

2016 ARMAMENT SYSTEMS FORUM

*“Shaping the Armament Enterprise to Meet Evolving
Global Requirements”*

FEATURING:

- ▶ **SMALL ARMS SYSTEMS**
- ▶ **GUNS, AMMUNITION,
ROCKETS AND MISSILE
SYSTEMS**
- ▶ **UNCONVENTIONAL
EMERGING TECHNOLOGY
ARMAMENT SYSTEMS**



APRIL 25-28, 2016
WWW.NDIA.ORG/MEETINGS/6610
FREDERICKSBURG, VA

EVENT #6610

MONDAY, APRIL 25, 2016

12:00 PM - 5:00 PM Exhibitor/Poster Move-in

12:00 PM - 5:00 PM Registration Open

1:00 PM - 3:30 PM Tutorial Sessions

TUTORIALS		
1:00 PM - 2:15 PM	JCIDS: How It Drives Acquisition of Armament Systems and Influences Armament Science & Technology Investment <i>Mr. Edward Dooley, U.S. Army ARDEC</i>	
2:15 PM - 3:30 PM	Ballistics Measurements – State of the Art Sensors and Ancillary Products – a Kistler Perspective <i>Mr. Richard Cadille, Kistler Instrument Corp.</i>	Roadblocks to Success: Lessons Learned from Science & Technology Project Management <i>Mr. Mark Serben, U.S. Army ARDEC</i>

POSTER PRESENTATIONS

Small Caliber Structural Launch and Projectile Dynamics Modeling using Explicit Finite Element Analysis (18354)

▶ Mr. Michael Cataldi, *U.S. Army ARDEC*

Corrosive Effects of At-Sea Conditions on Caliber .50 Munitions (18264)

▶ Ms. Connie Lusto, *U.S. Army ARDEC*

Enhancing Operational Performance of Legacy Small Arms– A Case Study (18274)

▶ Mr. Nick Pugliese, *Ace Electronics Defense Systems*

Advanced Small Arms Ballistic System (ASABS) (18381)

▶ Mr. Gerard Gaeta, *U.S. Army ARDEC*

Vented Erosion Simulator (VES) (18393)

▶ Mr. Adam Foltz, *U.S. Army ARDEC*

Effects of Primer Leakers on Weapon Systems (18306)

▶ Mr. Thomas Gmyrek, *U.S. Army ARDEC*

The Innovation Dilemma: Accelerating the Move from Problem to Solution While Maintaining Weapon Performance (18394)

▶ Mr. Douglas Witkowski, *U.S. Army ARDEC*

Quantitative Analysis of Large-Scale Explosive Testing Using Background Oriented Schlieren (18287)

▶ Dr. Kelley Weiland, *NSWC Dahlgren*

Multiple Degree of Freedom Vibration Testing: The Future of Vibration Testing (18310)

▶ Dr. Luke Martin, *NSWC Dahlgren*

Small Arms Weapon Integration on the V-22 Osprey Ramp(18346)

▶ Mr. James Buechler, *NSWC Crane*

TUESDAY, APRIL 26, 2016

7:00 AM - 6:30 PM

Registration Open

7:00 AM - 8:00 AM

Networking Breakfast - Exhibit Hall

8:00 AM - 8:05 AM

Administrative Announcements

- ▶ Mr. Brian Berger, *President, Wilcox Industries Corp; Chairman, Small Arms Committee*

8:05 AM - 8:35 AM

Pushing Capability Down, Not Up - Soldier/Squad Overmatch

- ▶ BG David Grange, USA (Ret), *Osprey Global Solutions, LLC*

8:35 AM - 9:10 AM

Awards Presentation

Chinn Award

- ▶ Presented by Mr. Dan Shea
- ▶ Presented to Dr. Phil "Doc" Dater

Hathcock Award

- ▶ Presented by Mr. Sal Fanelli
- ▶ Presented to Mr. Hays Parks

9:10 AM - 10:15 AM

USMC PM Infantry Weapons Panel

Moderator: Col Michael Manning, USMC, *Marine Corps Systems Command*

Panelists:

- ▶ LtCol Martin Lewis, USMC, *Infantry Weapons, Marine Corps Systems Command*
- ▶ LtCol Antonio Scofield, USMC, *Optics and Non-Lethal Weapons, Marine Corps Systems Command*
- ▶ Mr. James Nelson, *Raids and Reconnaissance, Marine Corps Systems Command*
- ▶ LtCol Robert Bailey, USMC, *Infantry Combat Equipment, Marine Corps Systems Command*
- ▶ Mr. William Vorhies, *Anti-Armor, Marine Corps Systems Command*

10:15 AM - 10:45 AM

Networking Break - Exhibit Hall

10:45 AM - 12:00 PM

Wounds Ballistic Testing Panel

Moderator: Mr. Jim Schatz

Panelists:

- ▶ A Eulogy: Col Martin L. Fackler, MC, USA (Ret), *His Contributions to Modern Wound Ballistics, Mr. Hays Parks*
- ▶ Tissue Damage Tool for Industry, Mr. Mark Minisi, *Technology Branch, Small and Medium Caliber Weapons Systems Division, ARDEC*
- ▶ NATO Position on 20 vs 10%, Mr. Scott Reeve, *UK Defence Science and Technology Laboratory*
- ▶ FBI Position on 10% vs 20%, SSA Scott Patterson, *FBI Ballistic Research Facility*

12:00 PM - 1:30 PM

Luncheon - Exhibit Hall

NDIA Welcome and Armament Division Update

- ▶ Mr. Dave Broden, *President, Broden Resource Solutions, LLC; NDIA Armament Division Chair*

Role of MCOTEA in Testing of Small Arms

- ▶ Col Mark Brinkman, USMC, *Director, Marine Corps Operational Test & Evaluation Activity*

SMALL ARMS FORUM

1:30 PM - 3:00 PM

PM Soldier Weapons Panel

Moderator: COL Brian Stehle, USA, *PM Soldier Weapons*

Panelists:

- ▶ LTC Paul Alessio, USA, *Product Manager, Crew Served Weapons*
- ▶ Ms. Barbara Muldowney, *Product Manager, Solider Weapons*

3:00 PM - 3:30 PM

Networking Break - Exhibit Hall

3:30 PM - 5:00 PM

PM MAS Panel

Session Chair: COL Moises Gutierrez, USA, *Product Manager, Maneuver Ammunition Systems*

Panelists:

- ▶ Mr. Christopher Seacord, *Product Manager, Maneuver Ammunition Systems*
- ▶ LTC John Masternak, USA, *Product Manager, Maneuver Ammunition Systems*

5:00 PM - 6:30 PM

Networking Reception

5:15 PM

Mandatory Demonstrator Meeting - Exhibit Hall Entrance

WEDNESDAY, APRIL 27, 2016

7:00 AM - 4:30 PM

Registration Open

7:00 AM - 8:00 AM

Networking Breakfast - Exhibit Hall

8:00 AM - 8:15 AM

Administrative Announcements

- ▶ Mr. Brian Berger, *President, Wilcox Industries Corp; Chairman, Small Arms Committee*

8:15 AM - 8:45 AM

Speaker

- ▶ Mr. Dan Shea, *General Director, Phoenix Defense/Small Arms Defense Journal*

8:45 AM - 10:10 AM

JSSAST Panel

Moderator: Mr. Augustine Funcasta, *U.S. Army, RDECOM-ARDEC*

Panelists:

- ▶ COL Kurt "Travis" Thompson, USA, *Soilder Requirements Division*
- ▶ Mr. Christopher Woodburn, USMC, *Capabilties Development Directorate*
- ▶ LtCol Enrico Venditti, USAF, *U.S. Air Force Security Forces Center*
- ▶ Mr. Craig LaMudge, *U.S Coast Guard*
- ▶ Mr. Charles Zeller, *NSWC Crane*

10:10 AM - 10:40 AM

Networking Break - Exhibit Hall

10:40 AM - 12:00 PM

JSSAP Session

Session Chair: Mr. Augustine Funcasta, *U.S. Army, RDECOM-ARDEC*

10:40 AM - 11:00 AM JSSAP Science and Technology Advisory Council (18268)

- ▶ Dr. Bart Halpern, *U.S. Army ARDEC*

11:00 AM - 11:20 AM Active Stabilization of Firearms by Optical Target Tracking (18314)

- ▶ Mr. Terence Rice, *U.S. Army ARDEC*

WEDNESDAY, APRIL 27, 2016 CONTINUED

11:20 AM - 11:40 AM Cased Telescoped Systems: 6.5mm Carbine and 7.62mm Machine Gun (18325)

- ▶ Ms. Kori Phillips, *U.S. Army ARDEC*

11:40 AM - 12:00 PM Future Advanced Squad Technologies (FAST) (18299)

- ▶ Mr. Daniel Cler, *U.S. Army ARDEC*

12:00 PM - 1:00 PM

Networking Luncheon - Exhibit Hall**Division Award Presentation and Comments**

- ▶ Mr. Kevin Fahey

1:00 PM - 1:40 PM

NATO Weapons and Sensors Working Group Panel DiscussionModerator: Dr. Bart Halpern, *U.S. Army ARDEC*

Panelists:

- ▶ Mr. Michael Tauber, *U.S. Army ARDEC*
- ▶ Mr. Scott Reeve, *UK Defence Science and Technology Laboratory*
- ▶ Mr. Sal Fanelli, *U.S. Marine Corps Systems Command*
- ▶ Mr. David Long, *NSWC Crane*
- ▶ Dr. David Dye, *NSWC Crane*
- ▶ Mr. Adam Jacob, *U.S. Army ARDEC*

1:40 PM - 3:00 PM

WeaponsSession Chair: Mr. David Long, *NSWC Crane***1:40 PM - 2:00 PM Dragon Scales (18217)**

- ▶ Dr. Gary Glaspell, *USACE-ERDC*

2:00 PM - 2:20 PM Next Generation Small Unit Weapon Systems – A Path to Overmatch (18260)

