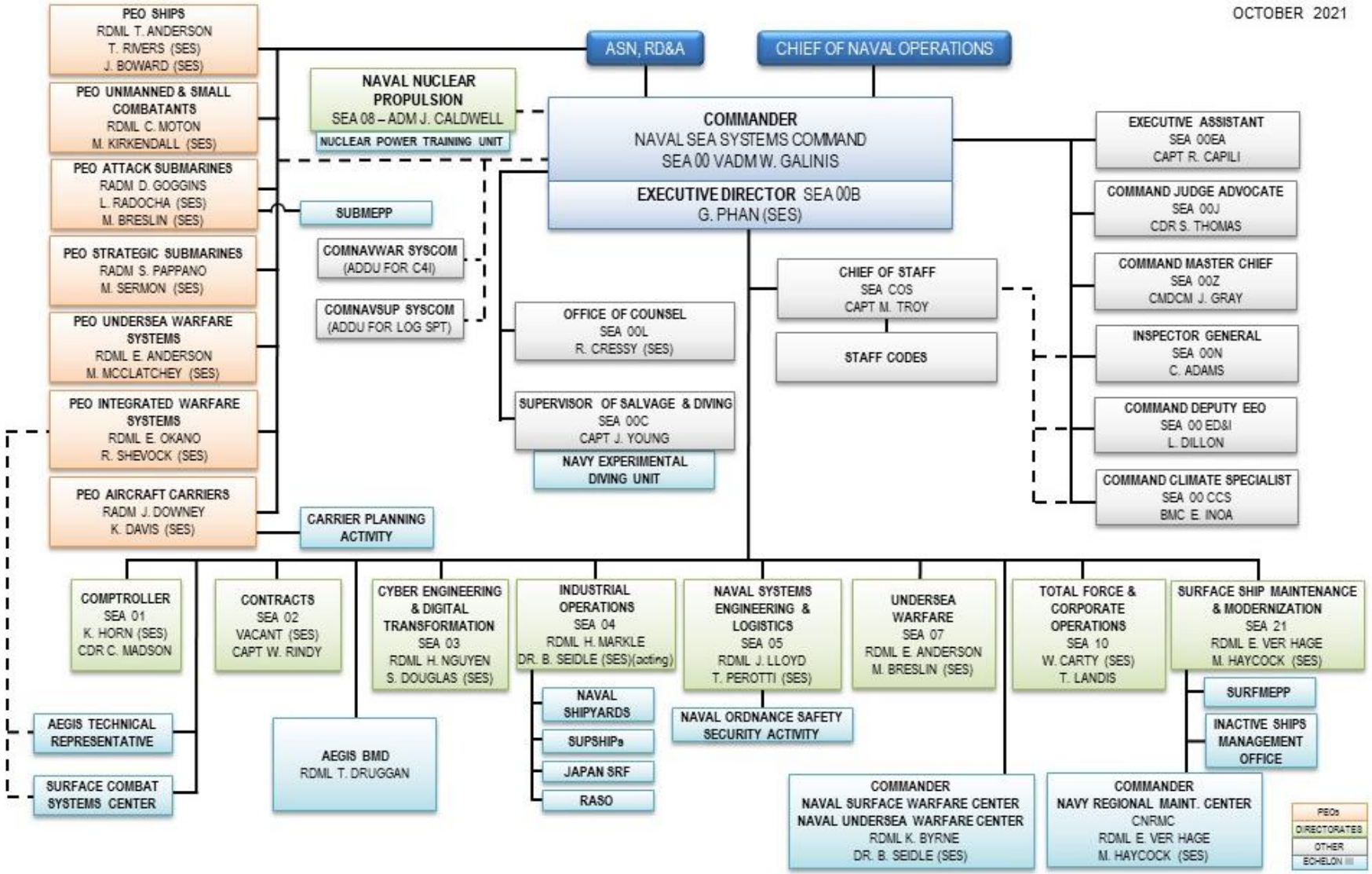
Ryan Blondino

SBIR/STTR Technology Manager

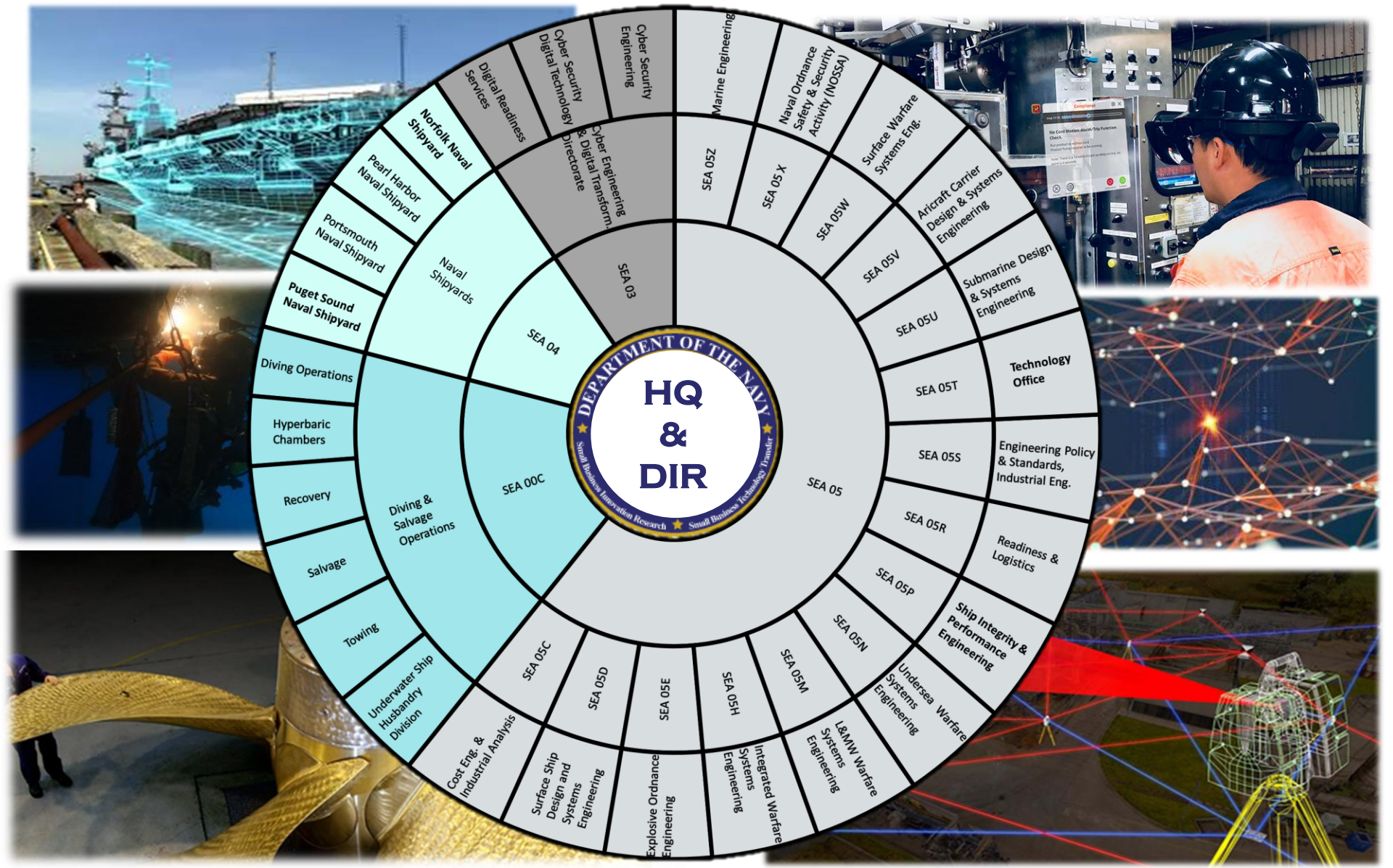
SEA 05T2

12/07/2021

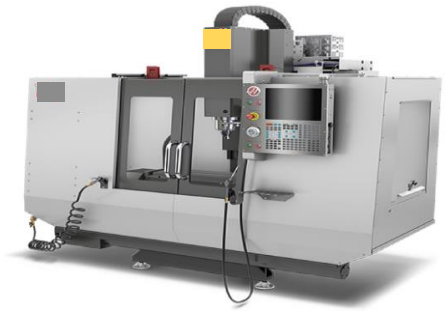
Command Leadership



HQ & DIR Stakeholders

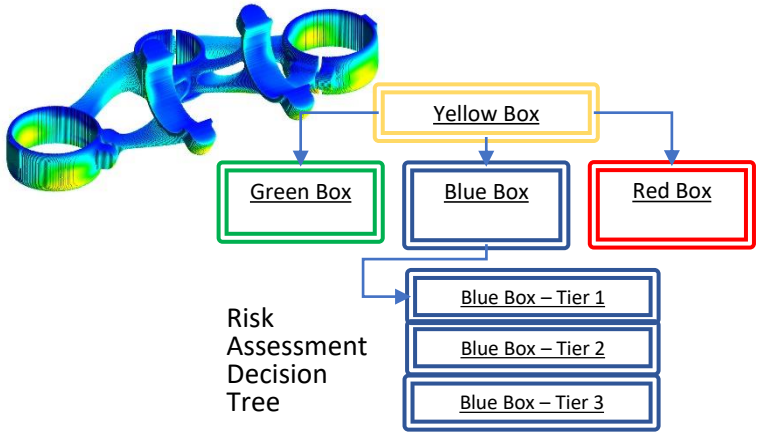


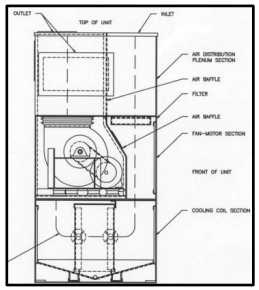
NAVSEA HQ & DIR - FY22.1 Topics

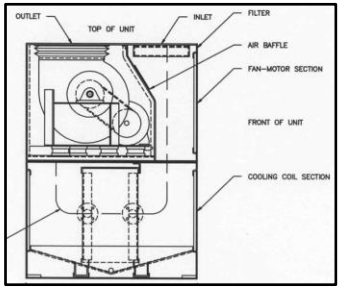


- **Topic Number:** **N221-194**
- **Topic Title:** **Shipboard Advanced Metal Manufacturing Machine**
- **Technology Objective:** Develop a shipboard, advanced metal manufacturing system for Navy expeditionary environments with a closed-loop feedback system adaptable to operational conditions.
- **Transition Programs: NAVSEA 05T1 (Additive Manufacturing Technology Office); Shipyards**
- **Topic Authors: Mr. Scott Storms and Mr. Lewis Shattuck**

- **Topic Number:** **N221-620**
- **Topic Title:** **Design for Additive Manufacturing (DfAM) Risk Toolset**
- **Technology Objective:** Develop a Design for Additive Manufacturing (DfAM) toolset that will enable additive manufacturing (AM)-specific design and manufacturing-driven risk analysis within a single user interface.
