

## **Crane Regional Defense Group**

Featuring NSWC Crane: Spectrum Warfare Systems Department

Connect to Mission | February 7, 2023



### **Crane Regional Defense Group**

Citizen-led committee established through partnerships between chambers of commerce, county councils, financial institutions and local business leaders.

- 40+ members
- Frequent events and networking opportunities
- Serve on task forces and prioritize initiatives
- Constant collaboration with the installation and its leadership









**Congressional Reception** 

**Connect to Crane** 



2022 State of the Installation



**Key Leader Series** 



**Visit to Pentagon** 

### **AGENDA**

- Opening Comments: Dr. Angela Lewis, Technical Director
- · Spectrum Warfare Systems : Mr. Zahid Din (SSTM), Department Director
- Division Manager Panel: Mr. Roger Becker, Deputy Department Director
- Networking Break
- · Contracting Approach Panel: Ms. Nancy Maloy, Technical Acquisition Deputy
- Defense Technical Information Center (DTIC): Brent Ishizaki, Program Manager
- Technical Panel: Ms. Stacey Mervyn (SSTM), Navy's Distinguished Engineer for Advanced Electronic Warfare
- Closing Comments
- Networking: Join PRF for their First Tuesday Event!



# Dr. Angela Lewis

Technical Director, NSWC Crane



# Mr. Zahid Din (SSTM)

Department Director, Spectrum Warfare Systems



# **Connect to Mission Spectrum Warfare Systems Department**



CAPT Duncan McKay, USN Commanding Officer

Dr. Angela Lewis, SES Technical Director



Mr. Zahid Din, SSTM Department Director



### Multi-Domain/Multi-Spectral EW Workload

#### **Focus:**

On leveraging our technical capabilities as well as our multi-domain, multi-service, multi-spectral, full lifecycle knowledge and experience to provide innovative, leading-edge technical solutions for the rapidly changing threat environment.

#### **Product Areas:**

- Electromagnetic Warfare Science & Technology and Advanced EW Concepts
- Naval Integrated Fire Control Model Based Systems Engineering
- Infra-Red (IR) Countermeasure S&T, R&D, Design Flares/Chaff/Lasers
- Surface Electronic Warfare Systems and Off board Countermeasures
- Counter Radio Controlled Improvised Explosive Device Warfare (CREW) Systems
- Airborne Electronic Attack Systems
- Phased Array and Solid State Technologies
- Counter Unmanned Arial Systems

#### **Roles:**

- S&T
- Research and Development
- Design
- Modeling and Simulation
- System Engineering
- Test and Evaluation
- Threat Load Development

- In-Service Engineering
- Integrated Logistics
- Configuration Mgmt
- Sustainment
- Installations
- Fleet Support
- Software

Airborne Electronic Attack



Infrared Countermeasures
S&T/ R&D

Integrated EW/Fires SoS

NIFC

Counter IED & UAS

AN/SLQ-32(V)

AN/SPS-48

Shipboard Radar Technologies

Anti-ship Missile Defense



### **EW Mission Area Strategic Objectives**

Force Level Spectrum Expertise

- Non-KineticDistributed LethalityLong Range Fires
- EW System of Systems – Forward Fusion at the Tactical Edge
- Multi-Function Electromagnetic Warfare
  - Novel Disruptive / Offensive Non-Kinetic Payloads

Unmanned EWPayloads – DistributedOperations

Advanced Non-Kinetic
 MSO Threat
 Analytics

- Distributed EW Test& Evaluation
  - Advanced M&S of multi-spectral threats
  - Digital Sciences –
     Model Based
     Systems Engineering
     Model Based
     Product Support

Al Enabled Electromagnetic
 Warfare - Cognitive &
 Adaptive Electromagnetic
 Warfare Systems



NIWC-Pac/ NSWC DD

### **Division Manager Panel**

### Facilitated by: Roger Becker, Deputy Department Head



CAPT Duncan McKay, USN Commanding Officer

Dr. Angela Lewis, SES Technical Director



Mr. Zahid Din, SSTM Department Director

### Radar Technologies Division

Presented by: John Schofield, Division Chief Engineer



CAPT Duncan McKay, USN Commanding Officer

Dr. Angela Lewis, SES Technical Director



Mr. Zahid Din, SSTM Department Director



### **Technical Footprint**

#### Major Customers Supported

- NAVSEA
- NAVAIR
- NAVSUP
- Air Force
- Marine Corps
- Office of Secretary of Defense

