

# 59<sup>TH</sup> ANNUAL FUZE CONFERENCE

*"FUZING SYSTEMS FOR ADVANCED  
WEAPON PERFORMANCE"*



Charleston Marriott - Charleston, SC

**MAY 3 - 5, 2016**  
[WWW.NDIA.ORG/MEETINGS/6560](http://WWW.NDIA.ORG/MEETINGS/6560)  
EVENT #6560

# SCHEDULE

## Tuesday, May 3rd

3:00 pm - 4:30 pm Display Set Up  
 4:30 pm - 6:00 pm Registration and Opening Reception

## Wednesday, May 4th

7:00 am - 8:00 am Registration and Continental Breakfast

### Session I - Welcome, Administrative & Keynote Address

8:00 am - 8:05 am Introduction & Administrative Announcements  
 Mr. Bob Hertlein, L-3 Fuzing and Ordnance Systems, NDIA Fuze Committee Chair  
 8:05 am - 8:15 am NDIA Opening Remarks  
 MG Barry Bates, USA (Ret), Vice President of Operations, NDIA  
 8:15 am - 8:45 am Keynote Address  
 Captain Jaime Engdahl, USN, Program Manager, Precision Strike Weapons Program Office (PMA-201)

### Session II - U.S. Government Science, Technology & Acquisition

*Session Chair: Mr. Barry Neyer    Session Assistant: Mr. Bob Hertlein*

8:45 am - 9:10 am Army S&T Strategy  
 Ms. Karen Amabile, Project Officer, U.S. Army ARDEC and Mr. Shannon Haataja, AMSRD-RD MR-WDP-S  
 9:10 am - 9:30 am Navy S&T Strategy  
 Mr. Gabe Soto, Senior Electrical Engineer/FISTRP Chair, Naval Air Warfare Center  
 9:30 am - 10:00 am Air Force S&T Strategy  
 Mr. George Jolly, Technical Advisor, Fuze Branch, United States Air Force Research Laboratory  
 10:00 am - 10:30 am Morning Break in Display Area  
 10:30 am - 11:30 am DoD Fuze IPT Perspective / DoD Joint Fuze Technology Program  
 Mr. Lawrence Fan, Sr. Fuze Engineer, Naval Surface Warfare Center - Indian Head  
 11:30 am - 12:00 pm Fuze Safety Design Requirements Standards: US & NATO Updates  
 Mr. Homesh Lalbahadur, U.S. Army ARDEC  
 12:00 pm - 1:00 pm Lunch  
 1:00 pm - 3:00 pm Concurrent Sessions:

SESSION		1:00 PM	1:20 PM	1:40 PM	2:00 PM	2:20 PM	2:40 PM
SESSION IIIA Session Chairs: Mr. Jim Sharp & Mr. Nassir Alaboud	OPEN SESSION	18485 - Analysis and Recommendations for the Implementation of Flash Devices in Safety-Critical  Mr. David Flowers, Defense Microelectronics Activity	18544 - High Reliability FPGAs for Fuzing and Fuze Safety Applications  Mr. Ken O'Neill, Microsemi Corporation	18473 - An Evaluation of Flash Cells Used in Critical Applications  Mr. Rich Katz, NASA	18467 - Advantages of an EFI multi-point initiation system to direct the warhead performance to the selected target  Mr. Christian Euba, TDW GmbH	18511 - A Low Voltage Command-Arm System for Distributed Fuzing  Mr. Mark Etheridge, US Army-AMRDEC	18480 - Shock Hardened Multi-Output Fuze for TDW's Radius® Controllable Effect Technology  Dr. Raphael Gutser, TDW Warhead Systems
SESSION IIIB Session Chairs: Mr. Eric Roach & Mr. Don Shutt	CLOSED SESSION	18440 - Command Arm Applications for Non-Spinning S&As  Mr. John Geaney, US Army ARDEC	18496 - High Reliability Fuzing Architecture for DPICM- XL (Dual Purpose Improved Conventional Munition)  Mr. Stewart Genberg, US Army RDECOM ARDEC	18523 - High Reliability DPICM Replacement (HRDR)  Mr. Kevin Cochran, NSWC IHEODTD	18538 - Distributed Embedded Fuzing System (DEFS)  Capt Dennis "Mack" Cross, AFRL/RWMF	18555 - Electronic Safe and Arm Technologies for Distributed Fuzing Applications  Mr. Charles Treu, DOE National Security Campus	18541 - FMU-139D/B General Purpose Bomb Fuze  Mr. Wayne Steege, Orbital ATK

