

54TH ANNUAL FUZE CONFERENCE

“The Fuzing Evolution-Smaller, Smarter, and Safer”



May 11-13, 2010

KANSAS CITY, MO

TUESDAY, MAY 11, 2010

3:00-6:30 pm - Onsite Registration

5:00-6:30 pm - Opening Reception

New This Year

Visit the following
company Table Top
Displays in the Regency
Ballroom Prefunction
area:

- Bennington
Microtechnoogy
- DTS, Inc.
- EnerSys
- NNSAs National Secure
Manufacturing Center
- PCB Piezotronics
- US Army Yuma Proving
Ground

*Keep this in mind for your
company in 2011!*

WEDNESDAY, MAY 12, 2010

GENERAL SESSION

Session I

7:00 am Onsite Registration/Continental Breakfast

8:00 am Introduction/Administrative Remarks
Dr. Barry Neyer, Chair, Fuze Division
Director of Engineering, Defense, PerkinElmer

8:05 am NDIA Opening Remarks
MG Barry Bates, Vice President, Operations
National Defense Industrial Association

8:10 am Keynote
Robin Stubenhofer, Vice President of Operations,
Kansas City Plant

Session II

CHAIR: JIM SHARP ASSISTANT: DR. BARRY NEYER

8:40 am DTRA Overview
Danny Hayles, Defense Threat Reduction
Agency

9:00 am ARDEC Overview
Dr. Joseph Lannon, Director, Armament Research,
Development & Engineering Center

9:20 am AMRDEC Overview
Mr. Shannon Haataja, Electronic Engineer, US
Army AMRDEC

9:40 am BREAK

10:00 am Navy Overview
Mr. John Hendershot, Fuze Branch Head, NSWC
Indian Head Division

10:30 am Air Force Fuze Strategy
Tim Tobik, Chief, Fuze Branch, Air Force Research
Laboratory

11:00 am Fuze IPT Perspective
Charles Kelly, OUSD (AT&L)

11:15 am Joint Fuze Technology Program
Lawrence Fan, NSWC Indian Head Division

WEDNESDAY, MAY 12, 2010 (PM)**OPEN SESSIONS**Session IIIA**CHAIR: KEN KELLY ASSISTANT: BOB HERTLEIN**

- 1:00 pm High Reliability Fuzing Architecture for Cluster Munitions
Karen Amabile, US Army ARDEC
- 1:20 pm Dynamic Impact Simulation of "High-G Hardened Fuzes"
Dr. Paul Glance, Naval Air Warfare Center Weapons Division
- 1:40 pm Modelling the Interaction of a Laser Target Detection Device with the Sea Surface
Gary Buzzard, Thales
- 2:00 pm Adaptive Imaging and Guided Fuze Technologies
Ron Barrett, The University of Kansas
- 2:20 pm Design Challenges and Critical Technology Discovery for Hard Target Fuze Design
Chad Hettler, Sandia National Laboratories
- 2:40 pm Systems Engineering in Hard Target Systems Design
Patrick O'Malley, Sandia National Laboratories
- 3:00 pm BREAK
- 3:20 pm M789 30mm Sensitivity Improvement
John Geaney, US Army ARDEC
- 3:40 pm Optical System to Control Termination of Small & Medium Caliber Munitions
Dr. Sergey Sandomirsky, Physical Optics Corp.
- 4:00 pm NavFire Guidance System – Integrated GPS and Mission Computer for Future Navigation Solutions
Walter Trach, Rockwell Collins
- 4:20 pm Integrating Manufacturability into Fuze Development
Stephen Redington, US Army ARDEC
- 4:40 pm Conference Adjourned For the Day
- 5:30 pm - 7:00 pm Grand Reception