#### Hardware Product Areas

- Radar/COMM/EW Systems
- Antennas/Active Electronic Steered Arrays (AESA)
- Microwave Components
- Power Supply Technologies
- Digital Technologies
- RF Solid State Technologies
- Software Defined Radio (SDR)

#### Warfare Center Technical Capabilities

- CR04 Electronic Warfare Systems
- CR15 Strategic Systems Hardware
- CR18 Advanced Electronics
- CR19 Sensors & Surveillance Systems



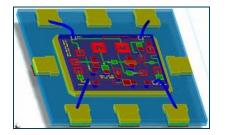
#### **Technical Workforce**

- 260 Government Employees
- 48% Scientists & Engineers



### Radar Technologies Division Primary Functions

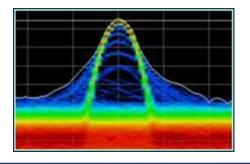




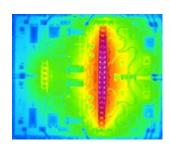




- Program Management
- Acquisition & In-Service Engineering
- Product Support Management
- Depot Support
- Fleet Support
- Modeling and Simulation
- Design & Development
- RF Test & Evaluation
- Technology Insertion/Refresh
- Industrial Base Analysis & Sustainment











Full Life-Cycle Support of RF Systems and Components



### **Connect to Mission**

### **Challenge Areas:**

- More workload opportunities than resources
- Attracting talent because of pay disparity with industry, geographic location, and inability to offer fully remote work

### **Facilities Constraints:**

- Very limited seating
- Laboratory Space
- Industrial Space
- Anechoic Chamber Space

#### **Talent Needs:**

- Business Professionals
  - Experience with DoD Programs and Processes
- Engineering- RF Sensors
  - Systems Engineering
    - Radar/EW/Communications Systems
    - DoD SETR
    - Test and Evaluation
    - MBSE
  - Electrical Engineering
    - RF/Digital/Power/Antenna
  - Mechanical Engineering
    - Mechanical and Thermal Modeling
    - Design
    - Environmental Testing
    - Radar Mechanical Stabilization
    - Materials and Corrosion prevention
- Electronics Technicians
  - AESA and Rotating Radar System Depot
  - Power Supply
  - Vacuum Electronic Devices
  - Solid-State Devices
  - RF Testing

### **Expeditionary Electronic Warfare Systems Division**

Presented by: Dave Kuhlman, Division Manager



CAPT Duncan McKay, USN Commanding Officer

Dr. Angela Lewis, SES Technical Director



Mr. Zahid Din, SSTM Department Director



### **Technical Footprint**

#### Major Customers Supported

- NAVSEA
- Marine Corps
- USSOCOM
- Air Force
- NISE 219
- DARPA
- ONR
- OSD

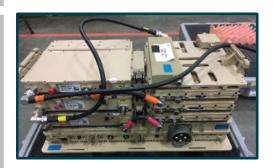


- Counter Radio-Controlled Devices
- Cyber/Electromagnetic Spectrum
- Applications for Electromagnetic Spectrum
- Advanced Electromagnetics Spectrum Concepts
- Advanced Technique Developments



- CR04 Electronic Warfare Systems
- CR15 Strategic Systems Hardware
- CR23 Force Level Electromagnetic Warfare Mission Analysis







#### **Technical Workforce**

- 184 Government Employees
- 66% Scientists & Engineers



# Expeditionary Electronic Warfare Systems Division Primary Functions



JCREW / DRAKE







- Acquisition & In-Service Engineering
- Product Support Management
- Depot Support
- Direct Fleet Support
- Sustainment and Capability Development
- Research & Development
- Test & Evaluation
- Systems Engineering
- Life Cycle Logistics
- Tech Insertion/Tech Refresh
- Science & Technology
- Cyber EW













### **Connect to Mission**

### **Challenge Areas:**

- More workload opportunities than resources
- Attracting talent because of pay disparity with industry, geographic location, and inability to offer fully remote work
- Unpredictability of funding/continuing resolution

