AGENDA

Monday, August 3, 2009

5:00 - 6:30 PM Early Bird Registration, Reception at Hyatt Regency Monterey

Tuesday, August 4, 2009

8:00AM Registration and Security Check-in
Naval Postgraduate School, Glasgow Hall Courtyard

9:00AM Introductory Remarks

9:05AM Welcoming Address

9:15AM Invited Presentation

Energetic Materials and Explosive Research
at the Naval Postgraduate School
Ronald E. Brown, Research Professor, Physics Department

10:15AM Coffee Break

Session I
MOUT Target Defeat
Session Chairs: Robert Phillabaum and David Saito

10:35AM Session Introduction

10:40AM Evaluation of Two Oil Well Perforators for Pre-conditioning MOUT Targets
Robert A. Phillabaum II*, Richard L. Summers, Stephen J. Schraml,
Brett R. Sorensen, Rayment E. Moxley, and Arthur S. Daniels,
U.S. Army Research Laboratory, Aberdeen, MD

11:00AM Using Multipurpose Precursor Charges to Pre-damage MOUT Wall Targets
Dan Boeka*, Art Daniels, Daniel Suarez, and David Pfau,
General Dynamics OTS, San Leandro, CA

11:20AM Optimization of Contact Explosive Charges to Form Cleared Openings through Reinforced Concrete Walls
John. Q. Ehrgott* and Frank G. LoPresti,
US Army Engineer Research & Development Center, Vicksburg, MS

11:40AM Advanced Warhead Development for Standoff Wall Breaching to Support the Military Operations in Urban Terrain Army Technology Objective
William Ng*, Frank LoPresti, Roy Seppelt, and Richard Fong,
U.S. Army ARDEC, Picatinny, NJ

12:00PM Design and Evaluation of Low Collateral Damage Linear Shaped Charges
Denis D. Rickman*, John Q. Ehrgott, Jon E. Windham,
Timothy Shelton, and Kent T. Danielson,
US Army Engineer Research & Development Center, Vicksburg, MS

12:20PM Lunch
Hermann Hall Ballroom

Session II
Armor Mechanics
Session Chairs: Carl Krauthauser and Kirk Stoffel

1:40PM	Session Introduction
1:45PM	Evaluating Tank Mobility Loss of Function from Kinetic Energy Missile Nose Impacts **Edward Kennedy*, David Diehl and Dave Weeks,** **U.S. Army Research Laboratory, Aberdeen, MD**
2:05PM	Near-Simultaneous Impact of Transparent Armor Targets **S.D. Bartus, U.S. Army Research Laboratory, Aberdeen, MD**
2:25PM	The Development of Lightweight Armor Solutions for Tactical Wheeled Vehicles **Tyrone L. Jones*, William A. Gooch and Matthew S. Burkins,** **U.S. Army Research Laboratory, Aberdeen, MD**
2:45PM	A Study of Explosive Sensitivity Characteristics Required for Next-Generation Reactive Armors **Brian Krzewinski, U.S. Army Research Laboratory, Aberdeen, MD**
3:05PM	Coffee Break **Glasgow Hall Courtyard**
3:25PM	Glass Based RPG/EFP Armor **David Kleponis*, Brian R Scott, Parimal Patel, Hubert Meyer and Thomas Havel, U.S Army Research Laboratory, Aberdeen, MD**
3:45PM	Composite Armor with In-Situ Materials for EFP Defeat **L. Rus Payne, Sandia National Laboratories, Albuquerque, NM**
4:05PM	An Analysis of Efficient Active and Passive Designs in the Defeat of Long Rod Penetrators (LRPs) **Carl Krauthauser* and Ed Horwath,** **U.S Army Research Laboratory, Aberdeen, MD**
4:35PM	Development of High Efficiency Armor Systems Utilizing Ricochet or Encapsulation to Enhance Dwell and Threat Defeat **Ed Horwath*, Carl Krauthauser and Christopher Hoppel,** **U.S Army Research Laboratory, Aberdeen, MD**
5:05PM	Adjourn
6-8:00PM	Reception **Hyatt Regency Monterey**

