



## DE Systems Symposium 2017

Preliminary Agenda  
September 25-29, 2017

### Monday

#### 0800-1700

Short Courses at the Hyatt

1. Introduction to the DoD Test & Evaluation Process (0800-1200) *Regency IV*
2. Laser Deconfliction (0800-1200) *Regency V*
3. Systems Engineering for Directed Energy Systems (0800-1200) *Regency VI*
4. Active Denial Applications (1300-1700) *Spyglass I- Lower Level*
5. HPM Modeling and Simulation Tools for Test & Evaluation (1300-1700) *Spyglass II- Lower Level*
6. Modeling & Simulation Verification, Validation & Accreditation (1330-1730) *Regency IV*
7. Tools for Transitioning Technology (1300-1700) *Regency V*
8. Wargaming (1300-1700) *Regency VI*

1030-1200- PIBM Workshop with *Jack Slater* (free) in the *Oaktree- Lower Level*

\*Boxed Lunch Break 1200-1300

1730- Starshot Bidder's Briefing (*Bob Fugate*)

1800- HPM Invite-Only Session (*Mary Lou Robinson*)

1800- AIAA/DEPS DE Working Group (*Dr. Daniel Miller*)

### Tuesday Plenary

at NPS

0800-0810- DEPS Introduction (*Dan Marker/ Mark Neice*)

\*Order of presentations will be determined by Rank

0810-0920- SHIELD- *Richard Bagnell*

\*Break 0920-0940

0940-1050- HADES- *Dan Marker*

1050-1200- HELMTT- *Adam Aberle*

\*Lunch Break- 1200-1330 PM

1330-1440- Navy Laser Family of Systems (NLFoS) Overview – *Ron Flatley*

1440-1550- GBAD- *Jorge Hernandez*

**\*Break 1550-1610**

**1610-1720- HIJENKS-** *Ryan Hoffman & Don Shiffler*

**1800-** There will be an evening reception following the plenary session at the **Hyatt Regency Monterey Hotel**

### Wednesday AM

**0800-1000-** INTEL Brief (@ NPS- King Hall)

**1030-1300-** Poster Session

- 6 additional tables with a representative from each of the Plenary System Talks
- Set up will begin at 0800 AM

### Wednesday PM

#### System Trades (Chris Behre)

*at NPS*

**1330-** The AIAA/DEPS Directed Energy Systems Integration Committee (D) *Daniel Miller, Lockheed Martin Skunk Works*

**1400-** Mission Engineering and the Operational Aspects of HIJENKS

**1430-** High Power Microwave System Studies for Integration on Airborne Platforms

**\*Break (1500-1530)**

**1530-** SHIELD System Mission and Performance Analysis

**1600-** High Power Adaptive Directed Energy System (HADES) (D) *Jeffrey Barchers, Nutronics, Inc.*

**1630-** GBAD Beam Director Controls Architecture (D) *William Verbanets, L3- Brashear*

**1700-** Modeling and Design Methodology for the Development of Electro-Optical and Laser Weapon Systems (A) *Bryan Kelchner, Teknicare, Inc.*

**\*1730- Session adjourns**

#### Applied Beam Control Session (Harry Sinsheimer)

*at the Hyatt*

**1330-** Technology Transition Opportunities for the ABLE Beam Control System (D) *Dr. Robert Pawlak, NSWC*

**1400-** Progress Update on the Advanced Beam Control Demonstration (ABCD) (D) *Darren Forman, Nutronics, Inc.*

1430- Enhanced Tracking System (ETS) Performance Modeling (D) *Erin Tomlinson, MIT Lincoln Laboratory*

\*Break (1500-1530)

1530- Army Led HEL JTO TAWG Efforts in Support of HEL Weapons System Development (D) *Andy Hernandez, NPS*

1600- Comprehensive Overview of a HEL-JTO Sponsored Wavefront Sensor Study (D) *Mark Spencer, AFRL/RDLTS*