### **Facilities Constraints:**

- Very limited seating
- Laboratory Space
- Collaborative Work Spaces

#### **Talent Needs:**

- Cyber EW
  - –Apps for EW
- Software Engineering
  - -Software Development
  - -Computer Engineers
- Engineering
  - -Systems Engineering
    - Test and Evaluation
  - -Electrical Engineering
    - RF Expertise
  - -Mechanical Engineering
- Electronics Technicians
  - –RF Test & Evaluation



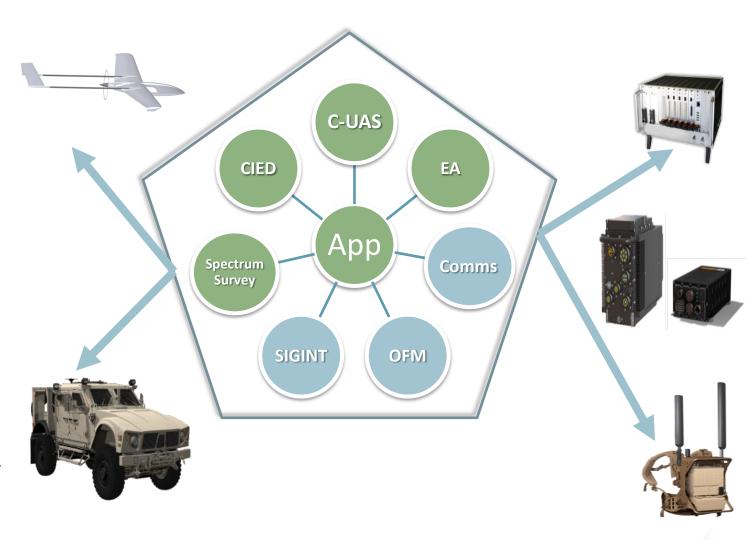
### **Apps for Electronic Warfare**

#### **Applications for EW:**

Multiple EW missions in single hardware solution

### SDR App Development Lab

- Software Defined Radio (SDR) Electronic Warfare (EW) focused multifunction application development environment
- The SDR App
   Development lab will
   provide a foundational
   ecosystem for advanced
   spectrum operations
- Enables dynamic mission applications, accelerated capability development, cyber applications, and low SWaP resilient hardware.



### Maritime Electromagnetic Warfare Systems Division

Presented by: Charles (Chuck) Fravell, Division Manager



CAPT Duncan McKay, USN Commanding Officer

Dr. Angela Lewis, SES Technical Director



Mr. Zahid Din, SSTM
Department Director
Mr. Roger Becker
Deputy Department Director



### **Warfighter Support**

### **Current Warfighter**

#### **Maintaining Readiness**

- In-Service Engineering
- Sustainment Engineering
- Software Support Engineering
- Fleet Modernization / Installations
- Fleet Readiness
- Product Support



# Maritime Electromagnetic Warfare Systems Division

- Surface Electronic Warfare Improvement Program (SEWIP)
  - AN/SLQ-32 & Decoy Launch Systems

### Next Warfighter

#### **Building the Future Force**

- Systems Engineering
- Acquisition Engineering
- Acquisition Logistics
- Accelerated Transitions
- Rapid Design & Prototyping
- LVC

### Warfighter After Next

#### **Innovation**

- Research, Development, Test and Evaluation
- Science and Technology Initiatives
- Partnering and Engagement
- Technology Transition to Fleet







### **Engineering Agent Activity**

(Relative to Acquisition Cycle)

#### Tomorrow

#### Technical **Direction Agent**

Concepts Architecture Alternative Approaches Interoperability Performance Specs System Safety Plan Initial CONOPs, TTPs Pre-Prod, Prod, First Article

Design Agent

Engineering Design, Proto Technical Data, Maintenan Program Management Plan System Safety Requirem

Systems Integration Agent aution to interface problems

Today

#### Acquisition **Engineering Agent**

Monitor Contractor Production Efforts Pre-Prod. Prod. First Article Testing Production Acceptance Testing Maintenance Engineering Training Plan Integrated Logistics Support Plan Data Management Product Baseline Parts Provisioning

#### In-Service Engineering Agent

Production Fielding Engineering Change Proposals Repair Facilities & Suppl apport Technical Ma riguration Management Plan

Production & Deployment Operations 8 Support Full Rate Production Decision FOC IOC Evaluation (OTBE)

