

Technical Program



2009 Directed Energy Systems Symposium

Beam Control Conference

DE Effects Mitigation Conference

DE Modeling and Simulation Conference

Employment of DE Weapons Conference

HEL Lethality Conference

6 - 10 April

Monterey, California

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General Information

Security

- DE Systems Symposium is SECRET/ NOFORN
- DEPS issued ID badges & valid gov't ID are required
- Wireless electronic devices are prohibited in classified sessions
- Classified materials must be processed through DEPS security
- Classified notes **MAY ONLY BE TAKEN IN NOTEBOOKS PROVIDED BY SECURITY STAFF** (No note-taking in Opening Plenary)
- Classified and sensitive but unclassified conversations and discussions are restricted to designated meeting rooms only
- Cameras and photography must be authorized by the DEPS Symposium security manager
- Audio and video recording is prohibited
- Security concerns should be addressed to a DEPS Security Team member - identified by a RED BADGE
- Failure to adhere to security standards could result in Denied/Revoked Symposium registration

Meals

Breakfast is available Tuesday through Friday in San Carlos IV at the Marriott.

Lunch is available at Hermann Hall at NPS Tuesday, Wednesday, and Thursday. Lunch is available Wednesday in San Carlos IV at the Marriott.

Refreshment services will be available at all locations throughout the week.

The Welcome Reception will be held on Tuesday in the exhibit hall at the Marriott.

The Thursday evening reception will be held at the Monterey Bay Aquarium.

Buses

The buses will begin at 0700 on Monday and run as follows:

Monday	0700 - 1230
Tuesday	0700 - 1730
Wednesday	0700 - 1730
Thursday	0700 - 2230
Friday	0700 - 1230

Buses will leave from the Marriott and drop off at various locations at NPS. One bus will circle from the Hyatt to the Marriott. We encourage attendees to not bring cell phones, laptops, or notebooks to NPS.

Buses will run on Thursday evening starting at 1900 from the Marriott to the Monterey Bay Aquarium.

MONDAY

Short Courses

0700 Registration at Marriott

0800 Short Courses Begin

Introduction to Beam Control (OPEN)

*Paul Merritt, University of New Mexico
Marriott Hotel*

Aero Optics (OPEN)

*Eric Jumper, Notre Dame
Marriott Hotel*

HELEEOS (LIMITED)

*Richard Bartell, Steven Fiorino, Matthew Krizo,
Air Force Institute of Technology
Marriott Hotel*

Wargaming (LIMITED)

*Matt Caffrey, Air Force Research Laboratory
Marriott Hotel*

Laser Induced Sensor Effect (SECRET)

DE Weapons & Bio-Effects (SECRET)

Beam Directors 101 (LIMITED) ALL DAY

*William Decker, Defense Acquisition University
Marriott Hotel*

1200 Break for Lunch

1300 Short Courses Begin/Resume

**Basic Contracting Information for Technical
Personnel (free special lecture)**

Linda Buix, AFRL Contracting Officer

Image Tracking (OPEN)

*Chris Musial, Boeing
Marriott Hotel*

Effects Measurements (LIMITED)

*Nicholas Morley, Air Force Research Laboratory
Marriott Hotel*

HELCoMES (LIMITED)

*Troy Rhoadarmer, Keith Wojciechowski, Science
Applications International Corporation
Marriott Hotel*

1715 Last bus returns from NPS

TUESDAY MORNING

PLENARY SESSION

Opening Plenary (SECRET)

NPS, King Hall

0700 Registration and Breakfast at Marriott

0715 Buses begin to NPS

0800 Call to Order and Introduction

0810 Welcome

0815 Integration of DE with Kinetic Operations

0900 Directed Energy and Defense
Science & Technology

0930 Game Changing Technology

1000 Break

1030 Naval S&T Interest in Directed Energy
Weapon Systems

1100 Army Perspective on Directed Energy

1130 High Energy Laser Weapons:
Progress on the Horizon

1200 Lunch at NPS only

TUESDAY AFTERNOON

BEAM CONTROL

Phased Arrays (SECRET)

