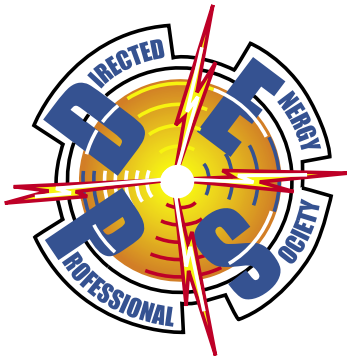


**WEBCAST  
Program**



**Fifteenth Annual  
Directed Energy  
Symposium**

**26-30 November 2012  
Albuquerque, NM**

**and**

**Directed Energy Education  
Workshop  
30 November 2012**

## MONDAY

### Short Courses

#### MORNING COURSES

1. Introduction to High Energy Laser Systems  
(*WEBCAST at 0800*)

#### ALL DAY COURSES

- 4: Beam Control for Laser Systems  
(*WEBCAST at 0800*)

- 1200 Break  
1300 All day course resume  
1700 All day course adjourns

## TUESDAY MORNING

### Plenary Session (*WEBCAST at 0800*)

#### *Start Webcast of Presentations*

- 0810 **Call to Order, Administrative Remarks**  
*Dr Robert E Peterkin, Conference Chairman*
- 0830 **Keynote: The US Naval Leadership View of Directe Energy**  
*Dr David C Stoudt, Senior Director, Naval Capabilities and Rediness*
- 0915 **Directed Energy, A Transition into the 21st Century**  
*Mr Mike Rinn, Vice President, Directed Energy Systems, The Boeing Company*
- 0945 **Barriers, Opportunities, and the Future of High Energy Lasers**  
*Mr Dan Wildt, Vice President, Directed Energy Systems, Northrop Grumman*
- 1015 **Break**
- 1030 **The Need for a National HEL Strategy**  
*Mr Doug Graham, Vice President, Advanced Programs, Lockheed Martin Space Systems Company*
- 1100 **The State of HEL, and the 'Bets' Required to Make Laser Weapon Systems a Reality**  
*Mr Tom Hastings, Director, Laser Business, Raytheon Space and Airborne Systems*
- 1130 **DEPS Status and Recognitions**  
*Dr Tim Andreadis, DEPS President*

#### *End of Webcast of Presentations*

## TUESDAY AFTERNOON

### Student Session (*WEBCAST at 1320*)

Chair: *Don Seeley*, HEL Joint Technology Office

#### *Start Webcast of Presentations*

- 1320 **Measuring Emittance of a Gridded Thermionic Electron Gun**  
*Brian Zhou*, Washington University
- 1340 **Mapping Photocathode Quantum Efficiency Using a Digital Micromirror Device**  
*Blake Riddick*, University of Maryland
- 1400 **VECSEL Scalability by Modification of the External Resonance Cavity**  
*Joseph Braker*, Rose-Hulman Institute of Technology
- 1420 **Sensitivity Analysis and Characterization of Vertical-Cavity Surface-Emitting Lasers for Directed Energy Applications**  
*Eryn Fennig*, Rose-Hulman Institute of Technology
- 1440 **SBS Suppression and Coherent Combination of Fiber MOPAs via Chirped Diode Lasers**  
*Zhi Yang*, Hunter College (CUNY)
- 1500 **Break**
- 1540 **Model of Heat Transferred to Cell Culture from IR Laser for Excitation Purposes**  
*Theodore Schomay*, University of Colorado
- 1600 **Analysis of Thermal and Strain Effects in Composites using Fiber Bragg Grating Optical Temperature Sensors**  
*Kyle Elam*, United States Naval Academy
- 1620 **Upgrading a Modeling Tool for Solid State Laser Weapon System Cost, Size, Weight and Power**  
*Zachariah Netzer*, Southwest Indian Polytechnic Institute
- 1640 **Photoionization in a Rb Alkali Laser**  
*Logan Brandt*, US Air Force Academy
- 1700 **Investigation of Vacuum Ultraviolet Emission and Absorption During Pulsed Surface Flashover along Dielectric Interfaces**  
*George Laity*, Texas Tech University

