

# Technical Program



## Joint Conference on T&E Support to Prototyping & Experimentation

Hosted by  
International Test and  
Evaluation Association  
and  
Directed Energy  
Professional Society

31 January - 3 February 2022

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MONDAY

## Short Courses / Tutorials

0700 Registration

0800 Morning Tutorials Begin

**TUTORIAL I** (Limited Distribution C)

**T&E of HEL Systems**

*Dr. Todd Steiner*

**TUTORIAL II** (Limited Distribution C)

**T&E of HPM Systems**

*Jeff Schleher*

**TUTORIAL III** (Open)

**Introduction to Cybersecurity**

*Jean Petty, VIRTUAL INSTRUCTOR*

1200 Lunch

1300 Afternoon Tutorials Begin

**TUTORIAL IV** (Limited Distribution D)

**Intro to DoD T&E Process**

*Mark Neice*

**TUTORIAL V** (Limited Distribution D)

**DE Design of Tests for Transitioning DE Weapon Systems to Acquisition Programs for Warfighter Fielding**

*Robert Newton and Dan Isbell*

## TUESDAY MORNING

### Plenary Session

(CUI)

Yucatan Room

- 0700 **Registration Desk Opens**  
**Continental Breakfast in the Exhibit Area**
- 0800 **Welcome**  
*Mr. Edward Trzcienski, 2022 Conference Program Co-Chair*  
**Posting of the Colors and National Anthem**
- 0815 **Opening Remarks**  
*Mr. Bruce Einfalt, ITEA President*  
*Mr. Mark Neice, DEPS Executive Director*
- 0830 **Remote Video Remarks**  
*U.S. Senator Martin Heinrich (D-N.M.)*
- 0835 *Mr. George Rumford, Deputy Director of Test Resource Management Center*
- 0915 *Mr. Marcos Gonzales, Directed Energy Systems Integration Lab (DESIL) Project Lead, Naval Surface Warfare Center Port Hueneme Division*
- 1000 **Break in the Exhibit Area**
- 1030 *Mr. Jerry Tyree, Deputy Commander / Tech Director of White Sands Test Center, Army Test and Evaluation Command*
- 1115 *Maj. Gen. James Sears, AFOTEC Commander*
- 1200 **Lunch in Cancun Room**  
**Announcements, Introduction to Afternoon Technical Sessions, and Introduction of STEAM Speaker**  
*Mr. Mark Henderson, Conference Technical Program Co-Chair*

## TUESDAY AFTERNOON

### T&E Capabilities for Directed Energy Systems

(Export Controlled CUI - D and C)

Session Chair: *Mr. Alex Clark, BlueHalo*

Tampico Room

- 1300 **Deployment of DELTA-Wx Deep-Learning Field Terminals for HEL Weapon Prototype Testing and Experimentation (D/Export Con)**  
*Dr. Matthew Whiteley, MZA Associates Corporation*
- 1330 **Scaling HEL Characterization with the Small Measurement and Analysis System (SMASH) (D/Export Con)**  
*Dr. John Mason, Radiance Technologies*
- 1400 **Differences Between KE Testing and DE Testing (D/Export Con)**  
*David Loomis, DNL Consulting*
- 1430 **HEL-PETT M&S Software Platform for Predictive Performance Analysis of HEL DE Systems (C/Export Con)**  
*Stephen Nowalk, II-VI Aerospace & Defense*
- 1500 **Break in the Exhibit Area**
- 1530 **Directed Energy Systems Integration Laboratory - MILCON P777 (D)**  
*Marcos Gonzalez, Naval Surface Warfare Center, Port Hueneme Division*
- 1600 **Recoverable, Reusable Airborne Engagement (RRAE) (C/Export Con)**  
*William White, Verus Research*
- 1630 **Remote Target Status Sensor (RTSS) (C)**  
*James Barlow, Verus Research*
- 1700 **Session Adjourns**
- 1730 **Exhibitors Reception**

## TUESDAY AFTERNOON

### HPM Sensors and Sources 1

(Export Controlled CUI - D and C)