NPS, ME Auditorium

Chair: *Dan Marker*, AFRL/RDS

- 1300 Meeting the Premise and Promise of Phased Array Laser Systems
- 1330 Atmospheric Turbulence Correction Using Coherent Detection
- 1355 Coherent Beam Combining with the Interferometric Phased Array Laser System
- 1415 Sharing Sub-Apertures in a Phased Array (HEFL) Transceiver: Issues and Approach
- 1430 Break
- 1500 Adaptive Array of Phase-Locked Fiber Collimators: Analysis and First Experimental Demonstration of Dynamic Phase Distortion Compensation
- 1530 Next-Generation Adaptive Photonic Phase-Locked Elements (APPLE) System
- 1555 Performance tests of the DARPA APPLE Phase 1 array
- 1620 Improved Mission Effectiveness of HEL Systems With Phased Array Beam Control
- 1645 Trade Studies of Phased Array Laser Concepts for Tactical Aircraft Applications
- 1715 Last bus leaves NPS
- 1730 Welcome Reception at Marriott in the Exhibit Hall

TUESDAY AFTERNOON

EFFECTS MITIGATION

Mitigating Laser Effects (SECRET)

NPS, Ingersoll Hall

Chairs: *Stephanie Miller and Noel Montgomery*, AFRL

- 1300 Sensor Protection
- 1330 Battlefield Laser Effects and Tactical Mitigation Strategies
- 1400 InGaAs Focal Plane Array Jamming and Damage Baseline Studies
- 1430 Break
- 1500 Forecasting DE Personnel Protection Requirements

Mitigating RF Effects (SECRET)

Chairs: *Stephanie Miller and Noel Montgomery*, AFRL

- 1530 Directed Energy Personnel Protection
- 1600 Microwave Shielding Technology
- 1715 Last bus leaves NPS
- 1730 Welcome Reception at Marriott in the Exhibit Hall

TUESDAY AFTERNOON

MODELING & SIMULATION

Atmospheric Propagation Effects Modeling and Simulation (LIMITED)

Marriott Hotel, San Carlos I

Chair: *Steven Fiorino*, AFIT/ENP

- 1300 Continuum Type Absorption in the NIR Atmospheric Windows: Experimental Approaches
William Torruellas, Johns Hopkins University
- 1330 Continuum Type Absorption in the NIR Atmospheric Windows: Models
Michael Thomas, Johns Hopkins University
- 1400 Broad Spectrum, Three-Dimensional Optical Turbulence Assessments from Doppler Weather Radar
Jannette Cohen, AFIT/ENP
- 1430 Break

Beam Combination and Database Modeling and Simulation (LIMITED)

Chair: *Steven Fiorino*, AFIT/ENP

- 1500 Performance Model of Laser Weapon Systems Comprised of Multiple Tiled Subapertures
Richard Bartell, AFIT/ENP
- 1530 Modeling and Simulation of a 19-Element, Tiled-Aperture Fiber Laser Array
Raymond Motes, AFRL/RVS
- 1600 Beam Merging Concepts for Systems Efficiency of High Power Free Electron Lasers
Michael Phillips, Advanced Energy Systems
- 1630 Covariance Based Performance Analysis
Jeff Barchers, Nutronics, Inc.
- 1730 Welcome Reception at Marriott in the Exhibit Hall

TUESDAY AFTERNOON

HEL LETHALITY

Foreign Threat Description (SECRET)

NPS, Glasgow Hall

Chair: *Michael Richardson*, NSWCDD

- 1300 Unmanned Aerial Vehicle (UAV) Threat Prioritization
- 1430 Break
- #### System / Subsystem Test Results
- Chair: *David Lyman*, SAIC
- 1500 Vulnerability of a High Explosive Target to HE Fiber Lasers
- 1530 Cylinder Validation Test (CylVA) Supporting Development of the ABAQUS Progressive Damage Model

