

Technical Program



ITEA 18th Engineering Workshop and DEPS DE Test and Evaluation Conference

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

**16 - 18 January 2018
Albuquerque, New Mexico**

TUESDAY

Short Courses / Tutorials

0700 Registration at Sheraton

0800 Morning Tutorials Begin

ITEA TUTORIAL I:

**TENA and JMETC for Distributed
Systems Engineering**

Wurlitzer Room

ITEA TUTORIAL II:

Critical Thinking in Test Design and Analysis

Sonata Room

ITEA TUTORIAL VI:

T&E in Support of Prototyping & Experimentation

Ivory Room

DEPS TUTORIAL I:

Introduction to DE T&E

Serenade Room

1200 Lunch on Own

1300 Afternoon Tutorials Begin

ITEA TUTORIAL III:

Cybersecurity T&E

Wurlitzer Room

ITEA TUTORIAL IV:

**Cyber Operational Vulnerability Assessments;
Or How I Learned to Stop Worrying and Love the
Six-Phase Cybersecurity T&E Process**

Sonata Room

DEPS TUTORIAL III:

T&E of HEL Systems

Ivory Room

DEPS TUTORIAL IV:

T&E of HPM Systems

Serenade Room

Plenary Session

- 0700 **Registration Desk Opens**
Continental Breakfast in the Exhibit Area
- 0800 **Welcome: Posting of Colors and National Anthem**
Mr. Ralph Galetti, ITEA RoadRunner Chapter President
- 0815 **Opening Remarks**
Mr. Patrick Cannon, 2018 ITEA Engineering Workshop Program Chair
- 0830 *Major General Matthew Molloy*, Commander, Air Force Operational Test and Evaluation Center
- 0915 *Mr. Paul Mann*, Technical Director, Naval Surface Warfare Center, Port Hueneme Division
- 1000 **Break**
- 1030 *Mr. George Rumford*, Deputy Director, Test Resource Management Center
- 1115 *Mr. Chris Beairsto*, Lead for Operations and Beam Control, High Energy Laser System Test Facility
- 1200 **Announcements and Introduction to Afternoon Technical Sessions, Introduction of Lunch Speaker**
Mr. John Cao, DEPS DE T&E Technical Program Chair
- 1200 **Lunch - STEAM Focused Speaker and Introduction of Thursday's STEAM Competition**
Mr. Jay Fernandez, STEAM Labs™ Center for K-12 Research and Engagement, Ira A. Fulton Schools of Engineering, Arizona State University

ITEA SESSIONS:

Next-Generation Experimentation & Test Techniques for Cyber Resilience

Chair: *Dave "Maggie" Brown*, EWA Registry Room

- 1300 **Cyber Operational Vulnerability Assessment (COVA); Or How I Learned to Stop Worrying and Love the Six-Phase Cybersecurity T&E Process**
Dr. Mike Lilienthal, EWA
- 1330 **Self Cleansing Intrusion Tolerance**
Dr. Arun Sood, SCIT Labs
- 1400 **Vulnerability and Capability with Respect to Cyber Dependent Weapon Systems**
LtCol Michael "Thumper" Christensen, 47th Test Squadron Commander, San Antonio, TX
- 1430 **Cybersecurity Test and Methodologies for Improving Mission Cyber Resiliency**
Ralph Galetti, Boeing
- 1500 **Break**

Measurement & Test Results

Chair: *Kevin Knudsen*, Boeing Registry Room

- 1530 **Light Attack Experiment Methodology Major**
JMajor John Tekel, 586 FLTS
- 1600 **The Challenges and Successes of Prototyping & Experimentation of Laser Systems on Civilian & Military Aircraft**
Ed Rinke, Camo LLC
- 1730 **Exhibitors Reception**

DEPS SESSION:

Measurement & Calibration

Chair: *James Bowers*, Air Force Institute of Technology
Ivory Room

- 1300 **Observing Currents Inside a Computer Under Attack Using the Differential-Mode Optically-Based Current Sensor (DOCS) (D)**
Jeff Schleher, American Systems
- 1330 **Laser Power and Irradiance Meters Calibration (D)**
James Luke, AEGIS
- 1400 **METCAL Support to DoD Directed Energy T&E Efforts (D)**
Subrata Sanyal, NSWC-Corona
- 1430 **Challenges in Compact Diagnostics for Vibration Testing for HADES (C)**
Jeff Barchers, Nutronics
- 1500 **Break**
- 1530 **Air Force High Energy Laser Calibrations (A)**
Sam Capra, AFMETCAL
- 1600 **Smart Mirror Laser Radiometer: High-Accuracy Laser Power Measurements at the Point of Use (A)**
Alexandra Artusio-Glimpse, NIST
- 1730 **Exhibitors Reception**

