Monday Feb. 26

0800-1700

Short Courses at the Embassy Suites

1. Introduction to HEL Systems (0800-1200)
2. Introduction to HPM Systems (0800-1200)
3. Introduction to Beam Control (0800-1700)
4. Introduction to Tri-Service Lethality Science (0800-1700)
5. Beam Directors 101 (0800-1700)
6. Atmospheric Laser Propagation (1300-1700)
7. Thermal Management Technologies (1300-1700)
8. HPM Modeling & Effects (1300-1700)

*Boxed Lunch Break 1200-1300

Tuesday AM- Feb. 27

0800- Welcome from Mr. Mark Henderson, NAWC CL, Program Committee Chair
0815- NSWC PHD- Mr. Paul Mann, Technical Director, NSWC, Port Hueneme Division (Confirmed)
0845- Army SMDC- Mr. Thom Webber, Tech Center Director (Invited)
0915- AF SDPE- Mr. Thomas Lockhart, Director (Invited)

*Break (0945)

1015- JNLW- Ms. Susan Levine, Principal Deputy for Policy and Strategy, JNLWD (Confirmed)
1045- JNLWD- Mr. David Law, Chief Scientist, JNLWD (Confirmed)
1115- DE JTO- Dr. Larry Grimes, Director, Joint Directed Energy Transition Office (Confirmed)

Tuesday PM

BC- Adaptive Optics Technology (Sean Cutchins)
At the Embassy Suites

1330- Using the MACS Wave Optics Code to Assist HELWS Design (D) Donald Link, Radiance Technologies
1400- Polychromatic Speckle Mitigation for Shack Hartmann Wavefront Sensors (D) Noah Van Zandt, AFRL/RDLEM

1430- An In-Depth Overview of Phased Array Research at AFRL (D) Mark Spencer, AFRL/RDLTS

*Break (1500-1530)

BC- Acquisition & Tracking (2nd Lt Evan Threlkeld)
at the Embassy Suites

1530- Interferometric Radar Results from MEHEL (D) Amanda Clark, USASMDC/ARSTRAT

1600- Acquisition Sensor Technologies for Operation in Adverse Weather Environments (D) Greg Finney, IERUS Technologies

1630- DAFHI: Validating TacSim (D) Evan Threlkeld, AFRL

1700- MWIR/LWIR Thermal and Polarization Signatures of UAS and Mortars (D) Joseph Pezzaniti, Polaris Sensor Technologies

*1730- Session adjourns

1730- Evening exhibitor’s reception at the Embassy Suites

Next-Generation Non-Lethal Directed Energy Weapons (Dave Law)
at the Embassy Suites

1330- A Compact 90kW, 95 GHz High Efficiency Gyrotron System with a Non-Superconducting Magnet (A) Jagadishwar R. Sirigiri, Bridge12 Technologies

1400- High Power w-band Sheet Beam Devices (A) John Pasour, Electronic Science & Technology Division, US NRL

1430- Next-Generation Active Denial Technology Portfolio Update (A) Randy Woods, NSWC Dahlgren Division

*Break (1500-1530)

Key Transforming Non-Lethal Directed Energy Weapon Subsystems and Components (Dave Law)
at the Embassy Suites


1600- JNLWD ADT Tech Development Efforts (includes ADT/NL DEW HERO/Safety Issues) (A) Randy Woods, JNLWD

1630- Next Generation DEW Thermal Management System Technologies (A) John Durbin, Durbin Group
1700- Non-Lethal Weapons Human Surrogate Update (A) Keith Sedberry, CFD Research Corporation

*1730- Session adjourns

1730- Evening exhibitor’s reception at the Embassy Suites

AHPL- High Power Gas & Hybrid Lasers (Boris Zhdanov)
at the Embassy Suites

1330- Effects of Multi-Level Kinetics on DPAL Beam Quality (D) Dr. Glen Perram, AFIT

1355- D1 and D2 Rubidium Lineshapes with High Pressure Rare Gases (D) Dr. Christopher Rice, AFIT

1420- DPAL Modeling Software Toolkit (D) Dr. Roger Hill, Creare

1445- Scaling Potential of the Diode-Pumped Rare Gas Laser (D) Ben Eshel, AFIT

*Break (1510-1540)