- 1600 SWARM UAV Laser Vulnerability Assessment

- 1630 HEL Engagement Testing of a Surface-to-Air (SAM) Radome Inside a High Speed Wind Tunnel

- 1715 Last bus leaves NPS

- 1730 Welcome Reception at Marriott in the Exhibit Hall

TUESDAY EVENING

JOINT SESSION

Symposium Poster Session

Marriott

Slow Light Applications Using a Hot Alkali Vapor
-Monte Anderson, AFIT

Fundamental Challenges for Beam Phasing at a Target
-Jeffery Barchers, Nutronics

Airborne Target Irradiance and Imagery Measurement Test-Bed -Mike Bertin, SAIC

High Energy Laser Ground Target Irradiance Measurement Capability -Mike Bertin, SAIC

Sensitivity Study of Optical Turbulence for Laser Communication -Jannette Cohen, AFIT

NPS Beam Control Testbed -Melissa Corley, NPS

HEL Data Summaries and Standards -Robert Cozzens, NRL

Radar Observations of Turbulence Using MST and FMCW Radar -Frank Eaton, AFRL/RDSE

Spatial Temporal Control of Adaptive Optics Systems
-Dan Herrick, AFRL/RDSE

Restoration of Scene Information Reflected from Non-Specular Media -Mark Hoelscher, AFIT

The Phased Array Beam Control Toolbox
-Dan Marker, AFRL/RDS

Phased Array Imaging: Experimental Results
-Joe Marron, LMCT

Testing of an Adaptive Photonic Phase-Locked Elements (APPLE) System -Andrew McKie, Raytheon

Long Term Goals for Phased Array of Phased Arrays, PAPA, Technology -Paul McManamon, Exciting Technology

Trade Studies of Phased Array Laser Concepts for Tactical Aircraft Applications -Doug Rigdon, Schafer

Sharing Sub-Apertures in a Phased Array (HEFL) Transceiver: Issues and Approach -Jim Rotge, Boeing

Direct Experimental Comparison between a MEMS Segmented Deformable Mirror and a Xinetics Deformable Mirror -Julie Smith, AFRL/RDSA

TMASS: A Temperature Dependent Material Angular Scatterometer System -Kevin Teele, Ball Aerospace

Simulation Results for Spatial Filtering of Deformable Mirror Commands for Mitigation of the Waffle Mode Instability -Kevin Vitayaudom, AFRL/RDSA

Study of Laser Interaction on Thin Targets
-Robert Yamamoto, LLNL

WEDNESDAY MORNING

BEAM CONTROL

Systems (LIMITED)

Marriott Hotel, San Carlos II

Chair: *Brian Hankla*, NSWC Dahlgren

0800 **Design of a Coherent Optical Multi-Beam Atmospheric Testbed (COMBAT) for Deep Turbulence Effects Characterization and Mitigation Over 149 km Propagation Path**

Mikhail Vorontsov, ARL

0830 **ABL Adjunct Mission Low-Power Test Bed (LPTB) Description and Data**
Dave Swain, LM

0900 **BILL-Less Wavefront Sensing for HEL Systems**
Rich Hutchin, OPC

0930 **Preliminary Design for the High Energy Laser Technology Demonstrator (HEL TD)**
Heather Hudson, USASMD

1000 **Break**

Aero-Optics (LIMITED)

Chair: *Mike Zenk*, University of Notre Dame

1030 **DEBI-BATL, Directed Energy Beam Improvement Using Binary Control for the Advanced Tactical Laser**
Valdis Kibens, Boeing

1100 **Laboratory Tests of Adaptive Control for Aero-Optics Compensation**
Matt Whiteley, MZA

1130 **Predictive Control Using a priori Effective Wind Velocities in Adaptive Optics**
Sean Grove, AFIT

1200 **Lunch at Marriott or NPS**

WEDNESDAY MORNING

EFFECTS MITIGATION

General DE Mitigation (LIMITED)