DEPS SESSION:

Experimentation & Prototyping

Chair: *John Cao*, 704TG/OL-AA
Ambassador Room

- 1300 **United States Air Force's Directed Energy Weapons Experimentation Campaign (D)**
John Cao, 704 TG/OL-AA
- 1330 **Exploring the Kill Chain: Concepts of Directed Energy Testing in the Context of Experimental Campaigns (D)**
Andy Keipert, 46 TS
- 1400 **US Army SMDC Laser Test Plans and Needs (D)**
Bo Henderson, Scientic
- 1430 **Test and Evaluation Summary of HADES (D)**
Dan Marker, AFRL/RDLT
- 1500 **Break**
- 1530 **Flight Test Evaluation of the Aero-Optical Fixed Wing Demonstrator (AeroFWD) (D)**
Matt Whiteley, MZA
- 1600 **Turbulence Measurement Systems for Directed Energy Field Testing (D)**
Matt Whiteley, MZA
- 1730 **Exhibitors Reception**

Conference Overview by Room Assignment

DEPS Sessions

ITEA Sessions

Joint Sessions

	Registry	Ambassador	Ivory	Sonata	Wurlitzer & Regal
Wednesday 0800 - 1000	Plenary Session				
Wednesday 1030 - 1200	Plenary Session				
Wednesday Lunch					Announcements and STEAM Focused Speaker
Wednesday 1300 - 1500	ITEA Next-Generation Exper & Test Techs for Cyber Resilience	DEPS Experimentation & Prototyping	DEPS Measurement & Calibration		
Wednesday 1530 - 1700	ITEA Measurement & Test Results	DEPS Experimentation & Prototyping	DEPS Measurement & Calibration		
Thursday 0800 - 1000	Plenary Session				
Thursday 1030 - 1200	Panel: Rapid Prototyping / Rapid Acquisition				
Thursday Lunch					Announcements and STEAM Competition Awards
Thursday 1300 - 1500	DEPS Test Results	ITEA Experimentation & Prototyping	DEPS Special Topics Within DE	DEPS Range Infrastructure & Safety	
Thursday 1530 - 1700	DEPS Test Results		DEPS Special Topics Within DE	DEPS Range Infrastructure & Safety	

Plenary Session

- 0700 **Registration Desk Opens**
Continental Breakfast in the Exhibit Area
- 0800 **STEAM Competition begins in the Baldwin Ballroom**
Middle Schools:
- Cien Aguas International School
- Bosque School
- Van Buren Middle School
High Schools:
- Albuquerque High
- West Mesa High
- International School at Mesa del Sol
- 0800 **Welcome: Posting of the Colors and National Anthem**
Mr. Edward Trzcienski, 2018 DEPS DE T&E Conference Program Chair
- 0810 **Opening Remarks**
Mr. Peter Crump, ITEA Vice President and
Mr. Mark Neice, DEPS Executive Director
- 0830 **Recorded Remarks**
U.S. Senator Martin Heinrich (D-N.M.)
- 0835 *Dr. Kelly Hammett*, Director, Air Force Research Laboratory Directed Energy Directorate
- 0915 *Mr. Glenn Fogg*, Deputy Director for Prototyping & Experimentation, Office of the Deputy Assistant Secretary of Defense for Emerging Capability & Prototyping
- 1000 **Break**

Panel: Testing Lessons Learned and Suggested Improvements for Rapid Prototyping / Rapid Acquisition

Moderator: *Denise De La Cruz*, Deputy Director, Test Range Oversight, OSD-Test Resource Management Center (TRMC)

1030 **Panel Begins**

Panelists:

Dr. Thomas Clutz, Chief, Acquisition and Evaluation Division Joint Improvised-Threat Defeat Organization (JIDO)

Mr. Jerry Tyree, Deputy Commander / Tech Director, White Sands Test Center

Mr. Tom Lockhart, Director, Air Force Strategic Development Planning & Experimentation Office

1200 **Announcements and Introduction to Afternoon Technical Sessions**

Mr. Ralph Galetti, ITEA Engineering Workshop Technical Program

1200 **Lunch and STEAM Competition Awards**

Mr. Steve Traver, NM Legislative Fellow

THURSDAY AFTERNOON

ITEA SESSION:

Experimentation & Prototyping

Chair: *Scott Marshall*, National Test Pilot School
Ambassador Room

- 1300 **Big Data Analytics and Design of Experiments: A Powerful Combination for T&E**
Dr. Mark Kiemele, Air Academy Associates
- 1330 **A Systems Approach to Battle Management Aids**
Bonnie Johnson, Naval Post Graduate School
- 1400 **Information Technology Experiences Using a Simulated Tele-science Exploration of Mars**
Nader Vadiie, Southwest Indian Polytechnical Institute
- 1700 **Conference Adjourns**

THURSDAY AFTERNOON

DEPS SESSION:

Special Topics Within DE

Chair: *Joseph Paranto*, Applied Research Associates
Ivory Room

- 1300 **Moving Directed Energy from the Lab to the Warfighter: Experiment and Experimentation (D)**
Sean Ross, AFRL/RDLA
- 1330 **Development of Aero-Optical Test Equipment and Methodology for Transonic Wind Tunnels at AEDC (D)**
Edward Mickle, AEDC/TSS
- 1400 **TACoSHELs Research Updates and Experimentation Support (D)**
James Bowers, AFIT
- 1430 **Thermal Management for the Navy GBAD System (C)**
Joel Crawmer, ACT
- 1500 **Break**
- 1530 **Thermal Management Technologies for Directed Energy Weapons (A)**
Joel Crawmer, ACT
- 1600 **Directed Energy Systems Integration Lab (DESIL) MILCON Project (A)**
Terry Robinson, NSWC Pt. Hueneme
- 1700 **Conference Adjourns**

THURSDAY AFTERNOON

DEPS SESSION:

Test Results

Chair: *Whitney Winchester*, US Army PEO-STRI
Registry Room

- 1300 **An Overview of the CABLE/TRAX Field Experiment (D)**
Steve Hammel, SPAWAR
- 1330 **LBADS Calibration Against Radiation Pressure Power Meter at HELSTF (D)**
Bo Henderson, Scientific
- 1400 **Characterizing the Atmosphere With LIDAR: IACS and MACS Results from CABLE/TRAX (C)**
Chris Valenta, GTRI
- 1430 **Point Mugu Sea Range IACS (C)**
Mike Saadati, NSWC-Point Mugu
- 1500 **Break**
- 1530 **Evaluation of BITS Calibration (C)**
David Ward, SemQuest
- 1600 **Calibrating High-Power Laser Power and Energy Meters Using Radiation Pressure (A)**
Paul Williams, NIST
- 1700 **Conference Adjourns**

THURSDAY AFTERNOON

DEPS SESSION:

Range Infrastructure & Safety

Chair: *Steve Yan*, AFRL/RDMT
Sonata Room

- 1300 **Implementation of DoDI 3100.11, The Continuing Evolution of Laser-Satellite Deconfliction (D)**
Steve Yan, AFRL/RDMT
- 1330 **The Joint Laser Deconfliction Safety System (JLDSS) (D)**
Steven Alderete, DE-JTO
- 1440 **DLWS Test Summary (D)**
Mark Kramer, AFRL/RDLA
- 1430 **HEL vs. Blue Aircraft Survivability Test Site Capabilities (D)**
Alex Kurtz, 704 TG/OL-AC
- 1500 **Break**
- 1530 **Modeling, Simulation & Analysis for High Energy Laser (HEL) Collateral Hazards (D)**
Semih Kumru, AFRL/RHDO
- 1600 **RF Spectrum Management and High-Power Microwave Weapons: A Review of Current Practices and the Path Forward (D)**
Steve Yan, AFRL/RDMT
- 1700 **Conference Adjourns**

FRIDAY MORNING

ITEA EXAM:

Ivory Room

- 0800 CTEP Exam

Conference Organizers

Conference Co-Chairs

Pat Cannon, Edward Trzecienski

Conference Technical Co-Chairs

John Cao, Ralph Galetti, Scott Marshall

Conference Committee

*James Bowers, Wilson Felder,
Kevin Knudsen, Joseph Paranto
Whitney Winchester, Stephen Yan*

Conference Coordinator

Cynnamon Spain

Security, Registration and Receipts

Tiffany Bjelke

Short Courses / Tutorials

Cristina Crowson, Doug Messer

Exhibits and Sponsorships

Lena Moran

STEAM Co-Chairs

Kathi Swagerty, Steve Woffinden

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