Sustainment

Legend

Solution

Analysis

Material



echnology Maturation &

ngineering & Manufacturing

Development

Systems Acquisitions Milestone Decision

LRIP

= Major Review



### **MEW Warfare Systems Characteristics**

### "Legacy" Systems

- Hardware Based
- Deep Pool of Experienced Support Workforce
- Established Enterprise Sustainment Infrastructure
  - It is embedded in the culture
- Risk
  - Obsolescence Management
  - Workforce attrition

### "Next Generation" Systems

- Software Centric
  - Data & more data
- Support personnel must be capable in SW & HW
  - We are growing subject matter experts (SME)
- Emerging Technologies
  - RF over Fiber
  - Autonomous Operations
  - AI/ML
- Significant pressure to accelerate fielding and improvement planning.



### **Teaming Opportunities**

- Technical: Large Program of Record Engineering Agency Support
  - Systems Engineering
    - MEW and Combat Systems Interface
    - Test and Evaluation
    - Digital Engineering
  - Electrical Engineering
    - RF/Digital/Power
  - Mechanical Engineering
    - Mechanical and Thermal Modeling
    - Design
    - Environmental Testing
    - Materials and Corrosion prevention
  - Software / Computer Engineering
    - Networking / LVC / SSA
  - Installations Systems and process expertise
  - Fleet Readiness Global Support
  - Sustainment Operations

- Product Support is Huge: Critical skillsets and workload related to product support.
  - MBSE for better, faster systems engineering for full lifecycle management;
  - Data science and analytics to support the lifecycle / Maintenance tasking;
  - FMECA Development HW and SW
  - Configuration Management
  - Training development and maintenance
  - MBSE/MBPS integration and transition to the digital environment
     processes, best practices, strategies
- Other
  - Facilities
  - Obsolescence Management

### Airborne Electronic Attack Systems Division

Presented by: Mr. Chuck Young, Division Manager (Acting)



CAPT Duncan McKay, USN Commanding Officer

Dr. Angela Lewis, SES Technical Director



Mr. Zahid Din, SSTM Department Director



### **Technical Footprint**

#### Major Customers Supported

**Product** 

Areas

- NAVAIR (Multiple Program Offices)
- NAVSUP / DLA
- Army
- National Labs (NSA, DARPA, ONR, etc.)
- Office of Secretary of Defense

#### Electronic Attack Systems

- Antennas/Active Electronic Steered Arrays (AESA)
- Receivers / Exciters Communication
   Systems
- EW Threats and Techniques / Mission Engineering
- Radomes / Composites
- Test and Evaluation Systems
- Software Defined Radio (SDR)

#### Warfare Center Technical Capabilities

- CR04 Electronic Warfare Systems
- CR23 Force Level EW Mission Analysis





#### **Technical Workforce**

- 300 Government Employees
- 84% Scientists & Engineers



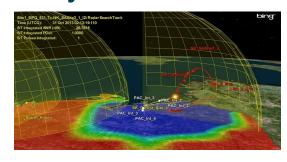
# Proposed Automotive and Control of Control o

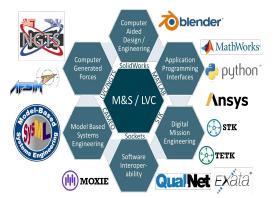


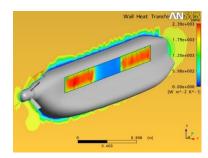


### **Primary Functions**

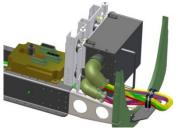
- Modelling and Simulation / MBSE
- Mission Engineering
- Systems Engineering
- Threat Analysis & Technique Dev
- Design / Development / Prototyping
- Program Management
- Logistics / Product Support Management
- Acquisition / Fleet Support Teams
- RF / Digital Test & Evaluation
- Technology Insertion/Refresh
- Radomes / Composites
- System Sustainment













28



### **Connect to Mission**

### **Challenge Areas:**

- Opportunity Rich Environment
- Attracting/retaining talent

### **Facilities Constraints:**

- Laboratory Space (Secure)
- Industrial Space (Secure)
- High Power Anechoic Chamber