1630- Overview of DARPA/MTO Sea Hawk Coherent Fiber-Array Technology Development & Performance Evaluation in Field Experiments (D) *Mikhail Vorontsov, Optonicus*

1700- An Update on the Beam Control Technology Assessment Report (D) *David Loomis, DNL Consulting*

\*1730- Session adjourns

### Laser Maturation (Nicholas Morley)

*at NPS*

1330- Overview of laser source development at the Air Force Research Laboratory/ Directed Energy Directorate/ Laser Division (D) *David Hostutler, AFRL*

1400- The 60 kW RELI SBC-F Laser for the US Army High Energy Laser Mobile Test Truck (D) *Dr. Eric Honea, Lockheed Martin Laser and Sensor Systems*

1430- Advancements in a Rugged Compact Laser for the SHIELD ATD

\*Break (1500-1530)

1530- Recent Progress on High Power Fiber Lasers (A) *Scott Christensen, IPG Photonics*

1600- Multi-kW, Beam Combinable, All-Fiber Amplifiers (D) *Angel Flores, AFRL*

1630- Development of the VIPER Laser (D) *Philip Peters, NAVAIR China Lake*

1700- High Temperature Operating Diode Pumps for Lowering SWAP of High Energy Laser Systems (A) *Manoj Kanskar, nLight, Inc.*

\*1730- Session adjourns

### HEL Weapon System Development - Background and Context (Douglas Nelson)

*at NPS*

1330- Protecting South Korean Civilians from an Artillery Barrage: Mission Potential for High Energy Laser Systems (A) *Matthew Leigh, Joint Directed Energy Transition Office (DE JTO)*

1400- Status of International DEW Collaborations (A) *LeAnn Brasure, Schafer Aerospace (supporting DE JTO)*

1430- Real-time system performance assessment from local meteorological conditions (D) *Kevin McBryde, SPAWAR Systems Center Pacific*

\*Break (1500-1530)

1530- Dual-beacon differential image motion monitor for measuring atmospheric turbulence for ground-to-air slant path propagation (A) *Daniel Whitley, Kratos Defense*

1600- Method and results from characterization of atmospheric properties with small unmanned aircraft systems (sUAS) on Santa Rosa Island, Florida (D) *Alex Clark, Kratos Defense*

1630- Anchoring Turbulence Profile Models using Boundary Layer Measurements from CABLE/TRAX (D) *Dr. Steve Hammel, SPAWAR Systems Center Pacific*

1700- Deployment of Turbulence Characterization Systems (D) *Dr. Matthew Whiteley, MZA Associates Corporation*

\*1730- Session adjourns

1745- DE2DC Info Meeting (*Cindy Kaiser*)

1800- AIAA/DEPS DE Working Group (*Dr. Daniel Miller*)

1900- DEPS Board Dinner Meeting

## Thursday AM

(Mark Henderson)  
*at NPS*

### *Lessons Learned*

0800- CHAMP Lessons Learned (D) *Bob Torres, AFRL/RDMP*

0830- GBAD Beam Director - Mid sized - Ruggedized - and Agile (D) *Jeff Maloney, L3-Brashear*

0900- SHIELD System Aircraft and Pod Integration (D) *Dr. Theodore Ortiz, AFRL*

0930- Predictive Avoidance for Directed Energy On The Move (D) *Cassandra Robison, NSWCCD*

\*Break (1000-1030)

### *Ancillary Functions*

1030- Ground Based Air Defense (GBAD) Directed Energy (DE) On-the-Move (OTM) Volume Surveillance Segment (D) *Jonathan Scroggins, Navy*

**1100-** Collateral Damage Estimate Methodology in Support of Self-protect High Energy Laser Demonstrator (SHIELD) (D) *Dr. Semih S. Kumru, AFRL 711 HPW/RHDO*

**1130-** Laser Aircraft Strike Suppression Optical System: LASSOS (A) *Richard Westhoff, MIT Lincoln Laboratory*

**\*Lunch Break (1200-1330)** with Guest Speaker, *Dr. David Stoudt (Booz Allen Hamilton)* discussing this year's Directed Energy Summit.