1540- Characterization of Performance of a Conventional Cs DPAL: Beam Quality, Efficiency, Gain Medium Lifetime (A) Dr. Boris Zhdanov, USAFA

1605- External Cavity Pump Laser for a DPAL Using an Atomic Line Filter (A) Bill Hersman, UNH and Xemed

1630- Diode-Pumped Rare-Gas Microplasma Laser (A) W. Rawlins, PSI

1655- A Path Towards 1MW Laser Pump Diodes (A) John Goings, Lasertel

*1730- Session adjourns

1730- Evening exhibitor’s reception at the Embassy Suites

Power Beaming Metrology, Safety, and Applications (Avi Bar-Cohen & Paul Jaffe)
at the Embassy Suites

1330- Renewable Sustainable Power System with Integrated Robotics and Power Beaming Utilities (D) Corey Bergrud, NSWC- Crane Division


1430- Safe Operation of Laser Power Beaming Systems (A) Tom Nugent, PowerLight Technologies

*Break (1500-1530)

1530- Criteria for Comparison of Power Beaming Demonstrations (A) Paul Jaffe, US NRL

1600- Uniform Comparisons of Power Beaming Efficiency (A) Tom Nugent, PowerLight Technologies

1630- Economic Feasibility of Space-Based Solar Power Generation in Remote Mining Applications (A) Ian Lange, Division of Economics and Business, Colorado School of Mines
1700- Panel 1- Challenges for Power Beaming- Moderator- Gary Barnhard, Panelists: Seth Potter, James McSpadden

*1730- Session adjourns

1730- Evening exhibitor’s reception at the Embassy Suites

Education Workshop I (Harro Ackerman) at the Embassy Suites

1330- Introduction to Education Workshop- Harro Ackermann

1335- Introduction to the Educational Initiative- Mark Neice

1355- The 2018 AFIT Directed Energy Summer Intern Program (A) Sara Kraft, Center for Directed Energy, AFIT

1415- Gas Breakdown Dynamics: From Microscale to Nanoscale (A) Amanda Loveless, Purdue University

1440- Test, Evaluation, and Scaling of Advanced Nanodielectric Materials for High Voltage Capacitors (A) Samuel Dickerson, University of Missouri Center for Physical and Power Electronics

*Break (1505-1535)

1535- Characterizing Effective Complex Permittivity of Anisotropic Epsilon Negative Metamaterial Liner in a Rectangular Waveguide for Metamaterial Enhanced Resistive Wall Amplifiers (A) Patrick Forbes, University of Wisconsin-Madison

1600- Precision Measurements of Alkali-Methane Mixing and Quenching Cross Sections (A) Philip Rich, USAFA

*1630- Session adjourns

1730- Evening exhibitor’s reception at the Embassy Suites

Wednesday AM- Feb. 28

BC- Turbulence Measurements (Dr. Brett Hokr) at the Embassy Suites

0800- The Stabilized Shipboard Maritime Atmospheric Characterization System Atmospheric Transmission Measurement (MACS ATM) LIDAR (D) Christopher Valenta, Georgia Tech Research Institute Electro-Optical Systems Laboratory

0830- Advantages of Quantifying Velocity Structure Function, Cv2, rather than Temperature Structure Function, CT2, to Infer Refractive Structure Function, Cn2 (D) Steven Fiorino, AFIT/ENP
0900- **Using Differential Temperature Sensors to Measure Cn2 in an Experimental Campaign at West Point** (D) Jacob O’Neill, USMA

0930- **The CABLE/TRAX Experiment to Improve Vertical Turbulence Profiles** (D) Steve Hammel, SPAWAR SSC Pacific

*Break (1000-1030)*

**Beam Control Components, Coatings & Diagnostics (Amanda Clark)**

at the Embassy Suites

1030- **Deformable Mirrors: Bigger, Smaller, and Better** (D) Justin Mansell, MZA Associates Corporation

1100- **Carrier Density and Transport in Be-doped InAsSb for Infrared Detector Materials** (A) Lilian Casias, UNM Center for High Technology Materials

1130- **Recent Advancements in Laser Induced Damage Testing of HEL Optical Components** (A) Joseph Randi, Penn State University Applied Research Lab