Session Chair: *Mr. Jeff Schleher*, American Systems  
Yucatan Room

- 1300 **HPM Sensor on Instrumented sUAS Update**  
(C/Export Con)  
*Mark Henderson*, BlueHalo
- 1330 **Development and Test of a UAS-Borne HPM Acquisition and Recording Capability (HARC)**  
(D/Export Con)  
*Michael Kranz*, Kratos Defense
- 1400 **HPM Beam Evaluation Tool (HBET) (C)**  
*Laury Decker*, Verus Research
- 1430 **Directed Energy Test Science and Technology High Frequency High Power Microwave Diagnostic Suite (HF-HDS) (C)**  
*Dr. Marcus Gagliardi*, Verus Research
- 1500 **Break in the Exhibit Area**

### Atmospheric Characterization & Effects 1

(Export Controlled CUI - D to C)

Session Chair: *Dr. Steve Hammel*, NIWC Pacific  
Yucatan Room

- 1530 **Development and Test of a Tethered Flying DE Atmospheric Monitoring and Scoring System** (D/Export Con)  
*Michael Kranz*, Kratos Defense
- 1600 **ATMOS: Atmospheric Turbulence Measurement Event** (D/Export Con)  
*Bo Henderson*, Scientic Inc.
- 1630 **Propagation Path Characterization with the High Energy Laser Performance Estimation Test Technology (HEL-PETT) Computational Platform** (D/Export Con)  
*Svetlana Lachinova*, II-VI Aerospace & Defense
- 1700 **The High Energy Laser Atmospheric Characterization System (HACS) - Real-Time Atmospheric Characterization for HEL Test and Evaluation Support** (C)  
*Don Harris*, Georgia Tech Research Institute
- 1730 **Session Adjourns - Exhibitors Reception**

## WEDNESDAY MORNING

### Plenary Session

(Open and CUI - D)

Yucatan Room

- 0700 **Registration Desk Opens**  
**Continental Breakfast in the Exhibit Area**
- 0800 **Welcome**  
*Ms. Whitney Winchester*, 2022 Joint Conference Program Co-Chair  
**Posting of the Colors and National Anthem**  
**Introduction and Sendoff for the STEAM Competition Teams**
- 0815 **STEAM Competition**

#### Participating Middle Schools

Cien Aquas International School  
Bosque School

#### Participating High Schools

Albuquerque High School  
West Mesa High School  
Technology Leadership High School  
Albuquerque Institute for Mathematics and Science

- 0815 *Dr. Kelly Hammett*, Director, Air Force Research Laboratory Directed Energy Directorate
- 0900 **Extended Break - Attendees to walk the STEAM Competition**
- 1030 **T&E Best Practices for DE Systems (D)**  
The AIAA-DEPS committee Test and Evaluation team will conduct a workshop on T&E best practices for airborne laser systems and we want your help and insight! See Pg 6 for info  
*Dr. Sean Ross* and *Bryan Kelchner*
- 1200 **Announcements and Introduction to Afternoon Technical Sessions**  
*Mr. Mark Henderson*, Conference Technical Program Chair

**HPM Sensors and Sources 2**

(Export Controlled CUI - C)

Session Chair: *Mr. Jeff Schleher*, American Systems

Yucatan Room

- 1330 **Update and Delivery of an Advanced Wide Band Test System for Supporting Test and Evaluation (C/Export Con)**  
*Matthew Lara*, APELC
- 1400 **Joint Agile Non-kinetic Upgradeable System (JANUS) Project (C/Export Con)**  
*John Osowski*, Verus Research
- 1430 **High Average Power Pulsed (HAPP) Project (C/Export Con)**  
*Jonathon Heinrich*, Verus Research
- 1500 **Break in the Exhibit Area**
- 1530 **S-Band Test and Evaluation Source (STES) (C/Export Con)**  
*Daniel Szenasi*, Verus Research
- 1600 **Status Update: Free Field Test Source (FFTS) Project (C/Export Con)**  
*Matt Domonkos*, Verus Research
- 1630 **New Sources - Supporting MIL STD 464C and 464D Testing (C/Export Con)**  
*Jeffrey Schleher*, American Systems
- 1700 **HPM T&E Field Tests using Nonintrusive, Three-Axis Electro-Optic Field Probes (C/Export Con)**  
*Dr. Dong Ho Wu*, Naval Research Laboratory
- 1730 **Session Adjourns**

**T&E Best Practices for DE Systems**

Wednesday 10:30

The AIAA-DEPS committee Test and Evaluation team wants your help and insight! We have developed a taxonomy ranging from subcomponent to flight systems and using facilities from M&S to large test ranges. The document includes the full range of requirements that can be levied on a system from platform loads to system performance. The goal is to publish a document which can become the nucleus of an industry T&E standard. We are looking for audience feedback and volunteers and nominations of who can help us complete this document. This will be a real-time working session.