### Applied Beam Control (Arthur Hassall)

*at the Hyatt*

**0800-** Tiled Vs. Filled Phase Compensation: A System-Level, Deep-Turbulence Study (D) *Mark Spencer, AFRL/RDLTS*

**0830-** Using AAOL for End-to-End Engagement Testing, AAOL-BC (A) *Eric Jumper, University of Notre Dame*

**0900-** Aero-Optical Fixed Wing Demonstrator (AeroFWD) Program (D) *Matthew Whiteley, MZA Associates Corporation*

**0930-** Ultra-Sensitive Fast-Framing LADAR SWIR Camera (FLSC) (D) *Matthew Thomas, Raytheon Vision Systems*

**\*Break (1000-1030)**

**1030-** Dynamic Acquisition For HEL Integration (D) *Evan Threlkeld, AFRL*

**1100-** Aero-Effects Mitigation for the SHIELD ATD (D) *Donald Wittich, AFRL/RD*

**1130-** Beam Control System Development for the SHIELD ATD (D) *Arthur Hassall, AFRL/RDLT*

**\*Lunch Break (1200-1330)** with Guest Speaker, *Dr. David Stoudt (Booz Allen Hamilton)* discussing this year's Directed Energy Summit.

### Wargaming (Ryan Carn)

*at NPS*

**0800-** Navy Laser Simulation Experiments - For the Warfighter, By the Warfighter

**0830-** Hybrid Defense of Restricted Airspace (HyDRA) Study, Increment 1 Results

**0900-** Hybrid Defense of Restricted Airspace (HyDRA) Study, Increment 2 Tradespace

**0930-** Futures Analytical Science and Technology (FAST) Series, Air Base Air Defense (ABAD) Wargame

**\*Break (1000-1030)**

**1030-** Future Air Dominance Challenge Problem (FAD) (D) *Jim Sewell, AFRL/RDMW*

**1100-** Advanced Concept Experiment 2017 (ACE 17)

## 1130- MENACE II Engagement/Mission Scenario Modeling

\*Lunch Break (1200-1330) with Guest Speaker, *Dr. David Stoudt (Booz Allen Hamilton)* discussing this year's Directed Energy Summit.

### Power and Thermal (Fernando Rodriguez)

*at the Hyatt*

0800- High-Power Adaptive Directed Energy System Power and Thermal Management Size, Weight and Power Analysis (D) *Fernando Rodriguez, AFRL*

0830- HADES SWaP Analysis and Comparison with Pumped Two-Phase Cooling (A) *Joseph Marsala, The Durbin Group*

0900- Modeling and Simulation Codes for Laser Architecture Analysis and Systems Integration (CLAASI) and Size, Weight, and Power (SWaP) Modeling (D) *Zachary George, Schafer Corporation*

0930- Pumped Liquid Multiphase Cooling

\*Break (1000-1030)

1030- Powering Directed Energy Systems in Ground Vehicles (D) *Cassandra Robison, NSWCCD*

1100- Process and lessons learned from the design, analysis, fabrication and testing of High Energy Laser Chilled Water System (HEL CWS) (A) *Alex Clark, Kratos Defense*

### *Lethality/ Vulnerability*

1130- Vessel Incapacitating Power Effect Radiation System and Program Summary, Requirements, and Strategy

\*Lunch Break (1200-1330) with Guest Speaker, *Dr. David Stoudt (Booz Allen Hamilton)* discussing this year's Directed Energy Summit.