3:00 pm - 3:20 pm      Afternoon Break in Display Area  
 3:20 pm - 5:00 pm      Concurrent Sessions:

SESSION		3:20 PM	3:40 PM	4:00 PM	4:20 PM	4:40 PM	5:00 PM
SESSION IIIA Session Chairs: Mr. Jim Sharp & Mr. Nassir Alaboud	OPEN SESSION	18271 - Grand Challenge Test Article 2 Modeling During Impact on Very High G Machine	18549 - Methods for Development and Safety Analysis of modern Fuzing Systems	18519 - Methodology and Results of a Safe Separation Study for Navy 5-inch Projectiles	18489 - Pressurized Air Catch System (PACS) for Testing Projectiles and Components	18550 - The Design and Test of a new Insensitive Munitions (IM) Booster for the UK Paveway IV Weapon System	18477 - Use of X-RAY Microtomography to Characterize Several Internal Detonator Interfaces
		Mr. Miroslav Tesla, US Army ARDEC	Mr. Stefan Ebenhoech, Fraunhofer Institute for High-Speed Dynamics EMI	Mr. Jason W Koonts, NSWCDahlgren	Mr. Hamish Malin, NSWCDahlgren Division	Mr. Laurie Turner, Thales	Mr. Alex Lefrancois, Centre de Gramat
SESSION IIIB Session Chairs: Mr. Eric Roach & Mr. Don Shutt	CLOSED SESSION	18516 - Hardened Selectable Multipoint Fuze (HSMF) - JFTP Project	18463 - Hard Target Detection Algorithm Using Multi-Threshold G-Switches	18524 - Embedded Precision Initiation for Next-generation Engagements (PINE) Fireset R&D for General Purpose Warhead Applications	18472 - Energy Harvesting and Event Detection for ESAF in Gravity Dropped Weapons	18469 - Unpowered Cannon and Railgun Arming Environment Sensing	18510 - Fuze Setting Technologies for Rockets & Missiles
		Mr. Michael Connolly, US Army RDECOM AMRDEC	Ms. Sandy J Risha, US Army ARDEC	Mr. John Bailey, US Air Force	Mr. Paul E Anderson, NAWCWD China Lake	Ms. Katherine Harriger, NAWCWD	Mr. Mark Etheridge, US Army AMRDEC

5:20 pm      Adjourn  
 5:30 pm - 7:00 pm      Grand Reception

## Thursday, May 5th

7:00 am - 8:00 am      Registration and Continental Breakfast  
 8:00 am - 12:00 pm      Concurrent Sessions:

SESSION		8:00 AM	8:20 AM	8:40 AM	9:00 AM	9:20 AM	9:40 AM
SESSION IVA Session Chairs: Mr. Roy Streetz & Mr. Doug Harms	OPEN SESSION	18470 - XM1112 Airburst Nonlethal Munition Program Update	18462 - Development of an in-line EFI ignition safety device (ISD) for Fuzing of solid fuel motors	18558 - A real-time RF/Bluetooth application for low cost fuze test telemetry collection	18468 - Metria, New High Speed, High Acceleration Data Recorder	18486 - Shock-hardened Penetrator Data Recorder to Support Hard-Target Fuze Development	18529 - New 40mm Self-Destruct Fuze
		Mr. Timothy Mohan, US Army ARDEC	Mr. Dick Seddon, e2v Technologies Ltd	Mr. Greg Bixler, L-3 Fuzing and Ordnance Systems	Mr. Pavel Gontmacher, Rafael	Mr. Shane Curtis, Sandia National Laboratories	Mr. Aw Cheng Hok, Advanced Material Engineering
SESSION IIB Session Chairs: Mr. Thomas Harward & Mr. David Lawson	CLOSED SESSION	18545 - Improved Fuze Height of Burst Accuracy Field Testing Results	18553 - Lightweight 30mm Proximity Sensor	18533 - Distributed Target Model Validation for Advanced Fuze Processor Development	18554 - Imaging Fuze Technology for Weapon Terminal Burstpoint Control	18557 - Miniaturized Air Turbine Alternator Development	18514 - Improved Solid-State High Voltage Switch
		Mr. Hung-Sheng Chern, L-3 Mustang Technology	Mr. Daniel Kelly, US Army ARDEC	Mr Charles Overman IV, Univ. of FL - Electronic Communications Lab	Dr. Matthew J Burfeindt, Air Force Research Laboratory	Mr. Perry Salyers, L-3 Fuzing and Ordnance Systems	Mr. Thomas Hartmann Jr., Sandia National Laboratories