*Lunch Break (1200-1330)*

**Material Interaction/ High Fidelity (Robert Roybal)**

at the Embassy Suites

0800- **Pulsed Ablation of Metals and Graphite by UV and IR Lasers** (D) Glen Perram, AFIT

0830- **Performance and Integrity of Laser-heated, Load-bearing Polymer Matrix Composites** (D) Daniel Brannum, AFRL/RXA

0900- **Experimental Measurement of Hole Formation in Metal as a Function of Angle of Incidence from a HEL** (D) Nolan Hedglin, USMA

0930- **Response of Spring Steel Protective Surfaces to HEL Exposure** (D) Lyndon Daniel, AFRL/RDLE, Laser Effects Testing Facility

*Break (1000-1030)*

1030- **Carbon Fiber Reinforced Polymer Composite Response to HEL Irradiation** (D) Fabiola Lopez, USSMDC

1100- **Prediction of Thermal Decomposition Behaviors of Polymer Matrix Composites using Unified Kinetic Model Parameters** (A) Sangwook Sihn, University of Dayton Research Institute

1130- **Investigation and Selection of Inert Substitutes for the Energetic Content of Munitions in High Energy Laser Effects Research using differential scanning calorimetry** (A) Jordan Johnson, USMA

*Lunch Break (1200-1330)*
Key Transforming Non-Lethal Directed Energy Weapon Systems, Subsystems, and Components
(Dave Law)
at the Embassy Suites

0800- Looking Ahead in Non-Lethal Laser Induced Plasma Effects (C) Dr. Brittany Lynn, SPAWAR SSC Pacific

0825- The Impact of New Materials for the Next-Generation of JNLWD and DoD DEW Applications (C) Dr. Randy D. Curry, University of Missouri

0850- High Efficiency 976 nm and 1532 nm Diode Laser Pumps for High Energy Laser (Dazzler) Applications (C) Jenna Campbell, Freedom Photonics - Santa Barbara, CA

0915- Advancements in Metamaterial-Enabled High-Power Microwave Antennas (C) Micah D. Gregory, Pennsylvania State University

0940- A Prototype Compact Active Denial System (C) Dr. Neville Luhmann, University of California - Davis

*Break (1005-1035)

1035- Recent High-Performance Capacitor Development for Pulse Power Applications (C) Mark Schneider, General Atomics- Electromagnetic Systems Group

1100- Compact Nanocomposite Capacitors for Directed Energy Applications (C) Kirk Slenes, TPL Inc.

1125- High Power Phased Array Based on Solid State Amplifier- Antenna Element (C) Dr. Hoon Ahn, Wireless Technology Inc.

*Lunch Break (1200-1330)

USPL I (Charlene Rusnak & Brittany Lynn)
at the Embassy Suites

0800- Experiment-Theory Comparison of Metastable Electronic State Approach Light-Matter Interaction Model for Optical Filamentation (A) Anand Bahl, College of Optical Sciences, University of Arizona

0825- E-field Resolved Simulations of Long Wavelength Mid-IR TW Ultrashort Pulses Over Kilometer Ranges in Realistically Modeled Atmosphere (A) Jerry Moloney, University of Arizona

0850- Designing an Amplifier for a Fully Characterized Yb:KGW Ultra Short Pulsed Laser System (A) Ian Greer, Photonics Research Center USMA

0915- Filamentation of 3 ps TW CO2 Laser Pulses in Atmosphere (A) Sergei Tochitsky, Department of Electrical Engineering, UCLA

0940- USPL Plasma and Higher Order Effect Generation Control through Wavefront Shaping (A) Brittany Lynn, SPAWAR SSC Pacific

*Break (1005-1030)
1030- Energy Exchange Between Filaments in Ultrashort Pulse Laser Propagation (A) Dr. Martin Richardson, University of Central Florida- CREOL

1055- Gas Pressure Dependence of Broadband Microwave Emission from USPL-Generated Filaments (A) Alexander Englesby, University of Michigan Air Force Research Laboratory

1120- Measurements of Radiation from Ultrashort Pulse Interaction with Materials (A) Ben Rock, US NRL

