

2009

# WARHEADS AND BALLISTICS

## CLASSIFIED SYMPOSIUM

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**AUGUST 3-6, 2009**

**[WWW.NDIA.ORG/MEETINGS/9480](http://WWW.NDIA.ORG/MEETINGS/9480)**

**NAVAL POSTGRADUATE SCHOOL ► MONTEREY, CALIFORNIA**

**EVENT #9480**

## 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. Ehgott\* and Frank G. LoPresti, U.S. 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. Ehgott, Jon E. Windham, Timothy Shelton, and Kent T. Danielson, U.S. 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

## AGENDA

- 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

## AGENDA

Wednesday, August 5, 2009

- 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, U.S. 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, U.S. 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/EGFP)  
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, U.S. 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, U.S. 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

## AGENDA

Wednesday, August 5, 2009

- 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  
U.S. 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

## AGENDA

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, U.S. 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

## AGENDA

Thursday, August 6, 2009

- 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 Jeziarski, 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

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 Ferme-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, U.S. 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, FL

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, The University of Alabama at Birmingham, Birmingham AL

## ALTERNATE PRESENTATIONS

### 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,  
Department 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

*\* indicates primary author*

## SPEAKER INFORMATION

All presentations, regardless of classification, must be on CD and must be submitted no later than July 27, 2009. In addition to sending the presentation in advance, authors of unclassified and limited distribution presentations should bring a copy on a CD to the symposium.

Speakers making presentations are responsible for obtaining all approvals for release of information in accordance with requirements of their company/organization. In addition, speakers making classified presentations are responsible for properly marking all classified visual media presented. Classified material should be mailed to NPS prior to the conference; hand-carrying material is strongly discouraged. The address for sending such material is:

Security Manager, Code 261  
Naval Postgraduate School  
1411 Cunningham Road, Room B13  
Monterey, CA 93943  
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The external opaque wrapper or envelope for classified packages will show the above address and have the complete return address of the sender. The inner opaque wrapper or envelope will be addressed the same as the outer envelope and also be plainly marked with the security classification level of the contents and annotated

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Speakers wishing to have their material returned after the conference should bring pre-addressed return envelopes, or, if preferred, material can be destroyed.

Speakers making unclassified or limited distribution presentations are urged to hand-carry a copy of their presentation. Please note: memory sticks are unacceptable. Your presentation must be on a CD.

### Dates to Remember

Tuesday, June 30	Early Registration Deadline
Wednesday, July 1	Hotel Reservation Cut-off
Thursday, July 30	Regular Registration Deadline
Monday, July 27	Security Submittal Deadline

The schedule contained herein is tentative. Please check NDIA's website at <http://www.ndia.org/meetings/9480> for updates. The final agenda will be distributed at the symposium.

## Accommodations

The Hyatt Regency Monterey Resort and Spa on Del Monte Golf Course is currently holding a block of rooms for this symposium. **The government rate is \$133.00. The industry rate is \$209.00.** All rates are subject to applicable state and local taxes. You can make your reservation by calling 1-800-233-1234. In order to ensure the NDIA discounted rate, be sure to ask for the NDIA group block. Rooms will not be held after **July 1, 2009** and may sell out before then. Rates are subject to increase after this date. Complimentary parking will be available at the hotel.

## Driving Directions

### From Monterey Peninsula Airport (1 1/2 miles):

Turn right on Garden Road, left on Mark Thomas Dr. Hotel is on left.

### From San Francisco or San Jose (traveling South on Highway 101):

From 101 South, take the 156 West exit in the Prunedale area, just North of Salinas. Stay on 156 West for 6 miles until you reach Highway 1. Take Highway 1 South for 13.2 miles, then take the Monterey exit. The exit ramp drops onto Fremont Street, turn left onto Aguajito Road.