Marriott Hotel, San Carlos I

Chairs: *Stephanie Miller* and *Noel Montgomery*, AFRL

- 1000 **Break**
- 1030 **Advances in Modeling Laser Eye Protection Physical and Visual Compatibility and Vulnerability to Laser Threats**
Martin LaFrance, AFLR/RHDO
- 1100 **Determination of Bioeffect Threshold for Nanosecond Electrical Pulse Exposure in Mammalian Cells**
Bennett Ibey, AFRL/RHDR
- 1200 **Lunch at Marriott or NPS**

WEDNESDAY MORNING

DE MODELING & SIMULATION

Directed Energy Weapon Device Modeling and Simulation - Lasers (SECRET)

NPS, Ingersoll Hall

Chair: *Richard Berdine*, AFRL/RDPT

- 0700 **Registration and Breakfast at Marriott Buses begin to NPS**
- 0800 **Solving the Heat Conduction Problem in a Gain Medium Using Pseudospectral Methods: An Alternative to Finite-Difference and Finite-Element Methods**
- 0830 **High-Fidelity Modeling of Diode Pumped Alkali Laser Systems**
- 0900 **A COIL Improvement Model for Technology Insertion and Trade-Off Studies**
- 0930 **Model-Based Design Optimization for Directed Energy Weapons Systems**

Directed Energy Weapon Device Modeling and Simulation - High Power Microwave

Chair: *Richard Berdine*, AFRL/RDTP

- 1030 **Small Scale Pulsed System for Autonomous Vehicles**
- 1100 **TMax Model Validation for Wideband Threat Source Antenna Pattern**
- 1130 **ADS BattleStorm Simulator**
- 1200 **Lunch at Marriott or NPS**

WEDNESDAY MORNING

EMPLOYMENT OF DE WEAPONS

Airborne Systems (SECRET)

NPS, ME Auditorium

Chair: *Walter Cole*, USMA

- 0700 Registration and Breakfast at Marriott
Buses begin to NPS
- 0800 Directed Energy Technologies for Space
Protection
- 0825 Conceptual Laser Weapon System for
the Next Generation Fighter
- 0850 Sensor Optimization for Remote Laser
Tagging, Tracking, and Locating
Operations
- 0915 Safe Employment of Directed Energy
Weapons in the Air Force
- 0940 HELLADS Electric Laser on a B-1 Bomber
- 1200 Lunch at Marriott or NPS

WEDNESDAY MORNING

HEL LETHALITY

Test Facilities, Instrumentation, Diagnostics and Techniques (LIMITED)

Marriott Hotel, San Carlos I

Chair: *Chris Behre*, NSWC DD

- 0700 Registration and Breakfast at Marriott
- 0800 Tri-Service Study Update Project
Mike Bertin, SAIC
- 0830 Development of On-Board Diagnostic
Systems for HEL Testing
David Thomas, AEGIS
- 0900 Ghosting and Other Anomalies Observed
in Near IR Camera Beam Diagnostics
Ralph Rudder, Cavalla Inc.
- 0930 Object Viewing Capabilities Under High
Intensity Light
Courtney Rister, AFRL/RDLE
- 1000 Break
- 1200 Lunch at Marriott or NPS

	Tues AM	Tues PM	Wed AM	Wed PM	Thurs AM	Thurs PM	Fri AM	Fri PM
King Hall	Opening Plenary				JOINT SESSION		Closing Plenary	
Glasgow Hall		LETHAL- ITY	LETHAL- ITY	LETHAL- ITY		LETHAL- ITY	LETHAL- ITY	
ME Auditorium		BEAM CONTROL	EMPLOY- MENT	EMPLOY- MENT		BEAM CONTROL		
Ingersoll Hall		EFFECTS MITIGA- TION	M&S	JOINT SESSION		M&S	JOINT SESSION	
Spanagel						JOINT POSTER SESSION		
San Carlos I		M&S	LETHAL- ITY / EFFECTS MITIGA- TION			EMPLOY- MENT		
San Carlos II			BEAM CONTROL	BEAM CONTROL				

WEDNESDAY MORNING

HEL LETHALITY

System Engineering Modeling and Analysis (SECRET)