#### *End of Webcast of Presentations*

## TUESDAY AFTERNOON

### DE Modeling & Simulation/Numerical Simulation I (*WEBCAST at 1300*)

Chair: *Keith Cartwright*, Sandia National Laboratories

#### *Start Webcast of Presentations*

- 1300 **Numerical Modeling of Nd:YAG HEL Effects in Carbon Fiber Reinforced Polymers**  
*Andrew Tresansky*, US Naval Academy
- 1330 **Numerical Modeling of the Heat Transfer and Damage Evolution due to HEL Irradiation of Opaque PMMA**  
*Peter Joyce*, U.S. Naval Academy
- 1400 **Effect of Voltage Rise-time and Cathode Morphology on Electron Velocity Distribution in a Relativistic Magnetron**  
*Sarita Prasad*, University of New Mexico
- 1430 **Metamaterial Based Electron Beam Tube**  
*David French*, Air Force Research Laboratory
- 1500 **Break**
- 1530 **Toward a Predictive Laser Lethality Modeling and Simulation**  
*Howard Lowdermilk*, Lawrence Livermore National Laboratory
- 1600 **The Phenomenological and Mathematical Connections of Phased Laser Arrays to Biological Neural Nets as derived from the Life and Work of Donald O. Hebb**  
*Erik Bochove*, Air Force Research Laboratory
- 1630 **Validity of Using Gaussian Schell Model for Scattering of a Fully Coherent Beam from a Rough Impedance Surface (C)**  
*Santasri Basu*, Air Force Institute of Technology

#### *End of Webcast of Presentations*

## WEDNESDAY MORNING

### Laser Components I (*WEBCAST at 0800*)

Chair: *Greg Pitz*, Air Force Research Laboratory

#### *Start Webcast of Presentations*

- 0800 **Scalable Pump Source for Diode-Pumped Alkali Laser**  
*Bill Hersman*, University of New Hampshire and Xemed
- 0830 **Window Protection Technology for High-Power DPAL**  
*Bill Hersman*, University of New Hampshire and Xemed
- 0900 **Pulsed vs. CW Thermal Breakdown in Nanolaminate Optical Coatings on Patterned Optics**  
*Lucas Taylor*, University of Minnesota
- 0930 **Exciplex Pumped Rb-Ar and Rb-Kr Lasers**  
*Glen Perram*, Air Force Institute of Technology
- 1000 **Break**
- 1030 **Mid-Infrared Rubidium Vapor Laser**  
*Glen Perram*, Air Force Institute of Technology
- 1100 **Anderson Tallman Unified Theory of Pressure Broadening for Cs - He, Ne, and Ar Collisions**  
*Gordon Hager*, Air Force Institute of Technology

#### *End of Webcast of Presentations*

## WEDNESDAY MORNING

### DE Employment and DE Programs I (*WEBCAST at 0800*)

Chair: *Dave Robie*, USAF Air Combat Command

#### *Start Webcast of Presentations*

- 0800 **High Energy Laser Mobile Demonstrator Update**  
*Blaine Beardsley*, Boeing
- 0830 **Power Beaming to UAVs using High-Power Fiber Lasers**  
*Richard Fischer*, Naval Research Laboratory
- 0900 **DE Momentum Beaming (DEMB) for Innovative Spacecraft Maneuvering**  
*Young Bae*, Y.K. Bae Corporation
- 0930 **New Vistas in Fundamental Research for Directed Energy**  
*John Luginsland*, Air Force Office of Scientific Research
- 1000 **Break**
- 1030 **Long Range Projection of High Energy Densities with Laser Filamentation and Selected Interaction Studies**  
*Martin Richardson*, University of Central Florida

#### *End of Webcast of Presentations*

## WEDNESDAY AFTERNOON

### Energy, Power and Thermal Management for DE I (*WEBCAST at 1430*)

Chair: *Siddarth Pratap*, University of Texas at Austin

#### *Start Webcast of Presentations*

- 1430 **Electrical Contact Resistance**  
*Peng Zhang*, Nuclear Engineering and  
Radiological Sciences, University of Michigan
- 1500 **Development of a Compact Heat Pipe Oven  
for Optically Pumped Alkali Laser Research**  
*Wade Klennert*, The Boeing Co.
- 1530 **Compact Modular High Energy FEG Systems**  
*Zack Roberts*, Radiancance Technologies
- 1600 **High Voltage Lithium Phosphate Cells for  
High Power Applications**  
*Bridget Deveney*, Saft America

#### *End of Webcast of Presentations*

## WEDNESDAY AFTERNOON

### RF Sources (*WEBCAST at 1430*)

Chair: *David French*, Air Force Research Laboratory

#### *Start Webcast of Presentations*

- 1430 **Brillouin Flow in Recirculating Planar  
Magnetron**  
*David Simon*, University of Michigan
- 1500 **Microwave Oscillation in a Recirculating  
Planar Magnetron**  
*Matthew Franzi*, University of Michigan
- 1530 **W-Band Sheet Beam Extended Interaction  
Klystron (EIK)**  
*John Pasour*, Naval Research Laboratory
- 1600 **Design of Megawatt-Class Multiple-Beam  
Inductive Output Tubes**  
*Edward Wright*, Beam Wave Research Inc.
- 1630 **Incorporating Metamaterial Structures in  
High Power Microwave Sources**  
*Edl Schamiloglu*, University