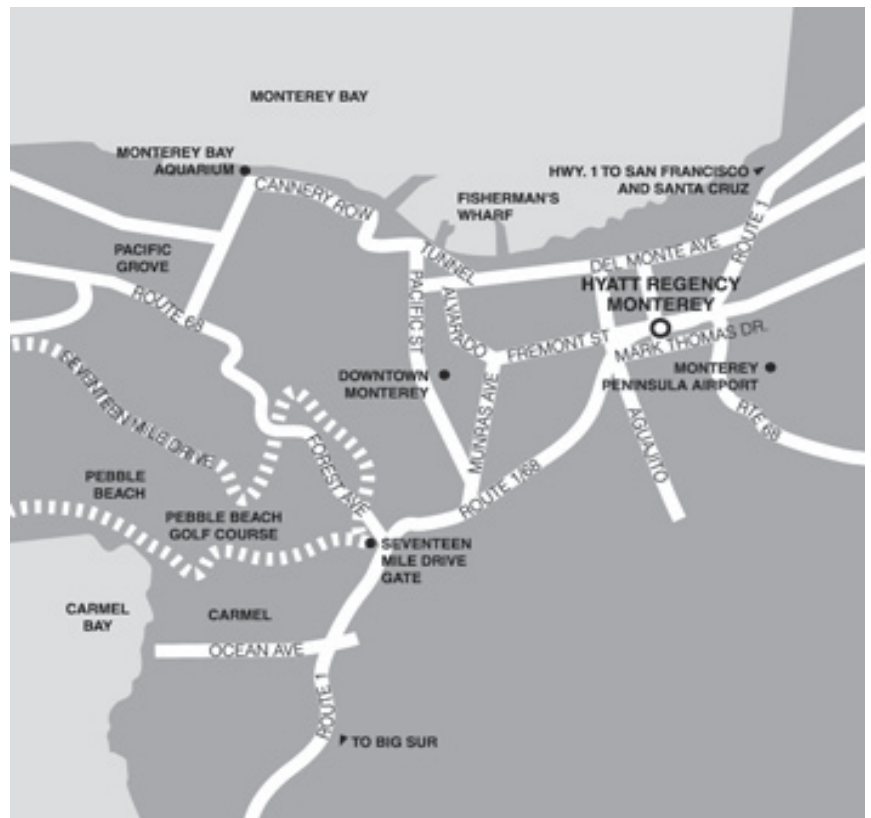
At the second signal light, turn left onto Mark Thomas Drive and turn right into our driveway. Follow the driveway up the hill, then veer right towards Registration/Lobby area. Approximate distances: San Francisco - 117 miles; from SF Airport - 102 miles; from San Jose - 70 miles.

### From Los Angeles (traveling north on Highway 101):

From 101 North, take the Monterey Peninsula exit at Salinas. After exiting, turn right onto Sanborn Rd. At the 5th light, turn left onto Highway 68 West/Main St. Follow Highway 68 for 15 miles to the stoplight at Olmstead Rd. Turn right towards the Monterey Peninsula Airport. Take the first left onto Garden Road. Continue to the end of Garden Road. At the traffic light, take a left at Fairground Road which turns into Mark Thomas Drive. Next, turn left at the first traffic light leading you into our driveway, then veer to the right towards Registration/Lobby area. Approximate distances: from Los Angeles city limit - 350 miles.

### From Other Areas:

From Interstate 5 (either North- or Southbound) - take Highway 152 West (towards Gilroy). At Highway 101, turn South (whether you are North- or Southbound) and follow above directions as from San Francisco/San Jose. From Highway 680 or 880 (East Bay area) - take Highway 680 or 880 towards San Jose until you reach 101 South. Follow above directions as from San Francisco/San Jose.



## REGISTRATION

<b>Conference Registration Fees</b>	<b>Early (Before 06/30/09)</b>	<b>Regular</b>	<b>Late (After 07/30/09)</b>
Government/Academia/ Allied*	\$625	\$690	\$760
Industry (Member)	\$750	\$825	\$908
Industry (Non-member)**	\$825	\$908	\$1,000
CD Only	\$100	\$100	\$100

### THERE ARE THREE WAYS TO REGISTER FOR THIS SYMPOSIUM

All participants, including speakers, must register. Payment must be made at the time of registration. NDIA accepts Diners Club, MasterCard, VISA, American Express, Traveler's Checks, Cash, and U.S. Government Purchase Orders only. NDIA does not accept purchase orders from non-government entities.