NPS, Glasgow Hall

Chair: *Stan Patterson*, USA AMRDEC

0700 Registration and Breakfast at Marriott
Buses begin to NPS

0800 Laser Damage to Multiple Layer Metal
Targets

0830 Drift Analysis

0900 Selection, Development, and Validation
of the Progressive Damage Based High
Fidelity Modeling Methodology for
Laser-Target Interactions

0930 Scaling of Nonlinear Interactions for
Small Spot Sizes

1000 Break

Component Response (SECRET)

Chair: *Mike Libeau*, NSWCCD

1030 Susceptibility of a Quadrifilar Helical
Antenna to 1.07 Micron Laser Irradiation

EO / IR Sensor Susceptibility (SECRET)

Chair: *Michael McAullife*, AFRL/RDLE

1100 Modeling of Out-of-Band Jamming
Experiments on an IR MANPADS Seeker

1130 Non-Linear Response of Insb Focal Plane
Array to 4 μ m Nanosecond Laser Pulses:
From Dazzling to Damage

1200 Lunch at Marriott or NPS

WEDNESDAY AFTERNOON

JOINT SESSION

M&S and Lethality Joint Session (SECRET)

NPS, Ingersoll Hall

Chair: *Kurt Chewning*, JTCG/ME

1300 Joint Service Target Data Standardization
Group (JSTDSG) Overview and Review and
Approval Process Team (RAPT) Process

1330 Joint Lethality Effects Interface for
Modeling and Simulation

1400 Overview of HEL JMEM

1430 Break

1500 Creation of an Integratable Laser
Lethality Model

1530 Overview of Joint RF Effects Model

1600 Panel: The Way Forward for DE Target
Vulnerability Analysis

1715 Last bus leaves NPS

WEDNESDAY AFTERNOON

BEAM CONTROL

Aero-Optics Beam Control (LIMITED)

Marriott Hotel, San Carlos II

Chair: *Mike Zenk*, University of Notre Dame

1300 **Inertial Column Adaptive Optics (ICAO)**

Darryl Sanchez, AFRL/RDSA

1330 **Multi-Grid Approach for Predictive Wavefront Estimation**

Jeff Barchers, Nutronics

1400 **Aero-Optics Wavefront Measurements from an Air-Breakdown Beacon**

Matt Whiteley, MZA

1430 **Break**

Hardware (LIMITED)

Chair: *Larry Sher*, ABL Program Office

1500 **Initial Characterization of a MEMS Deformable Mirror**

Darryl Sanchez, AFRL/RDSA

1530 **Novel Plate-Type Deformable Mirrors and Adaptive Optics Systems for High Power Lasers**

Justin Mansell, MZA

1600 **An Articulated (Woofers) Secondary Mirror in a Very Fast Off-Axis Telescope**

Chan McKearn, Raytheon

1630 **Long-Burn Deformable Mirror**

Marc Jacoby, OPC

WEDNESDAY AFTERNOON

EMPLOYMENT OF DE WEAPONS

Counter IED (SECRET)

NPS, ME Auditorium

Chair: *John Hartke*, US Military Academy

1300 **Joint IED Defeat Organization 101**

1325 **DE and the Counter-IED Fight**

1350 **Employment of Directed Energy on the Battlefield for IED Defeat**

1415 **Design, Test and Performance Review of a Tactical Directed Energy System**

1440 **Break**

HPM and Seaborne Systems (SECRET)

Chair: *John Hartke*, US Military Academy

1515 **Navy Laser Weapon System (LaWS) UAV Design Reference Mission Analysis**

1540 **The Complementary Nature of Active Denial System and Kinetic Weapons**

1605 **Testing HPM Wideband and Narrowband Threat Sources for National Test Ranges**

1715 **Last bus leaves NPS**

WEDNESDAY AFTERNOON

HEL LETHALITY

Target Vulnerability Assessment (SECRET)