#### *End of Webcast of Presentations*

## THURSDAY MORNING

### Panel (*WEBCAST at 0800*)

#### Model-Based Engineering

Moderator: *Grady Patterson*, TechFlow Scientific

#### *Start Webcast of Presentations*

0800 Panel Begins

1000 Break

### Special Speaker (Open)

1030 TBD

*Bill Decker*, Defense Acquisition University

#### *End of Webcast of Presentations*

## THURSDAY MORNING

### Technical Assessment of DE Capability (*WEBCAST at 0800*)

Chair: *Micheal Bernard*, Air Force Research  
Laboratory

#### *Start Webcast of Presentations*

0800 Recent Trends in Global High Power  
Microwave Source Research

*Edl Schamiloglu*, University of New Mexico

0830 Overview of the Laser Communications  
Relay Demonstration

*Bernard Edwards*, NASA Goddard Space  
Flight Center

#### *End of Webcast of Presentations*

## THURSDAY AFTERNOON

### RF DE Effects II (*WEBCAST at 1530*)

#### *Start Webcast of Presentations*

- 1530 **Mixed-Level Prediction of Electronic System Response to High-Power Microwaves and Nuclear Electromagnetic Pulse**  
*Larry Bacon, Sandia National Laboratories*
- 1600 **Progress in Electronic Battle Damage Assessment (eBDA)**  
*Jeffery Williams, Sandia National Laboratories*
- 1630 **Prediction of RF Circuit Effects using an Active Thevenin Equivalent Network Approach (ATHENA)**  
*Jeffery Williams, Sandia National Laboratories*

#### *End of Webcast of Presentations*

## THURSDAY AFTERNOON

### Biological Effects/Hazard Analysis (*WEBCAST at 1300*)

Chair: *Stephanie Miller, 711 HPW/RHDR*

#### *Start Webcast of Presentations*

- 1300 **INVITED: OSD Perspective on Joint Collaboration and Roadmapping for Non-Lethal Weapon Bioeffects Research Programs**  
*Patrick Mason, ASD(R&E)*
- 1330 **A Probabilistic Technique for Reflected Laser Risk Analyses**  
*Edward Early, TASC*
- 1400 **Hazard Analysis Directed Energy Simulation (HADES) Role in the Development of High Energy Lasers and High Power Microwave Weapon Concepts**  
*Richard Vickery, 711 HPW/RHDO*
- 1430 **Sunspot: Creating Diffraction Reduced Spots Using Active Denial System (ADS) System**  
*James Parker, General Dynamics Information Technology*
- 1500 **Break**
- 1530 **Sunspot: Preliminary Results**  
*James Parker, General Dynamics Information Technology*

#### *End of Webcast of Presentations*

## FRIDAY MORNING

### **Laser Components II and Laser Effects II (WEBCAST at 1030)**

Chair: *Vincent Chernesky*, NAVSEA

#### *Start Webcast of Presentations*

- 1030 **Interaction of Composite Materials with  
0.8-micron Wavelength Light**  
*Sheldon Wu*, Lawrence Livermore National  
Laboratory
- 1100 **Demonstration of a Dual Camera Approach  
for Detection and Characterization of CW  
Laser from Bistatic Geometries**  
*Ike Bendall*, SSC Pacific

#### *End of Webcast of Presentations*

## FRIDAY MORNING

### **Beam Control III (WEBCAST at 0900)**

Chair: *Dan Herrick*, Air Force Research Laboratory

#### *Start Webcast of Presentations*

- 0900 **Optical Directed Energy Beam Directors:  
Enabling Capabilities for the War Fighter**  
*Paul Konkola*, Eyekon Systems
- 0930 **Directed Electromagnetic Energy Beam Path  
Bending Downward Due to Refractivity**  
*Michael Thomason*, Jacobs/TYBRIN -  
Edwards AFB

#### *End of Webcast of Presentations*



## FRIDAY AFTERNOON

### DE Education Workshop (*WEBCAST at 1300*)

#### *Start Webcast of Presentations*

- 1300    **HEL JTO Introduction**  
*Don Seeley*
- 1310    **DEPS Educational Initiative Overview**  
*Sam Blankenship*
- 1320    **Air Force Institute of Technology**  
*Ashley Ungericht*
- 1350    **Naval Postgraduate School**  
*William Colson*
- 1420    **Cranfield University**  
*David James*
- 1450    **Break**
- 1510    **Colorado State University**  
*Sandra Biedron*
- 1540    **University of Arizona**  
*Pavel Polynkin*
- 1610    **HEL Center of Excellence**  
*David Hostutler*

#### *End of Webcast of Presentations*