Wednesday, August 5, 2009

7:00AM Registration and Security Check-in, Continental Breakfast
Naval Postgraduate School, Glasgow Hall Courtyard

Session III
Warhead Technologies (Blast/Fragmentation)
Session Chairs: Jack Pincay and Michael Denigan

8:00AM Session Introduction

8:05AM Evaluation of Agent Defeat Payloads
Jad H. Batteh*, John W. Rogers, Jason E. Darr, Koby K. Kennison, Ronald B. Toole, N. Clay Trammell, Steven P. Federle and Donald M. Littrell,
Science Applications International Corporation, Marietta, GA

8:25AM Selectable Effects Warhead Demonstration
Eric Volkmann* and Thomas Burky
ATK Mission Systems, Advanced Weapons Division, Plymouth, MN

8:45AM Development of Directional Warhead Technologies for Multi-Role Platforms
Brian Adams, General Dynamics – Ordnance and Tactical Systems

9:05AM Selectable Effects Munitions
Dennis Wilson*, John Granier and Don Littrell,
Energetic Materials and Products, Inc.

9:25AM Recent Advances in Hardened Combined Effects Warheads
Jeffrey Kraft*, David Pfau, James Pham and Arthur Daniels,
US Army RDECOM-ARDEC, Picatinny, NJ

9:45AM Coffee Break
Glasgow Hall Courtyard

10:05AM BattleAxe – Development of a Highly Lethal Reactive Material Warhead
Paul Braithwaite*, Colin Forsyth, Adam Kite and Stacey Carswell,
ATK Launch System, Brigham City, UT

10:25AM Shear Liner Technology
J. Pincay*, E. L. Baker, V. Gold, A. Daniels, S. DeFisher, C. Chin, I. Wu and T. Madsen, US Army RDECOM-ARDEC, Picatinny, NJ

10:45AM Determination of Equivalent Explosive Weights for Munitions from Arena Test Data
Alan Ohrt*, Rachel Ehlers, Nicholas Nechitailo
Air Force Research Laboratory, Eglin Air Force Base, FL

Session IV
Warhead Technologies (Shaped Charge/EFP))
Session Chairs: William Ng and Richard Summers

11:05AM	Session Introduction
11:10AM	Effect of an Optimized Liner and Retention Ring Interface on Common Smart Submunition Warhead Multiple Explosively Formed Penetrators **Frank LoPresti*, Matthew Comstock and William Ng,** **US Army RDECOM-ARDEC, Picatinny, NJ**
11:30 AM	EFP's Provide Multi Target Capability **Amy Wilson*, Brian Fuchs, George Sudol, Irene Wu, and William Ng,** **US Army RDECOM-ARDEC, Picatinny, NJ**
11:50AM	Characterizing the Damage Mechanisms of Micro-Munitions **David Lambert*, Keith Jamison, Mark Heyse, Ronald Stearns,** **Lawrence Crow, and Michael Nixon** **Air Force Research Laboratory, Eglin Air Force Base, FL**
12:10PM	Lunch **Hermann Hall Ballroom**
1:15PM	A Design of Experiments Study of the Fluted Copper Liner Shaped Charge Used in the New High Explosive Dual Purpose (HEDP) Light Weight 25 mm Spinning Gun Round **Frederick P. Stecher*, Jim R. Roth and Kyle B. Nerison,** **ATK Mission Systems, Advanced Weapons Division, Plymouth, MN**
1:35PM	Improved CTH Shaped Charge Simulations **Stephen W. Attaway*, Richard G. Hills and Anthony A. Giunta,** **Sandia National Laboratories, Albuquerque, NM**
1:55PM	New Methods of Designing High-Performance Shaped Charges for Multipurpose Warheads **Dan Boeka*, Craig Thomas, Arthur Daniels, Tan Vuong, Koon Ng,** **Neal Ouye, and Steve Hancock** **General Dynamics OTS, Niceville, FL**
2:15PM	Effects of High Explosives on Shaped Charge Jet Characteristics **Dan Boeka*, Ernie L. Baker, Wendy Balas, Tan Vuong,** **Neal Ouye, and Steve Hancock,** **General Dynamics OTS, San Leandro, CA**
2:35PM	Break **Glasgow Hall Courtyard**