- ▶ Mr. Jim Schatz

2:20 PM - 2:40 PM America's Foot Soldiers New Round (18261)

- ▶ BG David Grange, USA (Ret), *Osprey Global Solutions, LLC*

2:40 PM - 3:00 PM Low Plasticity Burnishing for Fatigue Life Extension of the M4A1 Carbine Bolt (18263)

- ▶ Mr. Thomas Grego, *U.S. Army ARDEC*

3:00 PM - 3:30 PM

Networking Break

3:30 PM - 4:30 PM

Weapons ContinuedSession Chair: Mr. David Long, *NSWC Crane***3:30 PM - 3:50 PM A John Browning View of the U.S. Small Arms Industry (18278)**

- ▶ Mr. George Kontis, *Gun IQ International, LLC*

3:50 PM - 4:10 PM MK 48 MOD 1 Machine Gun - Sustained Fire Upgrade (18355)

- ▶ Mr. David Armstrong, *NSWC Crane*

4:10 PM - 4:30 PM Light Weight .338 Medium Machine Gun System Development (18356)

- ▶ Mr. Erik Gudmenson, *General Dynamics OTS*

4:30 PM

Adjourn

SMALL ARMS FORUM

THURSDAY, APRIL 28, 2016

7:00 AM - 12:00 PM **Registration Open**

7:00 AM - 8:00 AM **Networking Breakfast**

8:00 AM - 12:00 PM **Concurrent Sessions**

7:40 AM	Ammunition Session Chair: Mr. Bruce Webb, <i>NAMMO</i>		Test and Evaluation Session Chair: MGySgt Charles Buxton, USMC (Ret)
	18283 — 5.56mm Proof Load Development (How to Ruin A Perfectly Good Weapon) Mr. Chris Gandy, <i>U.S. Army ARDEC</i>		
8:00 AM	18286 — Small Caliber Reduced Range Technology Ms. Lina Norum, <i>Nammo Vanasverken</i>	8:00 AM	18374 — How Industry Can Leverage the Resources of NSWCC Crane for Small Arms Weapons Development Dr. Mark Thoreson, <i>NSWC Crane</i>
8:20 AM	18298 — One-Way Luminescence (OWL) Technical Achievements Mr. Matthew Horch, <i>U.S. Army ARDEC</i>	8:20 AM	18357 — Development of Standardized Test Methods for Quantitative Small Arms Flash Measurements Dr. David Dye, <i>NSWC Crane</i>
			Fire Control and Ancillary Equipment Session Chair: MGySgt Charles Buxton, USMC (Ret)
9:00 AM	18326 — Rheinmetall's 12.7mm x 99 (0.50) Frangible Armor Piercing Ammunition Mr. Brian Sullivan, <i>American Rheinmetall Munitions, Inc.</i>	8:40 AM	18371 — Development of Next Generation Small Arms Weapons Fire Control System Dr. Ben Bachrach, <i>Intelligent Automation, Inc.</i>
9:20 AM	18369 — .50 Caliber Lightweight System Solution Mr. Kim Dahl, <i>Nammo Raufoss AS</i>	9:00 AM	18389 — Advancing Achievable Small Arms Fire Control Technology for Increased Warfighter Effectiveness Mr. Robert Guarasi, <i>Wilcox Industries Corp</i>
9:40 AM - 10:00 AM Networking Break			
10:00 AM	Weapon Suppression Session Chair: Mr. Jason Davis, <i>NSWC Crane</i>		
	18272 — Measurement and Quantification of Blowback Resultant of Suppressor Use in Small Arms Mr. Adam Jacob, <i>U.S. Army ARDEC</i>		
10:20 AM	18301 — Machine Gun Suppression Lessons Learned Mr. Daniel Cler, <i>U.S. Army ARDEC</i>		
10:40 AM	18305 — Thermal Isolation For Integrally Suppressed Weapons Mr. Howard Kent, <i>Armor Development Group, LLC</i>		
11:00 AM	18366 — Development of an Integral Suppressor for the M4A1 Carbine Mr. Jason Davis, <i>NSWC Crane</i>		
11:20 AM	18293 — The Use of Finite Element Analysis in the Design of a Light Weight Cartridge Case Mr. Raymond Chaplin, <i>U.S. Army ARDEC</i>		