NPS, Glasgow Hall

Chair: *Carla Hamilton*, AFRL/RDLE

1300 Lethality Assessment of an Unmanned Aerial Vehicle to High-Energy Lasers During a Dynamic Engagement

HEL Demonstrations (SECRET)

Chair: *Carla Hamilton*, AFRL/RDLE

1330 Multi-kW Fiber Laser Lethality Testing Against Missiles

1400 Ultra Short Pulsed Laser IRCM Concepts and Testing

1430 Break

1715 Last bus leaves NPS

THURSDAY MORNING

JOINT SESSION

Symposium Joint Session (SECRET)

NPS, King Hall

Chair: *J. Thomas Schriempf*, NAVSEA

0700 Registration and Breakfast at Marriott
Buses begin to NPS

0800 Laser Weapon System (LaWS)
Demonstration Update

0825 Test and Validation of Laser Close In
Weapon System (CIWS) Testbed

0850 AFRL/RD Technologies for C-UAS
Applications

0915 ATL Extended User Evaluation Program

0940 Break

1005 Airborne Laser (ABL) Program Highlights

1030 HELLADS Overview

1055 Solid State Laser Testbed Experiment
(SSLTE) Overview

1120 ONR Test Programs

1200 Lunch at NPS Only

THURSDAY AFTERNOON

BEAM CONTROL

Control (SECRET)

NPS, ME Auditorium

Chair: *Mikhail Vorontsov*, ARL

1300 Precision HEL Boresight Sensor

1330 Reference Beam Free Phase Locking of High Power Fiber Amplifier Arrays

1400 Fine Beam Steering Simulation using 19- and 37-Element, Tiled-Aperture Fiber Laser Arrays

1430 Break

Propagation (SECRET)

Chair: *Albert Ogloza*, HEL JTO

1500 Laboratory Investigation of Compensation and Beacon Anisoplanatism in Strong Scintillation

1530 The Potential of Tomography to Address the Deep Turbulence Challenge

1600 Atmospheric Compensation via Separate Return Path Remote Phase Locking

1630 An Overview of the Creation and Evolution of Branch Points and Implications to Adaptive Optics

1715 Last bus leaves NPS

1915 Buses begin to Aquarium

1930 Strolling Dinner at the Aquarium

THURSDAY AFTERNOON

DE MODELING & SIMULATION

Mission-Level Modeling and Simulation (SECRET)

NPS, Ingersoll Hall

Chair: *David Dubuque*, AEgis

1300 Midcourse Discrimination of Ballistic Missiles Using High Energy Lasers

1330 Joint High Powered Solid State Laser Based Directed Energy Weapon System Optimization Through Scenario Modeling and Simulation

1400 B-1B Laser Weapon System Military Utility Study

1430 Break

1500 Conducting HPM Military Worth Analysis

1545 Benchmarking Low-Level Test Data To Tier I Simulations: A Top-to-Bottom Anchoring Of Live Test Data To A Campaign-Level Directed-Energy M&S

1630 Airborne Laser Interactive Concept Evaluator (ABL-ICE)

1715 Last bus leaves NPS

1915 Buses begin to Aquarium

1930 Strolling Dinner at the Aquarium

THURSDAY AFTERNOON

EMPLOYMENT OF DE WEAPONS

System Acquisition (LIMITED)

Marriott Hotel, San Carlos I

Chair: *John Wachs*, SMDC

- 1305 **Closed-Form Solution of Partially-Coherent and Multi-Aperture Beam Source Propagation through Atmospheric Distortion**
D.H. Tiszauer, Lockheed Martin
- 1330 **Transistioning DE from the Laboratory to Program of Record**
William Decker, Defense Acquisition University
- 1355 **Is It Worth It? Defense Procurement Impacts at the Sub-State Level**
Nicole Myers, USMA
- 1415 **Break**

Ground Based Systems (LIMITED)