10:00 am - 10:20 am      Morning Break in Display Area

# SCHEDULE

SESSION		10:20 AM	10:40 AM	11:00 AM	11:20 AM	11:40 AM
SESSION IVA Session Chairs: Mr. Roy Streetz & Mr. Doug Harms	OPEN SESSION	18569 - DoD MEMS Fuze Reliability Evaluation  Mr. Taylor Young, NSWC IHEODTD	18560 - A Demonstration of a Multiple-Slave Synchronous Network for Fuzing Systems  Mr. Steven Cornett, Excelitas Technologies	18535 - Fuzing Challenges for Guided Ammunition  Mr. Simone Fioravanti, Finmeccanica	18526 - 3D Printing Technology for the Fabrication of Acceleration Sensor/Latch for Advanced Fuze  Dr. Muthurajan Harries, Energetics Research Institute	
SESSION IVB Session Chairs: Mr. Thomas Harward & Mr. David Lawson	CLOSED SESSION	18460 - MEMS Retard & Impact Sensors  Mr. Eddie Cornell, NAVAIR	18439 - Micro Scale Materials & Energetic Effects Characterization  Mr. John Geaney, US Army ARDEC	18540 - Silicon-MEMS and Metal-MEMS Low-G Retard Sensor Testing  Mr. Charles Weigel, Orbital ATK	18475 - Manufacturing MEMS Safe and Arm  Ms. Lynne Rider, US Army ARDEC	18484 - Wireless Power Transmission for Remote Fuzing Applications  Dr. Matthew Magill, Sandia National Laboratories

12:00 pm - 1:00 pm

Lunch

1:00 pm - 5:00 pm

Concurrent Sessions:

SESSION		1:00 PM	1:20 PM	1:40 PM	2:00 PM	2:20 PM	2:40 PM
SESSION VA Session Chairs: Mr. Bob Hertlein & Mr. Bill Kurtz	OPEN SESSION	18562 - Selecting and Specifying Lithium Batteries for Advanced Fuzing Systems  Mr. Paul Schisselbauer, EnerSys Advanced Systems	18406 - In Barrel Power Supply  Mr. Harald Wich, Diehl & Eagle Picher	18566 - Embedded Surface Mount Triaxial Accelerometer  Mr. Robert Sill, PCB Piezotronics	18561 - Design of High Voltage Ceramic and Glass Capacitors for Pulse Forming Networks  Dr. Derek Wilke, Sandia National Laboratories	18546 - Design Optimization of Setback Generators – a Contribution to Energy Budget of Fuzing Systems  Mr. Michael Faber, Rheinmetall Waffe Munition	18481 - European LEEFI-based? Fireset and ESAD  Mr. Max Perrin, JUNGHANS Defence
SESSION VB Session Chairs: Mr. Ken Kelly & Mr. Telly Manolatos	CLOSED SESSION	18507 - Mechanical Survivability of Embedded Fireset in Quasi-Static and Dynamic High-Pressure Environment  Lt Joshua Campbell, Air Force Research Lab	18539 - Fuze Modeling Grand Challenge: Computational Comparisons Round 3  Dr. Janet Wolfson, AFRL/RWMF	18459 - Novel Metal-free Primary Explosive  Dr. Andrew Ihnen, NAVAIR-WARCENWPNDIV	18488 - Modeling and Simulation of Non-Homogenous Layering  Ms. Sherri Hodgson, Applied Research Associates, Inc.	18492 - Using Multiple G-Switches for Target Detection  Dr. Jeffrey Hill, Sandia National Laboratories	18466 - Booster Design for IMX-101 Compatibility  Mr. Jason Sweterlitsch, US Army REDCOM-ARDEC