11:40 AM - 12:00 PM

Concluding Remarks and Depart for Technology Demonstration

GUNS, AMMUNITION, ROCKETS & MISSILES (GARM) FORUM

TUESDAY, APRIL 26, 2016

- 7:00 AM - 6:30 PM** **Registration Open**
- 7:00 AM - 8:00 AM** **Networking Breakfast - Exhibit Hall**
- 8:00 AM - 8:10 AM** **Welcome and Administrative Announcements**
- ▶ Mr. Matt Solverson, *Director, Medium Caliber Ammunition Marketing and Business Development, General Dynamics Ordnance and Tactical Systems; Chair, GARM Committee*
 - ▶ Mr. Dan Hartman, *Director, Business Development, Spectra Technologies, LLC; Chair, UEA Committee*
- 8:10 AM - 8:50 AM** **U.S. Army Keynote Speaker**
- ▶ Mr. Jim Shields, *PEO Ammunition*
- 8:50 AM - 9:30 AM** **ARDEC Keynote Speaker**
- ▶ Mr. John F. Hedderich III, *Director, ARDEC*
- 9:30 AM - 9:50 AM** **ARDEC's Science and Technology Strategic Plan**
- ▶ Mr. Joe Pelino, *U.S. Army ARDEC*
- 9:50 AM - 10:20 AM** **Is Now the Time for a High-Energy Laser Weapon Program of Record? (18375)**
- ▶ Mr. David Kiel, *Directed Energy Warfare Office*
- 10:20 AM - 10:40 AM** **Networking Break - Exhibit Hall**
- 10:40 AM - 11:00 AM** **JNLWD's S&T Investments and Capabilities Gaps**
- ▶ Mr. David Law, *JNLWD Chief Scientist*
- 11:00 AM - 11:30 AM** **DOTC Enterprise Overview**
- ▶ Mr. Don Geiss, *DOTC Program Office*
- 11:30 AM - 12:00 PM** **NDIA Government Policy Update**
- Mr. James Thomas, *Director, Legislative Policy, NDIA*
- 12:00 PM - 1:30 PM** **Networking Luncheon - Exhibit Hall**
- NDIA Welcome and Armament Division Update**
- ▶ Mr. Dave Broden, *President, Broden Resource Solutions, LLC; NDIA Armament Division Chair*
- Role of MCOTEAs in Testing of Small Arms**
- ▶ Col Mark Brinkman, USMC, *Director, Marine Corps Operational Test & Evaluation Activity*

GARM FORUM

TUESDAY, APRIL 26, 2016 CONTINUED

1:30 PM - 2:00 PM

JCIDS Discussion

- ▶ COL Darrell Wilson, USA, *Chief, Joint Requirements and Assessments Division Headquarters Department of the Army, G-8 Force Development, Pentagon*

2:00 PM - 4:00 PM

Armament Systems Session Continued

Session Chairs: Mr. Joe Buzzett, *GD-OTS*
Mr. John Altrichter, *BAE Systems*

2:00 PM - 2:20 PM 30mm Stryker Lethality Upgrade

- ▶ LTC Jason Toepfer, USA, *Stryker Brigade Combat Team*

2:20 PM - 2:40 PM Cluster Munition Replacement for 155mm Artillery (18578)

- ▶ Mr. Ryan Gorman, *U.S. Army*

2:40 PM - 3:00 PM Commander's Independent Weapon Station Demonstrator (18254)

- ▶ Mr. Dirk Jungquist, *BAE Systems*

3:00 PM - 3:20 PM

Networking Break - Exhibit Hall

3:20 PM - 3:40 PM Options for Light/Medium AFV Gun Armament (18258)

- ▶ Mr. Anthony Williams, *IHS Jane's Weapons*

3:40 PM - 4:00 PM 40mm Case Telescoped Armament System (18360)

- ▶ Mr. David Coughtrie, *CTA International*

4:00 PM - 5:00 PM

Direct and Indirect Fire Guns Session

Session Chair: Mr. Howie Wendt, *NSWC Dahlgren*
Mr. Steve Piper, *Piper Pacific International*

4:00 PM - 4:20 PM Benefits of an Active Recoil Control System (18296)

- ▶ Mr. Joshua Stapp, *U.S. Army ARDEC*

4:20 PM - 4:40 PM Use of SmCo T550 Magnetic Materials on Weapon Applications at High Temperature (18333)

- ▶ Mr. Steven Sadowski, *U.S. Army ARDEC*

4:40 PM - 5:00 PM Electronic Gun Tag for Artillery Systems (18292)