## Thursday PM

### Policy (Chris Behre)

*at the Hyatt*

1330- DE Weapons Policy: Background, Progress, and Key Factors (A) *Jesse Bourque, OUSD Policy*

1400- Joint Laser Systems Effectiveness Joint Test Overview (A) *Chris Lloyd, NSWC Dahlgren Division*

1430- Re-Issuance of DoDI 3100.11 Management of Laser Illumination of Objects in Space (A) *Christopher Behre, NSWC Dahlgren Division*

\*Break (1500-1530)

**1530-** The Joint Laser Deconfliction Safety System (JLDSS) Phase 1 and 2 (D) *James Latourell, NSWC Dahlgren Division*

**1600-** USSTRATCOM Special Use Range Process (D) *Lt Col Doug Hale, USSTRATCOM Space and Missile Defense Division*

**1630-** The High Energy Laser Joint Technology Office: A Historical Perspective (A) *Dr. Lawrence Grimes, Joint Directed Energy Transition Office (DE JTO)*

**1700-** Next-Generation Non-Lethal Directed Energy Weapons - JNLWD FY17/18 Project Updates (A) *David Law, Joint Non-Lethal Weapons Directorate*

**\*1730-** Session adjourns

**Test and Evaluation (Edward Trzcienski)**  
*at NPS*

**1330-** SHIELD Flight and Ground Test Program

**1400-** T&E Diagnostics for DE/HEL Weapons Systems Effectiveness (D) *Steven Alderete, Joint Directed Energy Transition Office (DE JTO)*

**1430-** Initiation of Metrology and Calibration (METCAL) Support to DoD Directed Energy Efforts (A) *Dr. Subrata Sanyal, NSWC Corona Division*

**\*Break (1500-1530)**

**1530-** Simplifying Accurate Measurements of High-Power Laser Emission by Using Radiation Pressure (A) *Paul Williams, National Institute of Standards and Technology*

**1600-** Big Area Target System (BATS) for HEL System Testing (D) *David Ward, SemQuest Inc.*

**1630-** HELMTT Laser Diagnostics Compared to Analysis for RTC 3 Feb 2017 (D) *Theron Henderson, Scientic Inc.*

**1700-** Experimental Process and Initial Direct Measurement of High Energy Laser for Intensity and Phase Parameters at the Aperture to Support Accurate Field Measurements (D) *Maj James Bowers, AFIT Center for Directed Energy*

**\*1730-** Session adjourns

**Lethality/ Vulnerability (Robert Roybal)**

at NPS

1330- Lethality Efforts Supporting Navy HEL Programs

1400- HEL Effectiveness Against Small Boat Threats (D) *Dr. Jang Park, NSWCCD*

1430- GBAD Target Vulnerability Test Results (D) *Emily Nugent, NSWCCD*

\*Break (1500-1530)

1530- Preliminary Results of HEL vs Missile Components Testing

1600- SHIELD Lethality and Vulnerability Analysis

1630- An Alternative Mechanism for the Defeat of Airborne Anti-Armor Threats

1700- Navy Support to the US/UK Effects of High Energy Lasers Project Arrangement (EHEL PA) (D) *Chris Von Hohenleiten, NSWCCD*

\*1730- Session adjourns

HPM (Mary Lou Robinson)

at NPS

1330- Compact 1200 MW Solid State HPRF System

1400- Summary of Far Field Radiation C-IED Efforts at NSWCCD

1430- Improved Approach for Using Far Field Radiation for IED Defeat

\*Break (1500-1530)

1530- HIJENKS Target and Preliminary Effects Results

1600- Brassboard Driver Development at NSWCCD (D) *John Krile, NSWCCD*

1630- High Power Microwave Source Design and Testing (D) *Michael Lambrecht, AFRL Directed Energy Directorate*

1700- Exploring Recuperation Time (A) *Dion Smith, Booz Allen Hamilton*

\*1730- Session adjourns

Friday AM

**Closing Plenary Session-** each chair or assignee will present a 15-minute summary of their session. Will conclude by [1100](#).