Session V

Energetics (Explosives)

Session Chairs: Michael Ruff and Paul Braithwaite

2:55PM	Session Introduction
3:00PM	Recent Combined Effects Explosives Technology **E.L. Baker*, D. Suarez, D. Murphy, C. Capellos, P. Cook, P. Anderson, E. Wrobel, and Leonard I. Stiel** **US Army RDECOM-ARDEC, Picatinny, NJ**
3:20PM	A New High Performance Explosive Formulation **Kibong Kim*, Craig Watry, Mary Brown, Charles Needham, Jim Rocco, Raafat Guirguis, Richard Lee, Gerardo Pangilinan, Jack Kreitinger and William Wilson** **Advanced Energetics Research, LLC, Vienna, VA**
3:40PM	Dial-a-Yield General Purpose Bomb Technologies **Sean Treadway*, Andrew Lloyd and John Cogar** **Corvid Technologies, Mooresville, NC**
4:00PM	Investigation of the Influence of Voids in AFX-757 for Penetrating Weapons **J. Greg Glenn*, Michael Gunger and Don Bland** **Air Force Research Laboratory, Eglin AFB Florida**
4:20PM	Erosive Initiation Studies using 155mm Artillery Projectiles **William Bateson*, T. Joe Gill and E.L. Baker** **Lawrence Livermore National Labs, Livermore, CA**
4:40PM	DLE-C038 – A High Performance CL-20 Explosive with Remarkable IM Properties **Robert Hatch* and Paul Braithwaite** **ATK Launch Systems, Brigham City, UT**
5:00PM	Adjourn

Thursday, August 6, 2009

7:00AM Registration and Security Check-in, Continental Breakfast
Naval Postgraduate School, Glasgow Hall Courtyard

Session VI
Energetics (RM/IM)
Session Chairs: Eric Mas and Rohan Banton

8:00AM Session Introduction

8:05AM Anti-Armor Warhead Venting
David Pfau*, Nausheen Al-Shehab, Daniel Suarez, and Ernest Baker,
US Army RDECOM-ARDEC, RDAR-MEE-W, Picatinny, NJ

8:25AM Improved Performance and Insensitive Munitions Response of an Air-to-Air Warhead System
Brian Hays*, George Hennings and David Lambert,
Naval Air Weapons Center, Weapons Directorate, China Lake, CA

8:45AM ARDEC Reactive Material Bullet Feasibility Study
Samantha Blais, U.S. Army ARDEC, RDAR-MEM-S, Picatinny Arsenal, NJ

9:05AM Sinterless, Reactive Shaped Charges
Allen Stults, AMREC, RDMR-WDF-S, Redstone Arsenal AL

9:25AM Coffee Break
Glasgow Hall Courtyard

9:45AM Reactive Structural Materials Used to Enhance Blast Effects for Cased Explosives
William Wilson*, L. V. Benningfield, and Kibong Kim,
Defense Threat Reduction Agency, WMD Defeat Branch / CXWJ,
Fort Belvoir, VA

10:15AM Fragmentation Performance Due to Reactive Liner
Erin L. Hottle*, T.R. Krawietz, and R.C. Stanley,
Air Force Research Laboratory, Eglin AFB, FL

Session VII
Threat Characterization
Session Chairs: Todd Bjerke and Stephen Schraml

10:35AM Session Introduction

10:40AM Improvised EFPs and Shaped Charges Used by Terrorists
Elaine Corales, National Ground Intelligence Center, Charlottesville VA

11:00AM A Study of the RKG-3EM Grenade
William Walters* and Richard Summers,
U.S. Army Research Laboratory, Aberdeen Proving Ground, MD

11:20AM State-of-the-Art Tandem Munition for the RPG-7 Launcher.
Werner P. Gstattenbauer* and Mary L. Duffy,
National Ground Intelligence Center, Charlottesville VA

11:40AM Terminal Effects of Surface Laid and Buried Improvised Explosive Devices
Brendan McAndrew*, Robert Dooley, Hubert Meyer,
Charles Randow, and Bryan Cheeseman,
U.S. Army Research Laboratory, Aberdeen Proving Ground, MD