#### **Talent Needs:**

- Business Professionals
  - Program Management
  - Experience with DoD Acq Programs and Processes
  - Logistics Analysts (Product Support processes)
- Engineering- RF / EE / Comp E / ME / Specialty (PhDs)
  - Data Analytics / Data Analysis
  - Modelling and Sim
  - -Mission Eng / Former EW Operators
  - -Software Eng (MATLAB, Python, C++, #, etc)
  - -EW / Communications Systems / Protocols
  - –DoD SETR / System Engineering
  - -Test and Evaluation / Automated Test Programs
  - RF and Electrical Engineering
  - Materials / Composites (Materials Eng)
  - Electronics / Mechanical Technicians
    - RF Testing
    - Avionics Electronic System and Mechanical Repair

### IR/RF Systems Technologies Division

Presented by: Josh Geary, Deputy Division Manager



CAPT Duncan McKay, USN Commanding Officer

Dr. Angela Lewis, SES Technical Director



Mr. Zahid Din, SSTM Department Director



#### **Technical Workforce**

- 103 Government Employees
- 59% Scientists and Engineers

#### **Main Areas of Expertise:**

- Infrared Countermeasure Design
   & Development
- Modeling & Simulation
- Acceptance Testing
- Field Test Support
- Countermeasures Dispensing Systems

#### **New Technical Areas Core to Future:**

- Laser based Countermeasures
- Optical Warfare
- RF-based Countermeasures
- RF Modeling and Simulation











### **Challenge Areas:**

More workload opportunities than resources

 Additional technical and programmatic support needed in Jacksonville, Pax River, and Huntsville

 Field test support needed at Camp Atterbury, White Sands, Yuma, China Lake, and Eglin

### **Talent Needs**



### **Current and Continuing Needs:**

- Ordnance Technicians to support pyrotechnic prototyping and testing
- Machinists and Model Makers
- Configuration Management and Project Support

### **Additional Future Needs:**

- RF Engineering
  - Design/Development
  - Modeling and Simulation
  - Testing
- Dispenser program support
  - Design Engineers
  - Logisticians
  - Program Professionals
- Optical Warfare S&Es

### **EMW S&T Division**

### Presented by: Christopher Crombar, Division Manager



CAPT Duncan McKay, USN Commanding Officer

Dr. Angela Lewis, SES Technical Director



Mr. Zahid Din, SSTM Department Director



### **Technical Footprint**

Major Customers Supported

- DARPA
- ONR
- PE0 IWS-C
- Office of Secretary of Defense
- STRATCOM

Warfare Center Technical Capabilities

- CR04 Electronic Warfare Systems
- CR10 Infrared Countermeasures and Pyrotechnic RDT&E and Life Cycle Support
- CR23 Force Level Electromagnetic Warfare

Project Cells

- Advanced Concepts Group
- Loki
- Force Level EW
- Liaisons

#### **EW Advanced Concepts Group**



- Development
- Test and Evaluation
- · Transition Support
- S&T Demonstrations



#### Force Level Electromagnetic Warfare

National Leaders in Force Level EW for Department of Defense: Influence EW Operational employment (Doctrine TTPs, CONOPs, CONEMPs) and create multi-domain and ful spectrum electromagnetic warfare solutions to provide the Electromagnetic Spectrum advantage.









#### **Technical Workforce**

- 53 Government Employees
- 92% Scientists & Engineers



### **Connect to Mission**

### **Project Areas:**

- AI/ML Programming
- Model Based Systems
   Engineering (MBSE) at
   System of Systems (SoS)
   level & Mission Engineering
- SDR (Loki)
- Tactics Techniques
   Procedures (TTP)

### **Facilities Constraints:**

- Very limited seating
- Laboratory Space
- Higher than Secret Space

#### **Talent Needs:**

- Engineering/Computer
   Science
  - Python
  - Java
  - Matlab
  - C, C++, C#
  - Cameo/SYSML
  - GNU Radio
- TTP
  - Tactical CONOPS
  - Threats
  - Background in Fleet Exercises
  - Tactical TTPs