US ONLY SESSIONSSession IIIB**CHAIR: TOM BAGINSKI ASSISTANT: ED COOPER**

- 1:00 pm The Demands of Supersonic Penetrator Weapons on the Safety and Survivability of Ordnance Fuzing Systems
Laurie Turner, Thales
- 1:20 pm Joint Fuze Technology Panel (JFTP) Hardened Miniature Fuze Technology (HMFT) Development
Jefferson Oliver, AFRL/RWMF
- 1:40 pm Universal Smart Fuze for Unmanned Aerial Vehicle and Other Remote Armament Systems
Daniel Vo & Lloyd Khuc, US ARMY ARDEC
- 2:00 pm Army Selectable Yield Unitary (ASYU) Fireset Characterization
Don Limbaugh, US Army ARDEC
- 2:20 pm Command to Arm S&A for Mortar Fuze Application
Byron Lee, ATK
- 2:40 pm An Economically Produced Mechanical Command-to-Arm Fuze for 40mm Rifled Grenade Applications
James Wise, DSE, Inc.
- 3:00 pm BREAK
- 3:20 pm Multi-point Initiation Systems for Non-Ideal Explosives
Dr. David Lambert, Air Force Research Laboratory
- 3:40 pm Extremely Insensitive Detonating Substance (EIDS) Initiation System Progress
Brad Hanna, NSWC Indian Head Division
- 4:00 pm Conformal Detonation Devices using Direct Write Technologies
Dr. Anne Marie Petrock, US ARMY ARDEC
- 4:20 pm Based Roll Determination in Spinning Projectiles
Steve Alexander, L3
- 4:40 pm Photonic Sensors for Fuzing of Hardened Target Penetrators
Dr. Todd Meyrath, Aerius Photonics
- 5:00 pm Lithium/Thionyl Chloride (Li/SOCl₂) Cell for Medium Caliber Ammunition
Paul Schisselbauer, EnerSys Advanced Systems
- 5:20 pm Conference Adjourned For the Day
- 5:30 pm - 7:00 pm Grand Reception

THURSDAY, MAY 13, 2010 (AM)

REGISTRATION

7:00 am Onsite Registration/Continental Breakfast

OPEN SESSIONS

Session IVA

CHAIR: TELLY MANOLATOS **ASSISTANT:** LAWRENCE FAN

- 8:00 am XM1156 Precision Guidance Kit (PGK)
Anthony Pergolizzi, Army Fuze Management Office
- 8:20 am 40mm Infantry Grenade PD Self-Destruct Fuze
Michael Butz, JUNGHANS Microtec
- 8:40 am New Safety Requirements: Fuzing System Solutions
Max Perrin, JUNGHANS Microtec
- 9:00 am Testing Navy Electronically Settable Fuzes for Ordnance Assessment
Jason Koonts, NSWC Dahlgren
- 9:20 am Improved Energetic Materials as Fuze Ingredients
Dr. David Price, BAE Systems
- 9:40 am High Speed Digital Infrared Imaging of the M201A1 Grenade Fuze Initiation Train
Dr. Ryan Olsen, Naval Surface Warfare Center - Crane, Detachment F
- 10:00 am BREAK
- 10:20 am Safety Assessment of Fuzing Systems Using IEC 61508
Dr. Ivo Häring, Fraunhofer EMI
- 10:40 am Impact Switch Study
Dr. Dave Frankman, L3 Fuzing and Ordnance Systems
- 11:00 am Radio Frequency Programmable Signal Processor System for Fuze Programming
Douglas Cox, Mixed Signal Integration
- 11:20 am High Energy Self-integrated Piezoelectric Setback Generators for Smart Fuzing
Dr. Alfredo Vazquez Carazo, MICROMECHATRO ICS, Inc.
- 11:40 am Programmable Initiators to Extend Functionality of Reserve Power Systems
Carlos Pereira, US Army ARDEC

12:00 pm LUNCH

US ONLY SESSIONS

Session IVB

CHAIR: CURT POWELL **ASSISTANT:** FRAN MATTIA

- 8:00 am MEMS Fuzing for High Reliability Systems
Dr. Michael Deeds, Naval Surface Warfare Center Indian Head Division
- 8:20 am Design and Testing of Low-G and Very Low-G Retard Metal MEMS Sensors
Ryan Knight, US Army ARDEC, Fuze Division
- 8:40 am A Versatile Explosive Train Integrated into a MEMS Safety and Arm Device
Alex Parkhill, NSWC Indian Head Division
- 9:00 am Non-Inertial MEMS Mechanical Safety and Arming Device
Tim Hoang, US Army ARDEC Fuze Division
- 9:20 am MEMS Fuze in 40mm HEDP Cartridge Demonstration
Charles Robinson, US Army ARDEC
- 9:40 am Navy MEMS Fuze Technology for Marine Corp Flight Control Mortar Application
Dr. Daniel Jean, NSWC Indian Head Division
- 10:00 am BREAK
- 10:20 am Multi-Axial Pyroshock Fuze Testing
Dr. Janet Wolfson, Air Force Research Lab
- 10:40 am The Development of a Fuze Survivability Protocol for Hard Target Fuzes
Stephen Szczepanski, Air Force Research Lab
- 11:00 am Modeling of G-Switch Based Target Detection
Dr. Scott McEntire, Sandia National Laboratories
- 11:20 am Fuze Diagnostic Recording
Dr. Scott McEntire, Sandia National Laboratories
- 11:40 am The Multi Axis Shock Test (MAST) Program
Dr. John Thomas, Anyar, Inc.
- 12:00 pm LUNCH