*Lunch Break (1200-1330)

**Power Beaming Technology & Demonstrations 1 (Avi Bar-Cohen & Paul Jaffe)** at the Embassy Suites

0800- W-Band Power Beaming (D) Curtis Eckhart, Raytheon

0830- W-Band Power Beaming (D) Hooman Kazemi, Raytheon

0900- Optical Power Transmission with Adaptive Beam Shaping: Approach, Analysis and Proof-of-Concept Field Demonstrations (D) Mikhail Vorontsov, Optonicus

0930- Reconfigurable Phased Array with Novel Feeding Architecture (A) Mitchel Szazynski, Indiana University Purdue University Indianapolis

*Break (1000-1030)

1030- Review of High Altitude Wireless Powered Aircraft (A) James McSpadden, Raytheon

1100- Theoretical Energy-conversion Efficiency for RF Energy Harvesters (A) Christopher Valenta, Georgia Tech Research Institute Electro-Optical Systems Laboratory

1130- A Silicon Photovoltaic Array for Demonstrating Wireless Power Transfer (A) Phillip Jenkins, US NRL

*Lunch Break (1200-1330)

**CDEW Workshop** at the Offsite Location

0800- ONI Threat Brief

0830- TBD

0900- TBD

0930- TBD

*Break (1000-1030)

1030- TBD
1100- TBD
1130- TBD

*Lunch Break (1200-1330)

**HPM Counter UAS (Ryan Hoffman)**
*at the Offsite Location*

0800- Outcomes from Recent Evaluations of Counter Unmanned Aerial System Technology
0825- Overview of Counter UAS using HPM Research at NSWCDD
0850- UK Perspective on HPM C-UAV
0915- High Power Radio Frequency Effects on Modern Unmanned Air Vehicle Technologies
0940- Counter Unmanned Aerial Vehicles (CUAV) Utilizing Unlike High Power Microwave (HPM) Sources on Comparable Target Asset

*Break (1005-1035)*

1035- Compact OmniDirectional Wideband Electromagnetic Lambaster (COWBEL) application for Counter Unmanned Aerial Systems (C-UAS)
1100- THOR - Tactical HPM Operational Responder
1125- HPRF Vessel Stopping Applicability to Counter Unmanned Aerial Systems

*Lunch Break (1200-1330)*

**Wednesday PM- Feb. 28**

**BC- Advanced Beam Control Systems (Dr. Robert Pawlak)**
*at the Embassy Suites*

1330- Update on Long Range Deep Turbulence Beacon Generated by an Ultrashort Pulse Laser System (D)  
*Michael Helle, US NRL*

1400- Tackling with Directed Energy,Äúlitmus Test,Äù of Adaptive Laser Beam Projection onto an Extended Flat Metallic Surface in Atmosphere (D)  
*Mikhail Vorontsov, Optonicus*

1430- Phase Compensation in the Presence of BIL-HEL Wavelength Differences (D)  
*Mark Spencer, AFRL/RDLTS*

*Break (1500-1530)*
BC- Beam Propagation (Patty Wallentine)  
at Embassy Suites

1530- Shipborne Atmospheric Extinction Lidar: Initial Look at Data from CABLE-TRAX Experiment (D) David Sonnenfroh, Physical Sciences Inc.

1600- Use of a Fast Scaling Law Model to Determine Optimal Array Configuration for Incoherent or Coherent Beam Combination (D) Steven Fiorino, AFIT/ENP

1630- Characterizing Multispectral Vertical Profiles of Aerosol Extinction with Surface-based Measurements (D) Jaclyn Schmidt, AFIT

1700- HELCoMES 3.2 Upgrades for User Defined Beam Inputs (D) Troy Rhoadarmer, Guidestar Optical Systems, Inc.