- ▶ Mr. Anthony Cannone, *U.S. Army ARDEC*

5:00 PM - 6:30 PM

Networking Reception - Exhibit Hall

5:15 PM

Mandatory Demonstrator Meeting - Exhibit Hall Entrance

WEDNESDAY, APRIL 27, 2016

- 7:00 AM - 4:30 PM** **Registration Open**
- 7:00 AM - 8:00 AM** **Networking Breakfast - Exhibit Hall**
- 8:00 AM - 8:05 AM** **Administrative Announcements**
- ▶ Mr. Matt Solverson, *Director, Medium Caliber Ammunition Marketing and Business Development, General Dynamics Ordnance and Tactical Systems; Chair, GARM Committee*
- 8:05 AM - 8:40 AM** **Ground Combat Systems Keynote Speaker**
- ▶ BG David Bassett, USA, *PEO Ground Combat Systems*
- 8:40 AM - 9:15 AM** **TARDEC Keynote Speaker**
- ▶ Dr. Paul Rogers, *TARDEC*
- 9:15 AM - 10:10 AM** **S&T Needs and Gaps - How to Better Communicate - Panel Discussion**
- Moderator:
- ▶ Mr. Dave Broden, *President, Broden Resource Solutions, LLC; NDIA Armaments Division Chair*
- Panelists:
- ▶ Mr. Joe Pelino, *U.S. Army ARDEC*
 - ▶ Mr. Mike Till, *NSWC Dahlgren*
 - ▶ Mr. Joe Buzzett, *General Dynamics-OTS*
- 10:10 AM - 10:40 AM** **Networking Break - Exhibit Hall**
- 10:40 AM - 12:00 PM** **Ammunition Session**
- Session Chairs: Mr. Mark Serben, *U.S. Army ARDEC*
Ms. Shelly Uzman, *Orbital ATK*
- 10:40 AM - 11:00 AM Moving Target Artillery Round (MTAR) (18280)**
- ▶ Mr. Sanford Steelman, *NSWC Dahlgren*
- 11:00 AM - 11:20 AM 40mm EAPS Gun ATO Integrated Demonstration vs. Class 2 UAS (18295)**
- ▶ Mr. Manfredi Luciano, *U.S. Army ARDEC*
- 11:20 AM - 11:40 AM 40mm PGU-47/U SAPHEI-T Cartridge Qualification Status Presentation (18320)**
- ▶ Mr. Jim McConkie, *NSWC Dahlgren*
- 11:40 AM - 12:00 PM 25mm APEX Ammunition**
- ▶ Mr. Jan Hasslid, *Nammo Raufoss AS*
- 12:00 PM - 1:00 PM** **Networking Luncheon - Exhibit Hall**
- Division Award Presentation and Comments**
- ▶ Mr. Kevin Fahey

GARM FORUM

WEDNESDAY, APRIL 27, 2016 CONTINUED

1:20 PM - 2:00 PM

Ammunition Session Continued

Session Chairs: Mr. Mark Serben, *U.S. Army ARDEC*
Ms. Shelly Uzpen, *Orbital ATK*

1:20 PM - 1:40 PM Raytheon's Excalibur N5: Redefining Naval Gunfire (18409)

▶ Mr. Ryan Pafferoth, *Raytheon Company*

1:40 PM - 2:00 PM 40mm HV Airburst Revolution (18373)

▶ Mr. Helge Stadheim, *Nammo Raufoss AS*

2:00 PM - 2:40 PM

Mortars Session

Session Chairs: Mr. Jeff Siewert, *Arrow Tech*
Mr. Ralph Tillinghast, *U.S. Army ARDEC*

2:00 PM - 2:20 PM Mortar Ammunition Across The Globe (18259)

▶ Mr. Anthony Williams, *IHS Jane's Weapons*

2:20 PM - 2:40 PM Advanced Capability Extended Range Mortar (ACERM) (18279)

▶ Mr. Sanford Steelman, *NSWC Dahlgren*

2:40 PM - 3:00 PM

Awards Presentation

Triffiletti Award

▶ Presented to Mr. Jim McConkie

3:00 PM - 3:30 PM

Networking Break

3:30 PM - 4:30 PM

Mortars Session Continued

Session Chairs: Mr. Jeff Siewert, *Arrow Tech*
Mr. Ralph Tillinghast, *U.S. Army ARDEC*

3:30 PM - 3:50 PM Use of Security Overlays or Control Sets in Addressing Control Deviations for Mortar Systems (18424)

▶ Mr. Daniel Campbell, *U.S. Army ARDEC*

3:50 PM - 4:10 PM 60mm and 81mm Non-Lethal (18311)

▶ Mr. Bryan Drake, *U.S. Army ARDEC*

4:10 PM - 4:30 PM The Future of Rocket Artillery

▶ Mr. Paul Turner, *Precision Fires Rocket & Missile Systems Project Office*

4:30 PM

Adjourn

THURSDAY, APRIL 28, 2016

7:00 AM - 12:00 PM Registration Open

7:00 AM - 8:00 AM Networking Breakfast

8:00 AM - 11:00 AM Concurrent Sessions

8:00 AM	Fire Control Session Session Chairs: Mr. Mike Pattison, <i>Meggitt Defense Systems</i> and Ms. Lisa Brown, <i>Orbital ATK</i>	
	18334 — Utilizing Low Cost Sensors on Mortar Platforms for Fire Control Applications Mr. Ralph Tillinghast, <i>U.S. Army ARDEC</i>	
8:20 AM	18262 — Minimalist Foreign Artillery Digitization Mr. David Musgrave, <i>U.S. Army ARDEC</i>	
8:40 AM	18275 — An Analysis of the Visual Automated Scoring System Performance During Live Gunfire Events Dr. Chris Weiland, <i>NSWCDD</i>	
9:00 AM - 9:30 AM Networking Break		
9:30 AM	Modeling, Simulation, and Testing Session Session Chairs: Mr. Richard Cadille, <i>Kistler</i> and Enrico Mutascio, <i>Esterline Defense Technologies</i>	U.S. Citizens Only Session Chairs: Mr. Mark Serben, <i>U.S. Army ARDEC</i> and Mr. Darrel Morris, <i>Systema Technologies, Inc.</i>
	18253 — Pointing Accuracy Analysis for a Commander's Independent Weapon Station Demonstrator Mr. Dirk Jungquist, <i>BAE Systems</i>	18579 — Counter Unmanned Aerial Systems (CUAS) Mr. Hannibal People, <i>U.S. Army RDECOM ARDEC</i>
9:50 AM	18291 — Automatic Hit Detection System for Real-Time Target Hit Feedback Mr. Daniel Holden, <i>NSWC Dahlgren</i>	18290 — Evaluation of Delivery Performance for Non-Impact Munitions Mr. Tomas Bober, <i>Picatinny Arsenal</i>
10:10 AM	18297 — Projectile Soft Recovery Facility Mr. James Fetsko, <i>NSWC Dahlgren</i>	18336 — 120mm Mortar System; A Synopsis of Extended Range Technologies Maturation Efforts Mr. Ryan Hooke, <i>U.S. Army ARDEC</i>
10:30 AM	18313 — High Speed High Dynamic Range Video Mr. David Griffiths, <i>NSWC Dahlgren</i>	18327 — Analytical Approach to Quantifying Pressure Vessel Loads as a Function of Cartridge Case-to-Chamber Clearance and Friction Mr. Patrick Barnhill, <i>Orbital ATK Armament Systems</i>
10:50 AM	18319 — Flight Modeling and Simulation Capabilities for Gun and Mortar Systems Mr. Kishore Pamadi, <i>NSWC Dahlgren</i>	