12:00PM Lunch
Hermann Hall Ballroom

1:00PM Lethality Assessment from Dynamically Firing Thermobaric Rocket Propelled Grenades into a Armored Personnel Carrier
Rachel Z. Ehlers*, Patricia S. Frounfelker, and Bernard J. Guidos,
U.S. Army Research Laboratory, Aberdeen Proving Ground, MD

1:20PM Impact of EAPS Surrogate Projectile on U.S. Mortar Targets
Rohan Banton*, Scott Kukuck and John Starkenberg,
U.S. Army Research Laboratory, Aberdeen Proving Ground, MD

1:40PM Development and Successful Proof Testing of an Effective IED Neutralization System
Mohsen Sanai*, Erik Merilo, Adam Ziemba and Jim Colton,
Center for Special Projects, SRI International, Menlo Park, CA

Session VIII

Ballistics

Session Chairs: Edward Kennedy and Brad Pedersen

2:00PM Session Introduction

2:05PM 5.56 mm M855LFS (M855A1), A Replacement for the 5.56 mm M855
J. Newill*, J. South, L. Magness, T. Ehlers, P. Weinacht, J. Middleton, K. Hess, P. Riggs, G. DeRosa, F. Hanzl, D. Mansfield, and D. Kamdar, U.S. Army Research Laboratory, Aberdeen Proving Ground, MD

2:25PM Nanocrystalline Tungsten Heavy Alloys for Kinetic Energy Penetrator Applications
Lee Magness*, Deepak Kapoor, Brian Schuster, Laszlo Kecskes, Rick Morgan and Martin Perez, U.S. Army Research Laboratory, Aberdeen Proving Ground, MD

2:45PM Kinetic Energy Projectile Warhead Performance
Vanessa S. Berg*, L. Russell Payne, and Paul Cooper Explosives Applications Department, Sandia National Laboratories, Albuquerque, NM

3:05PM 150-km EM Gun Artillery Projectiles: Design and Lethality Considerations
Brett R. Sorensen*, Richard L. Summers, Stephen J. Schraml, and Daniel Scheffler, U.S. Army Research Laboratory, Aberdeen Proving Ground, MD

3:25PM C-BISKET: A Hypervelocity Penetrator Concept for the Electromagnetic Railgun
D. Barnette, Institute for Advanced Technology, The University of Texas at Austin, Austin, TX

3:45PM Flight Tests to Determine Underwater Stability of a Precision-Guided Weapon for Use in Mine Clearance
Kennard Watson*, James Makarsky, Michael Powell, and Jack Goeller, Naval Surface Warfare Center – Panama City Division, Panama City, FL

4:05PM Venom Dart Optimization for Surf Zone Mine Neutralization
Paul Gefken*, Brian Almquist and Brian Amato, SRI International, Menlo Park, CA

Alternate Presentations

Session I: MOUT Target Defeat

Explosive Blast Damage Prediction in Masonry Structures Using a Hybrid Eulerian/Lagrangian Simulation Method
James F. Tarter* and Dominic Jezierski,
Advanced Computational Analysis and Design, Composite Materials Division
Applied Research Laboratory, Pennsylvania State University

Session II: Armor Mechanics

Conductivity of Various Gasses in Shock Wave Envelopes Produced by Shaped Charge Jets
W. Casey Uhlig, U.S. Army Research Laboratory, Aberdeen Proving Ground, MD

Spall Liner Performance behind Steel Targets Overmatched with Shaped Charges and Medium Caliber Kinetic Energy Rounds
James Singletary*, Louis Boogh and Nicolas Pont,
DuPont Advanced Fibers Systems, Richmond VA 23234

Evaluation of Armor Materials Using Copper Explosively Formed Penetrator (EFP) Particle Surrogates
Kirk A. Stoffel*, David S. Kleponis, Thomas A. Havel, Brian R. Scott,
Dana M. Blakenbiller, and LaMar J. Thompson,
U.S. Army Research Laboratory, Aberdeen Proving Ground, MD