## **CONNECT TO MISSION**

## **NETWORKING BREAK**



# **Contracting Panel**

Facilitated by: Nancy Maloy, Technical Acquisition Deputy



CAPT Duncan McKay, USN Commanding Officer

Dr. Angela Lewis, SES Technical Director



Mr. Zahid Din, SSTM Department Director

Mr. Roger Becker
Deputy Department Director

# **Defense Technical Information Center (DTIC)**

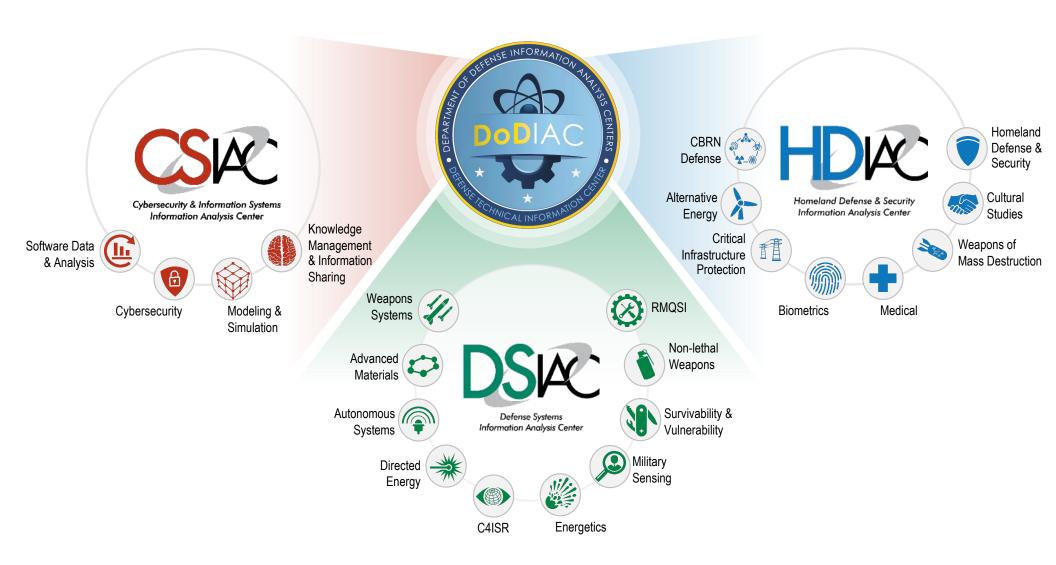
Brent Ishizaki, Program Manager, DTIC





# Advancing The State-Of-The-Art Across 3 Domains





Department of Defense Information Analysis Center (DoDIAC)

Eliminate REDUNDANCY | Foster COLLABORATION | Stimulate INNOVATION



# Buying R&D Services Made Easy



# Dedicated teams helping you easily navigate through each step of our streamlined acquisition process



An Indefinite Delivery Indefinite Quantity (IDIQ) Multiple Award Contract (MAC) for RDT&E services, other R&D-related analytical services, and development of doctrine, tactics or plans. Awarded 30 September 2018 with a nine-year ordering period and \$28B ceiling.

- No maximum ceiling, with PoP up to 5 years
- Rapid award (4.5 months from solicitation)
- Dedicated requirements support and contracting team

774<sup>th</sup> ESS Contractina

### Fast, Flexible, and Focused

To learn more visit us at: https://dodiac.dtic.mil/services



Requiring	Task Order	Projected	Estimated
Activity		Award	Value
NSWC Crane PMA-272	Research, Development, Test, and Evaluation (RDT&E) of Infrared/Radio Frequency (IR/RF) Systems Technologies for Naval Air Systems Command (NAVAIR) Advanced Tactical Aircraft Protection Systems Program Office (PMA-272) and Naval Surface Warfare Center, Crane Division (NSWC Crane) Spectrum Warfare Systems Department (WX)	1st Qtr FY24	\$40-\$50M

Requiring	Task Order	Date of	Awarded
Activity		Award	Value
NSWC Crane	Research, Development, Test, and Evaluation (RDT&E) of Radar and Electronic Warfare systems, subsystems, and interface equipment for Radar Technologies Division (WXP), Naval Surface Warfare Center (NSWC), Crane Division	21-Mar-21	\$109M

## Fast, Flexible, and Focused

To learn more visit us at: https://dodiac.dtic.mil/services

Department of Defense Information Analysis Center (DoDIAC)



# Visit us at https://DoDIAC.dtic.mil

#### Mr. Brent Ishizaki

Director, DoD Information Analysis Centers brent.ishizaki.civ@mail.mil Direct: 571-448-9721

#### Mr. Jared Dostal

Director, 774<sup>th</sup> ESS jared.dostal@us.af.mil

## **Technical Panel**

Facilitated by: Stacey Mervyn, SSTM



CAPT Duncan McKay, USN Commanding Officer

Dr. Angela Lewis, SES Technical Director



Mr. Zahid Din, SSTM Department Director

Mr. Roger Becker
Deputy Department Director



## **EW Mission Area**

National Leaders in Force Level EW for Department of Defense: Influence EW Operational employment (Doctrine, TTPs, CONOPs, CONEMPs) and create multi-domain and full spectrum electromagnetic warfare solutions to provide the Electromagnetic Spectrum advantage.