10:50 AM - 11:00 AM Concluding Remarks

12:00 PM Depart for Technology Demonstration

UNCONVENTIONAL EMERGING TECHNOLOGY ARMAMENTS (UEA) FORUM TUESDAY, APRIL 26, 2016

- 7:00 AM - 6:30 PM** **Registration Open**
- 7:00 AM - 8:00 AM** **Networking Breakfast - Exhibit Hall**
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 - ▶ Mr. Dan Hartman, *Director, Business Development, Spectra Technologies, LLC; Chair, UEA Committee*
- 8:10 AM - 8:50 AM** **U.S. Army Keynote Speaker**
- ▶ Mr. Jim Shields, *PEO Ammunition*
- 8:50 AM - 9:30 AM** **ARDEC Keynote Speaker**
- ▶ Mr. John F. Hedderich III, *Director, ARDEC*
- 9:30 AM - 9:50 AM** **ARDEC's Science and Technology Strategic Plan**
- ▶ Mr. Joe Pelino, *U.S. Army ARDEC*
- 9:50 AM - 10:20 AM** **Is Now the Time for a High-Energy Laser Weapon Program of Record? (18375)**
- ▶ Mr. David Kiel, *Directed Energy Warfare Office*
- 10:20 AM - 10:40 AM** **Networking Break - Exhibit Hall**
- 10:40 AM - 11:00 AM** **JNLWD's S&T Investments and Capabilities Gaps**
- ▶ Mr. David Law, *JNLWD Chief Scientist*
- 11:00 AM - 11:30 AM** **DOTC Enterprise Overview**
- ▶ Mr. Don Geiss, *DOTC Program Office*
- 11:30 AM - 12:00 PM** **NDIA Government Policy Update**
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- 12:00 PM - 1:30 PM** **Networking Luncheon - Exhibit Hall**
- NDIA Welcome and Armament Division Update**
- ▶ Mr. Dave Broden, *President, Broden Resource Solutions, LLC; NDIA Armaments Division Chair*
- Role of MCOTEA in Testing of Small Arms**
- ▶ Col Mark Brinkman, USMC, *Director, Marine Corps Operational Test & Evaluation Activity*

TUESDAY, APRIL 26, 2016 CONTINUED

1:30 PM - 2:10 PM

Future Concepts for the Next Fight

Session Chair: Mr. Bart Halpern, *U.S. Army ARDEC*

1:30 PM - 1:50 PM Ultra High Performance Unconventional Frangible, Fragmenting & Explosive Metal Projectile (19363)

▶ Mr. Howard Kent, *Armor Development Group, LLC*

1:50 PM - 2:10 PM Future Technologies and Concepts (18399)

▶ Mr. Ralph Tillinghast, *U.S. Army ARDEC*

2:10 PM - 3:30 PM

Networking Break - Exhibit Hall

3:30 PM - 4:30 PM

Directed Energy - U.S. CITIZENS ONLY

Session Chair: Mr. David Kiel, *NSWC-DD*

3:30 PM - 3:50 PM Is Now the Time for a High-Energy Laser Weapon Program of Record? (18375)

▶ Mr. David Kiel, *Directed Energy Warfare Office*

3:50 PM - 4:10 PM Radio Frequency Vehicle Stopper (RFVS) Development (18368)

▶ Dr. Yeong-Jer Chen, *NSWC Dahlgren*

4:10 PM - 4:30 PM Implementation of Electromagnetic Modeling for Directed Energy Applications (18347)