AR5.3 Armor Development Program
Robert Koch*, LaMar Thompson, Richard Fong, and William Ng,
U.S. Army ARDEC, Picatinny Arsenal, NJ

Spall Mitigation for Lightly Armored and Tactical Wheeled Vehicles
Valerie Hernandez*, Brian Scott, Tom Havel, and John Abell,
U.S. Army Research Laboratory, Aberdeen Proving Ground, MD

A Potential EFP Explosive Reactive Armor
Brian R Scott*, Robert Doney, and David Kleponis,
U.S. Army Research Laboratory, Aberdeen Proving Ground, MD

Sessions III and IV: Warhead Technologies

Unexpected Case Thickness Effects for Explosives in Confined Targets
James Rocco*, William Wilson, Timothy Kreitinger and L. V. Benningfield
Applied Research Associates, Inc., Kirtland Air Force Base, NM

Selectable Fragmentation Technology Development Efforts at the Army Research Laboratory
Müge Fermen-Coker, U.S. Army Research Laboratory, Aberdeen Proving Ground, MD

Fragmentation Performance of Excalibur XM982 Warhead for IM (Insensitive Munition) and Blast-Enhanced Explosive Formulations
V. M. Gold*, L. E. Buckley, and I. Wu
US Army RDECOM-ARDEC, Picatinny Arsenal, NJ

Session V: Energetics (Explosives)

BLU-122 Explosive Failure, Solving the Problem
J. Greg Glenn,
Development Team, AFRL/RWME, Energetic Materials Branch, Eglin AFB Florida

Enhancing the Blast Impulse from an Explosive
David Davison*, Thomas Phely-Bobin and Ronald E. Brown
Shock Transients, Inc., Hopkins, MN

Development of Equation of State and Reactive Burn Models for AFX-757
David Littlefield*, Kenneth Walls and David Lambert
Professor of Mechanical Engineering
The University of Alabama at Birmingham, Birmingham AL

Session VI: Energetics (RM/IM)

Effect of Hydro-Reaction on Underwater Shaped Charge Warhead Performance
Thomas P. McGrath II*, J. Alan Luton and Ayodeji Ojofeitimi,
Indian Head Division, NSWC, Indian Head, MD

Extremely Insensitive Detonating Substance (EIDS) Initiation System Progress
Brad Hanna, Naval Surface Warfare Center, Dahlgren Division, Dahlgren VA

Session VII: Threat Characterization

Application and Validation of One-way Coupled CTH/LS-Dyna Calculations to Simulate Buried Mine Blast Loading
Joseph Bradley*, Carl Weiss, Erick Sagebiel, James Mathis,
Mark Griffin, PA Cox, and Scott Mullin,
Engineering Dynamics Department, Southwest Research Institute, San Antonio, Texas

Improvised Explosive Device (IED) Surrogate Warhead Characterization
LaMar Thompson*, Robert Koch, Richard Fong, and William Ng,
U.S. Army ARDEC, Picatinny Arsenal, NJ

Mini-EFP Countermeasures
Erik G. Merilo*, Jeffrey W. Simons, Sr. and James D. Colton
Poulter Laboratory, Physical Sciences Division, SRI International, Menlo Park, CA

Session VIII: Ballistics

Tests of a Novel Railgun Barrel Concept
William B. Maier II*, Don Snyder, Gene Morris, Juan Ubiera,
George Caramico, Juan Rodarte and Christopher Forch,
Depatment of Physics, Naval Postgraduate School, Monterey, CA

Lethality Comparison of Conventional and EM Gun Penetrators vs. a Heavy Armor Threat
Brett R. Sorensen*, Jodi Robertson and John Abell,
U.S. Army Research Laboratory, AMSRD-ARL-WM-TC, Aberdeen Proving Ground, MD

The Effect of Cross Section on the Penetration Performance of Two Extending Penetrators
Brad Pedersen, Institute for Advanced Technology
The University of Texas at Austin, Austin, TX

An Empirically Based Stochastic Model for Fragmentation of M855LFS
David W. Webb, U.S. Army Research Laboratory, AMSRD-ARL-WM-BF,
Aberdeen Proving Ground, MD