**Designing Experimentation with Modeling & Simulation**

(Export Controlled CUI - D to Open)

Session Chair: *Mr. Roger Campbell Jr.*, Georgia Technology Research Institute (GTRI)

Taos Room

- 1330 **Designing and Implementing DEW Target Acquisition and Engagement Model for Prototype Development (D/Export Con)**  
*Roger Campbell*, Georgia Technology Research Institute (GTRI)
- 1400 **Creating a Predictive Modeling and Simulation Baselining Method for the Directed Energy Weapons Mission Analysis Tool Set (DEWMATS) (D/Export Con)**  
*Daniel Levy*, Georgia Technology Research Institute (GTRI)
- 1430 **Nexus: A DoD Web Application for Optical Propagation Analysis, Operations, and Test Planning (D/Export Con)**  
*Yakov Diskin*, MZA Associates Corporation
- 1500 **Break in the Exhibit Area**
- 1530 **Testing an Optical Inertial Reference Unit (OIRU) (D/Export Con)**  
*Edwin Ahn*, Air Force Research Laboratory
- 1600 **Validation and Development of Models for Near Field Laser Propagation through Realistic Turbulence: Theory, Experiments, and Models (A)**  
*Diego Donzis*, Texas A&M University
- 1630 **Session Adjourns**

## WEDNESDAY AFTERNOON

### Measurement and Calibration 1

(Export Controlled CUI - C to Open)

Session Chair: *Dr. Steve Hammel*, NIWC Pacific

Tampico Room

- 1330 **Comparison of High Energy Laser Primary Standards** (C/Export Con)  
*Thomas Jenkins*, Air Force Life Cycle Management Center (AFLMC/WMN, AFMETCAL)
- 1400 **New Tools and Opportunities Provided by the Fourth Generation of Optics for Metrology** (A)  
*Dr. Nelson Tabiryan*, BEAM Engineering for Advanced Measurements Co.
- 1430 **Transition to next session**

### Atmospheric Characterization & Effects 2

(CUI - D to CUI - C)

Session Chair: *Dr. Steve Hammel*, NIWC Pacific

Tampico Room

- 1435 **Verification and Validation Efforts for sUAS DEW Profiler** (D)  
*Alex Clark*, BlueHalo
- 1505 **Use of Aerosol Extinction and Optical Turbulence from NWP Enhanced with Nodal/Point Sonic Anemometer and Particle Count Measurements for HEL Propagation** (C)  
*Dr. Steven Fiorino*, Air Force Institute of Technology
- 1535 **Transition to next session**

## WEDNESDAY AFTERNOON

### Atmospheric Characterization & Effects 3 PRESENTATIONS GIVEN VIRTUALLY

(Export Controlled CUI - D to Open)

Session Chair: *Dr. Steve Hammel*, NIWC Pacific

Tampico Room

- 1550 **Atmospheric Characterization Efforts for Laser Weapon Testing on the Potomac River Test Range (PRTR) at the Naval Surface Warfare Center Dahlgren Division (NSWCDD)** (D/Export Con)  
*Dr. Evan Bates*, Naval Surface Warfare Center Dahlgren Division (NSWCDD)
- 1620 **Atmospheric and Propagation Measurements on Churchill Test Range** (C)  
*William Filkoski*, Naval Surface Warfare Center Dahlgren Division (NSWCDD)
- 1650 **Near Surface Maritime Atmospheric Measurements for LASER Test and Evaluation** (A)  
*Roberto Garcia*, Naval Air Warfare Center, Weapons Division (NSWCDD)
- 1720 **Session Adjourns**

**Measurement and Calibration 2  
PRESENTATIONS GIVEN VIRTUALLY**

(Open to CUI - C)