- National Defense Strategy, DoD EMS Superiority Strategy, CNO Navigation Plan, Distributed Maritime Operations, Expeditionary Advanced Basing Operations all call out the need for <u>distributed</u>, <u>integrated Force Level EW</u>.
- NSWC Crane provides Non-Kinetic Expertise for Electromagnetic Spectrum Dominance
  - Multi-domain, Multi-spectral, and Multi-service
  - Cognitive & Distributed Non-Kinetic System of Systems Solutions
  - Offensive and Disruptive Concepts and Technologies
- Strong Collaborative Partnerships across the Naval Research and Development Enterprise, Air Force Research Laboratories and Army Research Laboratories

"...develop an EMS enterprise that is fully integrated, operationally focused, and designed for great power competition. Future EMS capabilities must be able to perform, operate, and adapt in complex EMOEs. They must maintain interoperability with other systems and be capable of rapid software and hardware upgrades to remain relevant against the evolving near-peer threat." EMS Superiority Strategy 2020





# **EW Strategic Alignment Thrust Areas**

EW MISSION AREA GUIDANCE Leader in Innovation & Sustainment for Force Level EW Mission

Develop our Workforce as National Leaders in EW Transform to Be Agile and Leap Frog Near Peer Capabilities

Distributed transmit and receive

#### NATIONAL LEADERS IN ELECTROMAGNETIC WARFARE

AI/ML-enabled EMS system functions and data pipelines

**Multi-spectral EMS Capabilities** 

Integrated, multi-sensor EMS capabilities

**Unmanned and Off-Board EMS capabilities** 

**Scalable Electromagnetic Attack** 

Advanced communications/datalinks and EMS
Survivability

Real-time, closed-loop EMS Modeling and Simulation (M&S) and Test and Evaluation (T&E)

**Critical and Enabling EMS system components** 

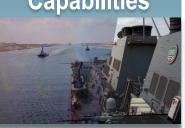
MISSION ENGINEERING



**APPS for EW** 



Advanced
Electromagnetic
Spectrum
Capabilities



EMSO Threat Intelligence/ Exploitation



CNO
NAVPLAN
NIF
Objectives

**Long Range Fires** 

**Terminal Defense** 

Naval Objective Architecture / Over<u>match</u>

Artificial Intelligence / Machine Learning

Counter C5ISRT

**Unmanned Capabilities** 

**Live Virtual Constructive** 

**Contested Logistics** 



## **Skillsets Needed**

- Artificial Intelligence Autonomous and Cognitive Algorithms
- Data Science
  - Big Data Analytics
  - Mathematicians/Statisticians
  - Predictive Analytics
- Mission Engineering System of Systems Engineering
  - Model Based Systems Engineering
  - Advanced Analytics of Non-Kinetic Effects
  - Modeling & Simulation
  - LVC
  - Operational Former Military Experience
  - Threat Analysis and Solution Formulation
- Model Based Product Support
  - Supportability Analysis and Sustainment Solutions
- Software Engineering, Software Development, FPGA, Networks
- Cyber Experience to include cybersecurity and RF Enabled capabilities
- Quantum Science

- Software Defined Technologies
   – scalable EW Systems
   Design
- Engineering
  - RF Engineers
  - Communications and digital signal processing experience
  - Hardware Engineers with understanding of Analog and Digital Circuits
  - Systems Engineers
- Test and Evaluation Experience
- Logistics
- Acquisition
- Fabrication Support
- Fleet and Installation Support
- Program Support
- Research and Development Support
- Program Management
- Repair, Production, Depot Support

## **CONNECT TO MISSION**

### **SAVE THE DATE**

Featuring NSWC Crane: Global Deterrence and Defense Department

TUESDAY, JUNE 6, 2023

WestGate Academy