- **Transition Programs: NAVSEA 05T1 (Additive Manufacturing Technology Office);**
- **Topic Authors: Mr. Scott Storms and Mr. Lewis Shattuck**







- **Topic Number:** **N221-629**
- **Topic Title:** **Modernized Navy Fan-Coil Assembly**
- **Technology Objective:** Develop and demonstrate durable, long-life, modernized Fan-Coil Assembly (FCA), while reducing required motor horsepower, lowering noise levels, using less chilled water flow than legacy FCA units, maintaining or improving weight/volume requirements, providing greater standardization, and lowering overall life cycle as well as maintenance costs.
- **Transition Programs: Large Surface Combatant (DDG(X)), PMS 407, FERDP**
- **Topic Authors: Mr. Kyle Verrinder and Mr. Matthew Frank**

NAVSEA HQ & DIR - FY22.1 Topics

$$PER(t) = V_c\left(\frac{C_p(t) - C_p(t-\Delta t)exp(-\beta \cdot \Delta t)}{\Delta t\ exp(-\beta \cdot \Delta t)}\right)$$

Particle Emission Rate Formula from UL Standard for AM equipment particle emissions

- **Topic Number:** **N221-827**
- **Topic Title:** **Universal Environmental Controls for Additive Manufacturing Machines**
- **Technology Objective:** Develop and demonstrate innovative technology to mitigate or eliminate environmental effects on Additive Manufacturing (AM) machines, as well as the effects AM machines have on their environment, through the use of modular controls that can be implemented as needed to augment Commercial-off-the-shelf (COTS) AM equipment for Navy use. This can be achieved by integrating COTS and or custom hardware into AM equipment to support Navy environments.
- **Transition Programs: NAVSEA 05T1 (Additive Manufacturing Technology Office); Shipyards**
- **Topic Authors: Mr. Lewis Shattuck and Mr. Scott Storms**

- **Topic Number:** **N221-872**
- **Topic Title: Medium Voltage Direct Current Disconnect Switches**
- **Technology Objective:** Develop a family of disconnect switches and associated switchgear enclosures for 12 kV Medium Voltage Direct Current (MVDC) electrical distribution systems for naval combatant applications.
- **Transition Programs: PMS 320, Electric Ships Office**
- **Topic Authors: Dr. Norbert Doerry and Dr. John Amy**

Questions?