▶ Mr. William Catoe, *NSWC Dahlgren*

4:30 PM - 6:30 PM

Networking Reception

5:15 PM

Mandatory Demonstrator Meeting - Exhibit Hall

UEA FORUM

WEDNESDAY, APRIL 27, 2016

- 7:00 AM - 6:30 PM** **Registration Open**
- 7:00 AM - 8:00 AM** **Networking Breakfast - Exhibit Hall**
- 8:00 AM - 8:20 AM** **Administrative Announcements**
▶ Mr. Dan Hartman, *Director, Business Development, Spectra Technologies, LLC; Chair, UEA Committee*
- 8:20 AM - 10:00 AM** **Non-Lethal Technology, Payloads and Effects**
Session Chair: Mr. David Law, *JNLWD Chief Scientist*
- 8:20 AM - 8:40 AM** **Joint Non-Lethal Weapons Program's Next-Generation Non-Lethal Directed Energy Weapons and Enabling Technologies Portfolios**
▶ Mr. David Law, *JNLWD Chief Scientist*
- 8:40 AM - 9:00 AM** **Anti-Class One Drone & Multi-Purpose 66mm Launch System For The M-4 Carbine (18317)**
▶ Mr. Howard Kent, *Armor Development Group, LLC*
- 9:00 AM - 9:20 AM** **NATO Non-Lethal Capabilities Update (18330)**
▶ Mr. John Edwards, *U.S. Army ARDEC*
- 9:20 AM - 9:40 AM** **Active Denial Technology (18339)**
▶ Mr. Michael Hatfield, *NSWC Dahlgren*
- 9:40 AM - 10:00 AM** **The Next Generation of Light Tactical Vehicle Softkill Protection: Rheinmetall's Rapid Obscuring Smoke System (18364)**
▶ Mr. Brian Sullivan, *ARM, Inc.*
- 10:00 AM - 10:40 AM** **Networking Break - Exhibit Hall**
- 10:40 AM - 11:40 AM** **Sensors and Enabling Technology**
Session Chair: Mr. Ralph Tillinghast, *U.S. Army ARDEC*
- 10:40 AM - 11:00 AM** **Illumination Warning for Individual Soldiers and Vehicles (18277)**
▶ Mr. Howard Kent, *Armor Development Group, LLC*
- 11:00 AM - 11:20 AM** **Architecture and Design of a System to Counter IEDs with Automated Detection and Human in the Loop Decision-Making (18378)**
▶ Mr. Jorge Buenfil, *U.S. Army ARDEC*
- 11:20 AM - 11:40 AM** **Using Wall Penetrating Radar and Wireless Signal Location Technology to Control Drones in Structures (18337)**
▶ Mr. Howard Kent, *Armor Development Group, LLC*
- 11:40 AM - 1:00 PM** **Networking Luncheon - Exhibit Hall**
Division Award Presentation and Comments
▶ Mr. Kevin Fahey

WEDNESDAY, APRIL 27, 2016 CONTINUED

1:00 PM - 2:00 PM

U.S. Army Research Laboratory

Session Chair: Mr. Michael Zoltoski, *ARL Weapons and Materials Research Directorate*

1:00 PM - 1:20 PM Weapons Technology COI

▶ Mr. Michael Zoltoski, *ARL Weapons and Materials Research Directorate*

1:20 PM - 1:40 PM Collaborative Cooperative Engagement - Parent Child Concept (18521)

▶ Dr. Frank Fresconi, *U.S. Army Research Laboratory*

1:40 PM - 2:00 PM Disruptive Energetics - The Future (18522)

▶ Dr. Jennifer Ciezak-Jenkins, *U.S. Army Research Laboratory*

2:00 PM

Adjourn

ADDITIONAL AUTHORS

- 18217 Ms. Colleen Malone
Mr. Anthony Piccolo
- 18253 Mr. Dan Youtt
- 18254 Mr. Roger Nase
- 18263 Mr. Adam Foltz
- 18274 COL John Wright, USA (Ret)
- 18275 Mr. Kevin Murray
- 18279 Mr. Ben Topper
- 18280 Mr. Thomas Del Guidice
- 18283 Mr. Andy Boman
Mr. Dan Meierhofer
Mr. Tom Grego
Mr. Dan Gubernat
- 18291 Dr. Christopher Weiland
Mr. John Deasy
- 18296 Mr. Matthew Tomik
Mr. William Bartell
Mr. Philip Wetzel
- 18297 Mr. James Fetsko
- 18299 Mr. Keith Koehler
Mr. Gregory Oberlin
- 18301 Mr. Gregory Oberlin
- 18305 Mr. Joseph Garst
- 18311 Mr. Jason Surmanek
Mr. Michael Markowitch
Mr. Francesco Rizzi
- 18314 Mr. Craig LaMudge
- 18317 Mr. Dewey Akers
- 18326 Mr. Brian Sullivan
- 18333 Mr. Steve Sadowski
Mr. Ralph Tillinghast
- 18334 Mr. Steve Sadowski
Mr. Mike Wright
Mr. Andrew Yu
- 18337 Dr. Ram Narayanan
- 18339 Ms. Melanie Everton
- 18346 Mr. Glen Dick
- 18347 Mr. William Catoe
- 18354 Mr. Wilfredo Ramos
- 18357 Mr. Jason Davis
- 18360 Mr. James Baker
Mr. Patrice Pichot
- 18368 Dr. John Krile
Mr. Ryan Mead
- 18371 Mr. Richard LeBlanc
Mr. Paul Shipley
- 18374 Mr. Jason Davis
Mr. Jacob Sullivan
- 18378 Mr. Jorge Buenfil
- 18381 Mr. Domenick Rosato
Mr. Steve Graham
Ms. Joan Kirnes
Mr. Mark Sproul
- 18393 Mr. Stephen Smith
Mr. Douglas Witowski
- 18394 Mr. Adam Foltz
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EXHIBITING COMPANIES

Aimpoint Inc.