*1730- Session adjourns

Component Response (Dr. Thomas Schriempf)  
at the Embassy Suites

1330- The Effects of Rotation Speed, Engagement Power, and Inert Thermal Sinks on the Laser Heating of Cold Rolled Steel Targets (A) John Roll, USMA

1400- Laser induced Damage Testing of Silica Windows with Hydrophobic Antireflective Surfaces (A) Lynda Busse, NRL

Test Facilities, Instrumentation, Diagnostics and Techniques (Dr. David Lyman)  
at the Embassy Suites

1430- Solid State Laser Testbed (SSLT) Scoring System: Dynamic Engagement Results (D) Daniel Duffin, Radiance Technologies

*Break (1500-1530)

1530- NSWC Corona-NIST Efforts on Metrology and Calibration for DoD Laser Weapons (A) Subrata Sanyal, NSWC- Corona Division

1600- A UAV-Based HEL Beam-Profiling Target: TigerStrike (A) Aaron Wallo, NSWC

*1630- Session adjourns

USPL II (Charlene Rusnak & Brittany Lynn)  
at Embassy Suites

1330- Mid-IR Laser Development at AFRL (D) Andreas Schmitt-Sody, AFRL
1355- Harmonic SWIR and Visible Light Generation in Optical Materials Following Exposure to Mid-IR USPL (D) Christopher Wolfe, US ARL

1420- Comparison of Microwave Radiation from Ultrashort Pulse Interactions with Air and Dielectrics (D) Jennifer Elle, AFRL

1445- Filament Thermal Waveguide (D) Anthony Valenzuela, US ARL

*Break (1510-1540)

1540- Enhanced Filament Ablation (D) Dr. Martin Richardson, Univ. of Central Florida- CREOL


1630- Panel- Beam Control USPL Applications (D) Justin Mansell, MZA; Michael Helle, NRL; John deGrassie, SNWC, Pacific

*1730- Session adjourns

Power Beaming Technology & Demonstrations 2 (Avi Bar-Cohen & Paul Jaffe)
at the Embassy Suites

1330- Review of Laser Power Beaming Demonstrations by PowerLight Technologies (A) Tom Nugent, PowerLight Technologies

1400- Concepts for Power Beaming with Directed Energy Systems and Thermal Receivers (A) Bert Murray, Lighthouse DEV LLC

1430- Laser Beam Wireless Power Transfer Progress Review (A) Christopher Giranda, DHPC Technologies

*Break (1500-1530)

1530- Progress of the Space Solar Power Initiative (A) Michael Kelzenberg, California Institute of Technology

1600- Long-Range Power Beaming using Single-Mode Fiber Lasers (A) Richard Fischer, NRL

1630- Panel 2- Challenges for Terrestrial Power Beaming (A) Panelists: Mikhail Vrontsov, Tom Nugent, Christopher Giranda, Bert Murray, and Rich Fischer

*1730- Session adjourns

Education Workshop II (Harro Ackerman)
at the Embassy Suites

1330- High Power Fiber Laser Development at UCF (A) Justin Cook, Laser Plasma Laboratory, College of Optics and Photonics, University of Central Florida
1355- Solid State Lasers Controlled by Volume Holographic Elements (A) Evan Hale, University of Central Florida, CREOL, PPL

1420- Optical Frequency Comb Architecture for Amplification of High Repetition Rate Optical Pulses using Coherent Spectral Beam Combining (A) Michael Plascak, CREOL, The College of Optics and Photonics, University of Central Florida

1445- Thermal Conductance Across a-SiO2/a-SiO2 Interfaces (A) Joshua LaFlam, US Naval Academy

*Break (1510-1540)

1540- Semiconductor Deterioration and Characterization of Laser Radiation Damage (A) Maeve Broeg, US Naval Academy

1605- Optical Investigation of a Regularized Shear Layer for Wavefront Prediction (A) Matthew Kemnetz, University of Notre Dame

1630- Detection and Localization of High Energy Laser Strike Using Carbon Nanotube (CNT) Sheet (A) Peter Joyce, US Naval Academy

*1730- Session adjourns

CDEW Workshop

at the Offsite Location

1330- Recent Developments at NSRDEC in Microwave Reflective Materials II

1355- RF Protected Apertures

1420- High Power Submillimeter Wave Breakdown of Air

1445- Gradient Metasurfaces for Frequency Selective Diffraction

*Break (1510-1540)

1540- HEL Materials Hardening of a UAV

1605- High Energy Laser Hardened Coatings

1630- Determining and scaling continuous-wave, laser-induced damage thresholds of thin reflectors