#### 1. Register Online

Our preferred method of registration is online. You will receive an e-mailed confirmation immediately upon receipt of your payment online, so please ensure that your e-mail address is complete and accurate. You must be logged in to register and you CANNOT use your login to register another individual. To register online go to [www.ndia.org/meetings/9480](http://www.ndia.org/meetings/9480).

#### 2. Register by Mail:

Please complete the conference registration form and mail it along with your registration fee payment to:  
National Defense Industrial Association  
Event #9480  
2111 Wilson Blvd., Suite 400  
Arlington, VA 22201-3061

#### 3. Or register by fax:

You may fax the conference registration form with your credit card number, expiration date, and signature to NDIA at (703) 522-4656. Please keep a copy of your fax confirmation receipt for your records as proof that your registration was sent to and received by NDIA.

All cancellations, substitutions, and requests for refunds must be done so in writing. Cancellation refund requests submitted by phone will not be accepted. Registrants who are unable to attend the conference must e-mail their cancellation or refund request on or before **July 15, 2009**, e-mail: [tpitt@ndia.org](mailto:tpitt@ndia.org). A \$75.00 administrative fee will be applied to ALL cancellations received before **July 15, 2009**.

### SECURITY CLEARANCE

All participants must complete and submit the enclosed security form in time for it to be received by DTI Associates by **July 27, 2009** no later than 4:00 PM Eastern Time. This is a firm deadline. Persons whose security forms are received after this deadline cannot be assured access and will travel to the symposium site at their own risk of being denied access.

### SECURITY ACCESS LIST CONFIRMATION

The Security Access List is compiled from security forms and requests received via JPAS. Participants whose names do not appear on the security access list will not be admitted to the conference. Therefore, participants are strongly encouraged to confirm that their name is on the Access List by calling (540) 644-2075. If faxed, please allow four days for processing before you call.

### EARLY BIRD BADGE PICK-UP

Attendees are encouraged to pick up their badge at the Early Bird Registration/Reception on August 3, 2009 from 5-6:30 PM at the Hyatt Regency Resort & Spa on Del Monte Golf Course. You must show a current, government issued photo ID to receive your badge.

### ENTRY TO AUDITORIUMS

Reminder: this symposium is classified Secret - U.S. Only. No cellular phones, notebooks, briefcases, recording devices, cameras, two-way pagers, other transmission equipment, computers, or notetaking will be allowed in the briefing rooms. Please do not bring these items with you. NDIA will not be held responsible for any items left in the Glasgow Hall Courtyard. You are advised to utilize your hotel's bellstand to store large bags. All personal items, including backpacks and purses, are subject to inspection. Speakers (identified with a speaker ribbon) will be allowed to bring in their presentation materials. These items are still subject to search. Attendees are advised to bring as few personal items as possible; however, be reminded to bring your current photo ID.

# 2009 Warheads and Ballistics Classified Symposium

August 3-6, 2009

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JPAS Instructions - Do not complete this form if using JPAS

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Paper submitters complete this form and fax to: (540) 663-2696

1. Attn: Mrs. Kristi Kelley, DTI Associates
2. For voice confirmation: (540) 644-2075

**Clearance Information must be received by DTI Associates by 27 July, 2009.**

Part I - Attendee Information: Completed by the attendee. Do not use acronyms when completing company name and address information. Please print clearly.

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SSN \_\_\_\_\_ Citizenship \_\_\_\_\_ Level of Clearance \_\_\_\_\_

Birth Date \_\_\_\_\_ Place of Birth \_\_\_\_\_

Company/Organization \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ Phone \_\_\_\_\_

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Part II Clearance Certification Completed by the Security Officer. 'I hereby certify that the individual named Part I. (above) is a U.S. Citizen and has a current clearance of SECRET or higher.'

Issuing Agency \_\_\_\_\_ Date Granted \_\_\_\_\_

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Signature \_\_\_\_\_ Date \_\_\_\_\_

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Part III Need to know certification

Government Attendees: Must be completed by supervisor

DoD Contractors: Must be completed by Government Contracting Office

"I certify that the individual named in Part I (above) has the need-to-know in conjunction with work being performed on a current government contract or IR&D."

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