Chair: *John Wachs*, SMDC

- 1445 **Finite Element Thermal Model with Dynamic Simulation for a Projectile Targeted by a 100kW High Energy Laser**
Christopher Larson, USMA
- 1520 **HEL Characteristics' Impact on Neutralization of an Incoming 82 mm Mortar**
Dan Gluzko, USMA
- 1545 **Raytheon Laser Centurion Demonstrator: Progress Developing of a Capabilities Based Near Term HEL Counter Mortar Weapon**
James Horkovich, Raytheon
- 1610 **Army HEL System Fieldability Status**
Gerald Wilson, PEO-Missiles and Space
- 1635 **Electronic Warfare and the Role of Directed Energy**
Scott McPheeter, PEO-Missiles and Space
- 1715 **Last bus leaves NPS**
- 1915 **Buses begin to Aquarium**
- 1930 **Strolling Dinner at the Aquarium**

THURSDAY AFTERNOON

HEL LETHALITY

Material Interactions (SECRET)

NPS, Glasgow Hall

Chair: *Paul Fleitz*, AFRL/RXP

- 1300 **HEL Effects Testing of UAV Materials and Components**
- 1330 **Change in the Absorption of Laser Radiation Due to Paint Content**
- 1400 **Dynamic BRDF Variability**
- 1430 **Break**
- 1715 **Last bus leaves NPS**
- 1915 **Buses begin to Aquarium**
- 1930 **Strolling Dinner at the Aquarium**

THURSDAY AFTERNOON

JOINT SESSION

Symposium Poster Session (SECRET)

NPS, Spanagel Hall

Chair: *Coutney Rister*, AFRL/RDLE

Laser Detector Damage Summary

Radar Observations of Turbulence Using MST and FMCW Radar

Long-Burn Deformable Mirror

Data Summary: High Energy Laser Lethality Testing on Thermal Protection Materials

Direct Experimental Comparison between a MEMS Segmented Deformable Mirror and a Xinetics Deformable Mirror

Simulation Results for Spatial Filtering of Deformable Mirror Commands for Mitigation of the Waffle Mode Instability

FRIDAY MORNING

JOINT SESSION

M&S and Beam Control Joint Session (SECRET)

NPS, Ingersoll Hall

Chair: *Eric Magee*, MZA Associates

0700 Registration and Breakfast at Marriott

0715 Buses begin to NPS

0800 ATL Turret Aerodynamics Effects

0830 Speckle Analysis of Adaptive Optics Systems: Application to ABL LPSI Flight Data

0900 Directed Energy Engineering Analysis Center (DE2AC)

0930 AFRL/RD Active Track Science Team Research Progress

1000 Break

FRIDAY MORNING

HEL LETHALITY

Bio-Effects (SECRET)

NPS, Glasgow

Chair: *Alfred Felipe*, AFRL/RDLET

- 0700 Registration and Breakfast at Marriott
- 0715 Buses begin to NPS
- 0800 Assessment of Collateral Hazards for High Energy Lasers in Counter-RAM Scenarios
- 0830 Hyperion Phase 1 + 2: High Energy Laser Bioeffects
- 0900 Hyperion Phase 3: High Energy Laser Bioeffects
- 0930 A Review of Near-IR CW Laser Ablation Mechanisms
- 1000 Break

FRIDAY MORNING

PLENARY SESSION

Closing Plenary Session (SECRET)

NPS, King Hall

- 1030 Call to Order
- 1040 Directed Energy Beam Control
- 1100 Directed Energy Modeling & Simulation
- 1120 Employment of Directed Energy Weapons
- 1140 High Energy Laser Lethality
- 1200 DE Effects Mitigation
- 1220 Adjourn
- 1230 Symposium Adjourns
- 1245 Last bus leaves NPS

Symposium Organizers

Symposium Co-chairmen:

Thomas Meyer

Jack Catton

Symposium Program Coordinator:

David Loomis

Conference Chairmen:

Dan Herrick, DE Beam Control

Stephanie Miller, Effects Mitigation

Linda Lamberson, DE M&S

John Hartke, Employment of DE Weapons

Nicholas Morley, HEL Lethality

Symposium Coordinator:

Cynnamon Spain

Registration / Short Courses:

Donna Storment

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