1655- Materials Development at AFRL for Mitigating Laser Effects

*1730- Session adjourns

HPM Counter UAS (Ryan Hoffman)

at the Offsite Location

1330- The ONR Short-Pulse Research and Evaluation for sUAS (OSPRES) Program: An Overview
1355- Fault Detection and Identification of High Power Microwave Effects on Small Unmanned Aircraft Systems

1420- Development of a sUAS Diagnostic Suite

1445- RF Coupling Mechanisms for sUAS

*Break (1510-1540)

1540- Developing Predictive Models for High Power Electromagnetic Effects in Hobbyist-Drones

1605- Effect of RF Pulse Repetition Frequency on Small Unmanned Aerial Systems

1630- Wide Band Effects on UAS Electronics

1655- Workshop Wrap-up Discussion

*1730- Session adjourns

Thursday AM- March 1

**Beam Control Testbeds (Dr. Robert Pawlak)**
* at the Embassy Suites

0800- Overview of the Mobile Beam Control System Integration Laboratory (D) Amanda Clark, USASMD/ARSTRAT

0830-0930- Panel Discussion lead by Robert Pawlak

**BC- Turbulence Characterization (Amanda Clark)**
* at the Embassy Suites

0930- Designing a Branch Point Density Empirical Model Using a Next Generation Atmospheric Turbulence Simulator Design of Experiments Approach (D) Michael Bishop, AFRL- Starfire Optical Range

*Break (1000-1030)

1030- Distributed-volume Optical Turbulence Generation in a Scaled-Laboratory Environment using Nematic Liquid-Crystal Phase Modulators (D) David Dayton, Applied Technology Associates

1100- Characterizing Atmospheric Turbulence over Long Paths using Time-lapse Imagery (D) Santasri Bose-Pillai, AFIT

1130- Analysis of Tilt Removed Hartmann Turbulence Sensor Data (D) Jack McCrae, AFIT/ENP

*Lunch Break (1200-1330)
AHPL- Solid State Lasers (Chris Behre)
at the Embassy Suites

0800- Specialty Fiber Amplifiers for Directed Energy (D) Daniel Creeden, Coherent | Nufern

0830- Incoherent Laser Beam Combining by Coaxially Overlapping Technique for High Energy Laser weapon (A) Ryuji Nagaoka, Kawasaki Heavy Industries, Ltd.

0900- Photonic Lantern Adaptive Mode Control (A) Juan Montoya, MIT Lincoln Laboratory

0930- Development of Crystalline Clad Fibers for All-Crystalline Fiber Lasers (A) Brandon Shaw, NRL

*Break (1000-1030)

1030- Studying the Limits to Single Mode Operation in Yb Fiber Lasers (A) Justin Cook, Univ. of Central Florida- CREOL

1100- On the Potential for High Power Thulium Lasers at 2μm Wavelength (A) Alex Sincore, Univ. of Central Florida- CREOL

1130- Diamond Raman Lasers – a new Paradigm for Multi-kW Lasers (A) Martin Richardson, Univ. of Central Florida- CREOL

*Break (1000-1030)

HPM Technologies (Matt McQuage)
at the Embassy Suites

0800- Prospects of Photoconductive Semiconductor Switches (PCSS) for HPEM Applications (D) Timothy Wolfe, AFRL

0830- Photoconductive Solid-State Switches: Tradespace Evaluation (D) Noah Kramer, University of Missouri Kansas City

0900- kV and kA class pulsed metallized thin film capacitors (A) Nathan Zameroski, Scientific Applications and Research Associates (SARA)

0930- A New TM01c-fed Low Profile, High Gain, Leaky Wave HPM antenna (A) Robert Koslover, Scientific Applications and Research Associates (SARA)

*Break (1000-1030)

1030- Connecting the Dots Between Component Level and Equipment Level EMC Testing (A) Michael Hatfield, Booz Allen Hamilton

1100- Predicting the statistical nature of induced electromagnetic fields within randomly interconnected networks of complicated cavities (A) Sameer Hemmady, Verus Research / UNM

1130- Developing Predictive Models for Erroneous Software Behavior of Embedded Digital Logic due to Intentional Electromagnetic Interference (A) Sameer Hemmady, Verus Research / UNM
*Lunch Break (1200-1330)