THURSDAY, MAY 13, 2010 (PM)**OPEN SESSIONS**Session VA**CHAIR: ERIC ROACH****ASSISTANT: TIM BONBRAKE**

- 1:00 pm MEMS Retard and Impact Sensors
Walter Maurer, Naval Air Warfare Center Weapons Division
- 1:20 pm Strengthening and Miniaturising the Reserve Lithium Battery
Tonny Benschop, Thales Cryogenics BV
- 1:40 pm 60KG MEMS Sensor
Robert Sill, PCB Piezotronics Inc.
- 2:00 pm Development of Low-Cost, Compact, Reliable, High Energy Density Ceramic Nanocomposite Capacitors
Todd Monson, Sandia National Labs
- 2:20 pm Non-Lethal Fuzing Requirements
Tim Mohan, Armament Research, Development & Engineering Center
- 2:40 pm Results from Preliminary Testing of a New Generation of High-Shock Accelerometers with Extreme Survivability Performance
Randy Martin, Meggitt Sensing Systems, North America
- 3:00 pm BREAK
- 3:20 pm Use of Conductive Adhesive in Fuze Applications
Dr. Jakob Gakkestad & Per Dalsjo, FFI
- 3:40 pm The Impact Switch Investigation
Sam Tuey, Naval Air Warfare Center Weapons Division
- 4:00 pm Low-Cost MEMS Initiators
Chopin Hua, MicroAssembly Technologies
- 4:20 pm Inkjet Printing High-Explosive Materials for Direct Write Fuzing
Adrew Ihnen, Stevens Institute of Technology
- 4:40 pm Wrap- Up & Conference Adjourned

US ONLY SESSIONSSession VB**CHAIR: DR. BARRY NEYER****ASSISTANT: DON SHUTT**

- 1:00 pm Evaluation Tools for Exploding Foil Initiators
1Lt Tim Ager, Air Force Research Laboratory
- 1:20 pm Deposition and Testing of Sub-Millimeter Energetic Materials
Alexander S. Tappan, Sandia National Laboratories
- 1:40 pm EFI Qual by Similarity
Brad Biggs, Raytheon
- 2:00 pm Reproducing System-Imposed Environments in Penetration Fuze Testing
Dr. Jason Foley, Air Force Research Lab
- 2:20 pm Pyroshock Testing of Fuzes in Penetrators
2nd Lt. Lashaun Watkins
- 2:40 pm Safety Considerations for Optical Firing Set Technology
Charles Treu, NNSA Kansas City Plant
- 3:00 pm BREAK
- 3:20 pm FUZION Smaller-Smarter-Safer
Ronald Persson, Mustang Technology Group
- 3:40 pm Development of a Miniaturized Electronic Safe & Arm Device
Noah Desch, L3 Fuzing and Ordnance Systems
- 4:00 pm 30mm STAR ATO Fuzing Integration
Richard Bottenberg, ATK
- 4:20 pm Design Verification Testing of an Electronic Fuze Assembly to Withstand High G Mechanical Loads During Target Penetration
Perry Salyers, L3 Fuzing and Ordnance Systems
- 4:40 pm Advanced Aft Closure and Fuzewell System for Hard and Deeply Buried Target Penetrating Warheads
Edward Lawrence, General Dynamics Ordnance and Tactical Systems
- 5:00 pm High-performance, small footprint: Low-cost Poco-sprytron Switches
Charles Walker, Sandia National Laboratories
- 5:20 pm Wrap- Up & Conference Adjourned

THANK YOU TO OUR BREAK SPONSOR!



Fuzing & Ordnance Systems

L-3 Fuzing & Ordnance Systems (L-3 FOS) was formed on January 1, 2009 from the merger of two legacy L-3 divisions — KDI Precision Products and BT Fuze Products. L-3 FOS combines expertise in both fuzing and ordnance systems to facilitate response to warfighter requirements, while providing a broader range of solutions to both the government and prime contractors.