3:00 pm - 3:20 pm

Afternoon Break in Display Area

SESSION		3:20 PM	3:40 PM	4:00 PM	4:20 PM	4:40 PM
SESSION VA Session Chairs: Mr. Bob Hertlein & Mr. Bill Kurtz	OPEN SESSION	18548 - The Benefits of Model Based Design to the Cost Effective Validation/Qualification of Advanced Active Optical Target Detection Devices  Mr. Gary Buzzard, Thales Missile Electronics UK	18491 - Detonator Diagnostic Development  Ms. Elizabeth Francois, Los Alamos National Lab	18567 - Development of Modeling Methodologies for Simulation of Fuze Firesets Embedded in Explosive Fill  Mr. Andrew Malechuk, Applied Research Associates	18405 - Quality Driven Complex Logic Development Process  Mr. Nicholas Adams, L-3 Fuzing & Ordnance Systems	OmniShock™: A High G Data Recorder and Wireless Data Exfiltration System for Penetration Testing  Mr. Ron Knobler, McQ Inc.
SESSION VB Session Chairs: Mr. Ken Kelly & Mr. Telly Manolatos	CLOSED SESSION	18570 - Low-Cost, Low-Energy EFIs Using Commercial Materials and Processes  Mr. Michael Ward, Electronics Development Corp.	18506 - Evaluation of Damage Induced by Embedded Masses in Explosive Simulants  Dr. Janet Wolfson, AFRL/RWMF	18471 - Stacked MOSFET/IGBT Pulse Discharge Switch  Mr. Paul Anderson, NAWCWD China Lake	18531 - Measuring the Dynamic Pressure Environment of an Embedded Fireset  Dr. Jacob Dodson, AFRL/RWMF	18520 - Integration of Energetics and Electronics Using Additive Manufacturing Processes for Fuze Applications  Ms. Emily Cordaro-Gioia, US Army RDECOM-ARDEC

5:00 pm

Conference Adjourn

## TABLE TOP DISPLAY INFORMATION

### Displaying Companies

Diehl & Eagle Picher GmbH  
 e2v technologies, PLC.  
 EnerSys  
 Excelitas Technologies  
 Meggitt Sensing Systems/Endevco  
 Novacap, Inc.  
 PCB Piezotronics  
 Presidio Components, Inc.

### Display Hours

**May 3, 2016**  
 3:00 - 4:30      *Set-up*  
 4:30 - 6:00      *Reception in display area*

**May 4, 2016**  
 7:00 - 8:00      *Continental Breakfast*  
 10:00 - 10:30    *AM Break in display area*  
 3:00 - 3:20      *PM Break in display area*

**May 5, 2016**  
 7:00 - 8:00      *Continental Breakfast*  
 10:00 - 10:20    *AM Break in display area*  
 3:00 - 3:20      *PM Break in display area*  
 3:20 - 5:00      *Dismantle*

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Orbital ATK specializes in the design, build and delivery of space, defense and aerospace-related systems for customers worldwide, both as a prime contractor and supplier. Our Defense Systems Group is an industry leader in the design and manufacture of a wide range of defense products including advanced fuzes. Our fuze portfolio boasts the FMU 167/B Hard Target Void Sensing Fuze which offers unprecedented capability against complex buried targets and recently achieved Milestone C for LRIP, and the new, all-electronic FMU-139D/B general purpose bomb fuze that was recently selected by the U.S. Navy and Air Force for production. For more information on these and our other fuzes, visit us at [www.OrbitalATK.com](http://www.OrbitalATK.com) under Defense Systems, Missile Products. Orbital ATK, The Partner You Can Count On™.

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