**Test Facilities, Instrumentation, Diagnostics and Techniques (Dr. David Lyman)**

*at the Offsite Location*

0800- HEL Gain Media Trade Study  
0830- Advanced HEL Instrument Design Concept  

**Material Interaction/ High Fidelity (Robert Roybal)**

*at the Offsite Location*

0900- Modeling Laser Irradiation of Painted Steel Cylinders  

**System/ Sub-system Test Results (Steven Baird)**

*at the Offsite Location*

0930- Manned Aviation HEL Vulnerability- Initial Testing and Preliminary Results  

*Break (1000-1030)*  

1030- Laser Performance Test Results for LWSD  

**System/ Sub-system Test Results (Steven Baird)**

*at the Offsite Location*

1100- US-UK HEL PA Effects Portion Overview  

**Target Vulnerability Assessment (Robert Ulibarri)**

*at the Offsite Location*

1130- HEL Effects on Composite Sandwich Topside Panels  

*Break (1200-1330)*

**Non-Lethal Directed Energy Weapon Prototypes and Key Technology Development Efforts- Status Updates (Dave Law)**

*at the Offsite Location*

0800- RF/HPM Vessel Stopper Project Updates  
0830- Investigation of W-Band Effect(s) on Small Unmanned Aerial Systems (sUAS)  
0900- Lockheed Martin RF Vessel MoRFIUS
0930- Remote Generation of RF Emission with Filament Lasers

*Break (1000-1030)

1030- RF/HPM Vehicle Stopper Force Application Sub-System Development and Progress

1100- W-Band Effect(s) Mechanism in sUAS: Electromagnetic or Thermally Induced?

1130- Advanced Cold Plates and Controls that Enable Single Loop High Energy Laser (HEL) Thermal Management Systems (TMS)

*Lunch Break (1200-1330)

Education Workshop III (Harro Ackerman)

at the Embassy Suites

0800- Updates to the Development of Low-Pressure High-Density Plasmas on the Helicon Plasma Experiment (HPX) (A) CDR Royce W. James, Ph.D., USCGA

0830- Thomson Scattering and Langmuir Probe Development on the Helicon Plasma Experiment (HPX) (A) 2/c Anita Green, 4/c Maylis Yepez, and 4/c Trent Robledo-Thompson, USCGA

0900- Experimental Analysis and Theoretical Comparison of Parametric Weather Conditions on Optical Turbulence in a Near Maritime Environment (A) Richard Watson, US Naval Academy

0930- Localization and Rapid Detection of High Energy Radiation using Distributed Fiber Optic Sensing (A) Mathew Kautzman, US Naval Academy

*Break (1000-1030)

1030- Effects of Directed Near-Infrared Radiation on Saltwater Drops (A) Samuel Valley, US Naval Academy

1100- Heat Transfer Analysis of Thermal Damage Behind Carbon Fiber-Reinforced Polymer Skin (A) Nicholas Stovall-Kurtz, US Naval Academy, Mechanical Engineering Department

1130- Thermal Effects of Environmental Degradation at Optical Surfaces for Directed Energy Applications (A) Joshua LaFlam, US Naval Academy

*Lunch Break (1200-1330)

Thursday PM- March 1

1330- Poster Session *Both Open and Limited Distribution poster sessions will be held after lunch at the Embassy Suites, from 1330-1530

BC- Platform Induced Turbulence (Gar Hassall)
1330-

1400-

1430- Investigation of Ship-Induced Optical Turbulence for the High Energy Laser with Integrated Optical-dazzler and Surveillance (HELIOS) (D) Joseph Blau, Physics Department NPS

*Break (1500-1530)

1530- Aero-Effects Measurements and Modeling Progress (D) Donald Wittich, AFRL/RD

1600- Preliminary Aero-Optic Results from Wind Tunnel Testing for Novel Flow Control Concept (D) David Weston, AFRL

1630- Aero-Effects Laboratory Description, Characteristics and Initial Testing (D) Ilya Zilberter, AFRL/RDLEM

1700- Passive Flow Control for an Aircraft Optical Window (D) Chung-Jen Tam, AFRL/RDLEM

*1730- Session adjourns

Next-Generation Non-Lethal Directed Energy Weapons (Dave Law)
at the Embassy Suites

1330- Closed-Loop RF Vehicle Stopper (C) Sean Ahern, Booz Allen Hamilton

1400- Past, Present, and Future of Laser Induced Plasma Weapons (C) Joshua Etu, American Systems Corp.