Session Chair: *Dr. Subrata Sanyal*, NSWC Corona  
Tampico Room

- 0700 **Registration Desk Opens  
Continental Breakfast**
- 0800 **Navy METCAL and ATWG: DE Measurement  
Confidence (A)**  
*Dr. Subrata Sanyal*, Naval Surface Warfare  
Center Corona Division, NSWC Corona
- 0820 **Characterization of High Energy Laser  
Systems using External and Internal  
Photodiode Power Monitors (A)**  
*Dr. Kyle Rogers*, National Institute of  
Standards and Technology, NIST
- 0840 **Demonstration of High-Accuracy Character-  
ization of Combined Laser Beams for  
Operation at 100 kW and Beyond (A)**  
*Dr. Paul Williams*, National Institute of  
Standards and Technology (NIST)
- 0900 **Atom-Based RF Field Sensors (A)**  
*Dr. Christopher Holloway*, National Institute  
of Standards and Technology (NIST)
- 0920 **NIST RF Field Probe Calibration Facilities (A)**  
*Dr. Matthew Simons*, National Institute of  
Standards and Technology (NIST)
- 0940 **Open-Path, Cavity Ringdown Spectrometry  
Analyzer that Provides an Accurate  
Measurement of Aerosol Optical Extinction  
with Periodic Self-Calibration (A)**  
*Dr. Manish Gupta*, Nikira Labs Inc.
- 1000 **Break**

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- 1020 **Establishing METCAL Support for  
Atmospheric Characterization Instruments  
for HEL Propagation (C)**  
*Kevin Janosky*, Naval Surface Warfare Center  
Corona Division (NSWC Corona)
- 1040 **DoD HPM and HPRF Weapons: METCAL  
Support (C)**  
*Ignacio Espinosa*, Naval Surface Warfare  
Center Corona Division (NSWC Corona)
- 1100 **Transition to next session**

**HPM Sensors & Sources 3  
PRESENTATIONS GIVEN VIRTUALLY**

(Export Controlled CUI - C)

Session Chair: *Mr. Jeff Schleher*, American Systems  
Tampico Room

- 1110 **Time- vs. Spectral-Domain Magneto-Optic  
Sensing for HEMP- and HPM-Induced Current  
Effects (C/Export Con)**  
*John Whitaker*, Advanced Fiber Sensors, Inc.
- 1130 **Session Adjourns**
- 1130 **Conference Adjourns**

## THURSDAY MORNING

### Implications of Using Conceptual, Developmental, and Operational Prototypes

(Export Controlled CUI - D to Open)

Session Chair: *Dr. Chris Valenta*, Georgia Technology Research Institute (GTRI)

Yucatan Room

- 0700 **Registration Desk Opens  
Continental Breakfast**
- 0800 **Integrating Airspace Awareness for Enhanced DE Performance (D/Export Con)**  
*Samuel Gutierrez*, Gryphon Technologies, DE-JTO SETA
- 0830 **WSMR 19 Thermal Blooming: LBADS Measurements vs HELCOMES and ACS Analysis (D/Export Con)**  
*Bo Henderson*, Scientic Inc.
- 0900 **Dual Receiver Turbulence Lidar (C/Export Con)**  
*Dr. Sivanesan Ponniah*, Intellisense Systems
- 0930 **Counter Directed Energy Warfare Strategies, Solutions and Tactics - Pathways for Experimentation and Prototyping (D)**  
*Dr. Bonnie Johnson*, Naval Postgraduate School
- 1000 **Design, Build, & Operation of a Recoverable Surrogate MANPADS for Testing Aircraft Survivability Equipment (A)**  
*Anthony Lanza*, BlueHalo
- 1030 **Session Adjourns**
- 1130 **Conference Adjourns**

## THURSDAY MORNING

### HEL Sensors & Sources

(Export Controlled CUI - C)

Session Chair: *Mr. Roger Russell*, BlueHalo  
Taos Room

- 0700 **Registration Desk Opens  
Continental Breakfast**
- 0800 **Design and Development of a Ball Calorimeter for Range Testing of 150 kW Class Laser Systems (C/Export Con)**  
*Dr. Jim Luke*, BlueHalo
- 0830 **Design and Development of a Beam Profiling System for Range Testing of 150 kW Class Laser Systems (C/Export Con)**  
*Andrew Hall*, BlueHalo
- 0900 **Expanding Capabilities of HEL Target Boards to Meet Optical Dazzler Laser Testing Needs (C, Export Con)**  
*Caleb Hoover*, SemQuest
- 0930 **Session Adjourns**
- 1130 **Conference Adjourns**



# Conference Organizers

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*Edward Trzcienski, Whitney Winchester*

## Conference Technical Chairs

*Mark Henderson, Tim Andreadis*

## Technical Session Chairs

*Roger Campbell Jr, Alex Clark,  
Dr. Steve Hammel, Dr. Sean Ross,  
Roger Russell, Dr. Subrata Sanyal,  
Jeff Schleher, Chris Valenta*

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