The L-3 Fuzing & Ordnance System team confronts today's formidable technological challenges by devoting ourselves and all of our resources to fuzing and ordnance systems for the U.S. and our international military allies. L-3 FOS is globally recognized as fuzing experts and ordnance systems integrators for tube-launched, air-dropped, infantry-employed and missile-driven ordnance products.

L-3 FOS is leading the way in the development of reliable and affordable fuzing, ESADs and ESAFs, safety & arming devices and proximity sensor products. L-3 FOS capabilities include: Artillery Fuzes - M739A1, M762A1/M767A1, M782 (MOFA), MK404, MK417, MK418, MK432, MK437 (MOFN); Excalibur, Missile & Rocket Fuzing - GMLRS, ATACMS, AIM-9X and NLOS-LS and Bomb Fuzes - FMU-139C/B, FMU-143B/B, SDB and JASSM. For more information on L-3 Fuzing & Ordnance Systems and our products and capabilities, please visit www.L-3com.com/FOS.

THANK YOU TO OUR MAY 12th LUNCH SPONSOR!



DSE, is one of the world's leading manufacturers of precision metal components, assemblies and ordnance products. We currently serve as a Prime contractor for a multi-year, fully integrated system contract under the U.S. Army for the 40mm family of ammunitions. DSE is a fully ISO 9001:2000 certified Small Business. It has the organizational strength of a large business while maintaining the flexibility and responsiveness of a small business. Our fully integrated on-site manufacturing offers: a comprehensive, dynamic quality program, Statistical Process Control system, engineering, project and configuration management, material and production control support functions, purchasing and fully equipped metrology and calibration laboratories.

Established since 1979, DSE consistently demonstrates its commitment to clients and employees through the company emphasis on integrity, excellence and ethical practices. We enjoy a strong tradition as an innovative, proven supplier. DSE's business approach is carefully designed to align client interests and ethical support. We believe in the enrichment and fulfillment of our commitments through disciplined growth, technological innovation and seamless execution. The ability to manage client relationships and make them our leading priority is among our greatest competitive assets.

DSE's commitment to product success and corporate social responsibility is our cornerstone. The implementation of corporate and individual initiatives helps to ensure that we contribute to the communities in which we live and work and drives our corporate logic. Our business model upholds the basic value of protecting the courageous men and women who serve to secure liberty for all.

THANK YOU TO OUR MAY 12TH RECEPTION SPONSOR!



Alliant Techsystems, Inc. (ATK) is a leading manufacturer of the fuzes U.S. and allied forces rely on today. The company is also pioneering the development of advanced fuze technology for tomorrow. ATK has delivered over 100,000 DSU-33 Proximity Sensors for weapons such as the Joint Direct Attack Munition (JDAM), and general purpose bombs. The company's Multi-Option Fuze for Artillery (MOFA) adds new flexibility to 105mm and 155mm artillery systems, and its Electronic Time Fuze for Mortars gives 60mm, 81mm, and 120mm shells improved timing accuracy and enhanced safety.

ATK's Precision Guidance Kit (PGK) affordably transforms existing 155mm artillery rounds into GPS-guided, one shot, one kill weapon systems, and its Hard Target Void-Sensing Fuze will enable precision bombs with penetrating warheads to detonate at precise points inside buried or reinforced concrete targets. The company is an industry leader in the development of advanced precision projectiles for naval and land forces applications.

ATK is the nation's largest producer of military small and medium-caliber ammunition, propellant and energetics, and Bushmaster chain gun systems. The company is also a leading manufacturer of 105mm and 155mm ammunition, airburst munition technology, and intelligent perimeter protection systems.

ATK is the world leader in solid propulsion systems and is the prime contractor on the first stage of NASA's shuttle-replacing Ares I vehicle. The company's booster motors provide much of the thrust for Delta-family of launch vehicles. In addition, ATK manufactures all three stages of the Minuteman III and Trident II missile systems. ATK is also a leading provider of components and subsystems for today's large satellites and it is pioneering the development of small constellations of satellites for tomorrow.

THANK YOU TO ALL THE SPONSORS!



Fuzing & Ordnance Systems



National Defense Industrial Association

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**We hope to see you in
2011 & 2012!
Mark you calendars!**

55th Annual Fuze Conference
Salt Lake City, UT - May 24-26, 2011

56th Annual Fuze Confernece
Baltimore, MD - May 14-16, 2012

54th
Annual Fuze
Conference

**“The Fuzing
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