1430- Metamagnetics Non-Linear Transmission Line Technology Development Efforts (C) Antone Gailer, Metamagnetics Inc.

*Break (1500-1530)

Key Transforming Non-Lethal Directed Energy Weapon Subsystems and Components (Dave Law)
at the Embassy Suites

1530- Next Generation Marx Generator for Pulsed Power Applications (C) Stephen Bayne, Texas Tech University

1600- JNLWD RF/HPM Systems Portfolio Overview Brief (C) Josh Pompeii, NSWC Dahlgren Division

1630- Planar Scanner Antenna Version 3.0 (C) Dan Gonzales, Pacific Antenna Systems

*1700- Session adjourns

HPM Technologies (Matt McQuage)
at the Embassy Suites
1330- Galaxy Software Simulations of Directed Energy: Source Design through Mission Impact (D) Jason Hammond, AFRL

1355- Laser triggered EMP/HMP simulator utilizing GaAs PCCS (D) Nathan Zameroski, Scientific Applications and Research Associates (SARA)

1420- Window design for high power microwave vircator material testbed (D) Sameer Hemmady, Verus Research / UNM

1445- Microscale Gas Breakdown and Implications to Electron Emission (A) Allen Garner, Purdue University

*Break (1510-1530)

AHPL- Solid State Lasers (Chris Behre)
at the Embassy Suites

1330- Power Scaling of Yb-doped and Tm-doped All-Fiber Amplifiers (D) Shadi Naderi, AFRL

1400- Historical Perspective on High Diode Development (?) Scott Keeney

1445- Enabling Mission Readiness and Conquering Frontiers in Contamination Control: First Contact Polymers Impact on Billion Dollar Projects (A) James Hamilton, Photonic Cleaning Technologies

*Break (1515-1545)

1545- Directed Energy Systems Integration Lab (DESIL) MILCON Project (A) Terry Robinson, NSWC PHD


1700- Power and Efficiency of the Resonantly Diode-Cladding-Pumped Er Fiber Laser Based on Nanoparticle-Engineered Fibers (A) Jun Zhang, US ARL

*1730- Session adjourns

USPL III & BC (Charlene Rusnak, Brittany Lynn, and David Loomis)
at the Offsite Location

1330- Worldwide Ultrashort Pulse Laser Development

1400- Tracker Modeling and On-sky Comparison Studies at the Starfire Optical Range

1430- Extended Range, High Peak Power Laser Effects in a Controlled Environment

1500- Characterization and Modeling of THz Radiation from USPL-surface Interactions

*Break (1530-1600)
HPM Effects (Matt McQuage)
at the Offsite Location

1600- Testing and Evaluation of Mitigation Materials
1615- Counter Personal Water Craft Naval Experiment
1645- Effects

*1730- Session adjourns

Target Vulnerability Assessment (Robert Ulibarri)
at the Offsite Location

1330- Fixed Wing Small UAV (SUAV) Aimpoint Overview
1400- Engineering Level Laser Vulnerability Assessment for A Developmental Air - Air Missile to Support Aircraft Self Protect Modeling & Simulation
1430- Impact of High Fidelity Lethality Data on Laser Weapon System Analysis

*Break (1500-1530)

Systems Engineering Modeling & Analysis (Robert Ulibarri)
at the Offsite Location

1530- Leveraging Lethality: Simulation Experiments
1600- Visualization and Scoring of High Energy Laser Engagement Results

*1630- Session adjourns
<table>
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<tr>
<th>ACRONYM</th>
<th>STANDS FOR</th>
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<tr>
<td>AF SDPE</td>
<td>Air Force Strategic Development Planning &amp; Experimentation</td>
</tr>
<tr>
<td>AFIT</td>
<td>Air Force Institute of Technology</td>
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<td>Assistant Secretary of Defense Research &amp; Engineering</td>
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<td>MTSI</td>
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