301

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302

General Dynamics Ordnance and Tactical Systems manufactures large-, medium- and small-caliber direct and indirect-fire munitions; and is a leader in the development and production of lightweight tactical vehicles, weapons and armament systems. The company also produces propellants and non-lethal and force-protection products. More information about General Dynamics Ordnance and Tactical Systems is available online at www.gd-ots.com.

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305

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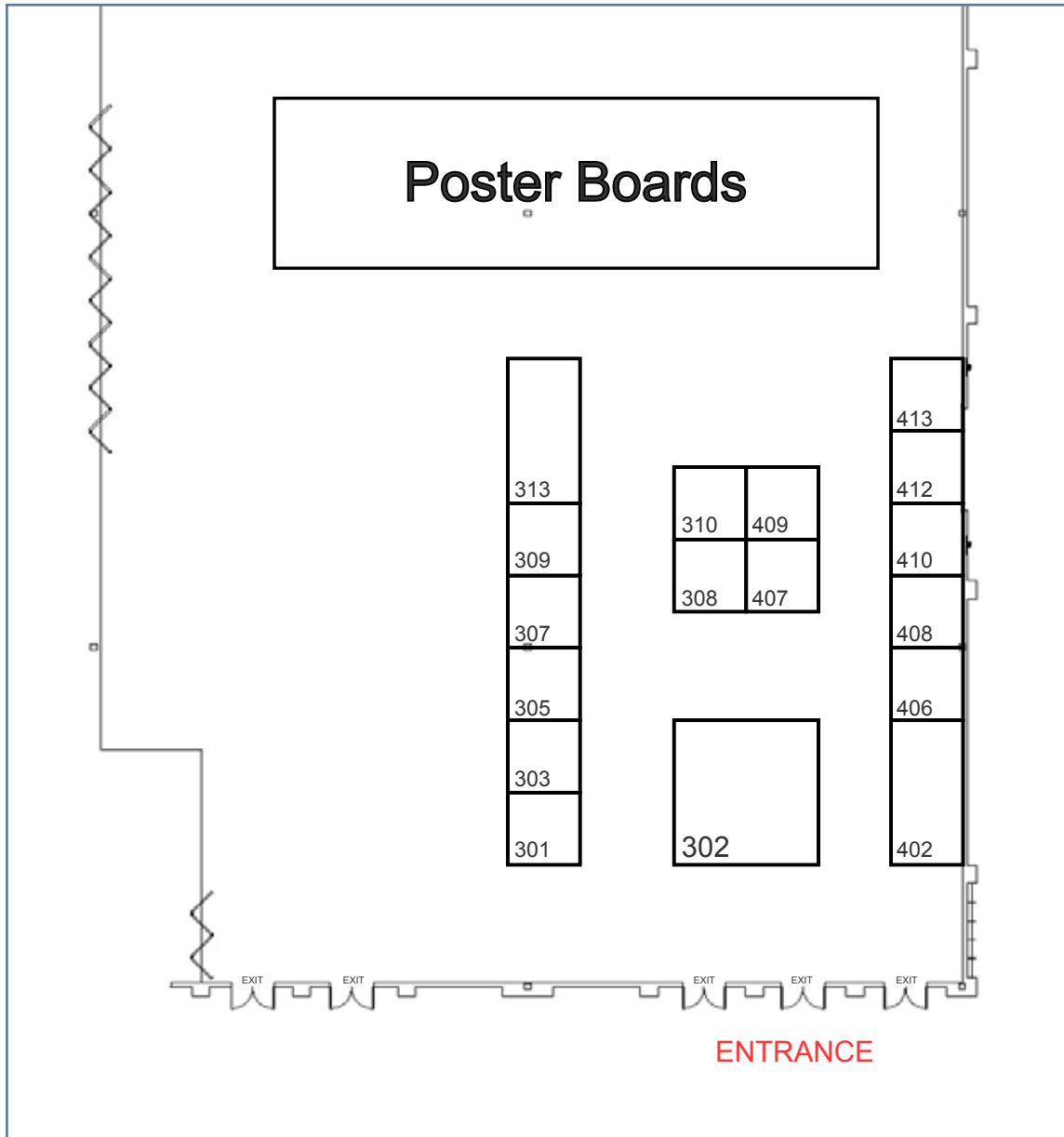
303

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EXHIBITING COMPANIES

- Kistler Instrument Corp.** 407
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- Kratos Defense & Security Solutions, Inc.** 410
Kratos is a leading provider of advanced engineering, public safety and security systems, IT services, and war fighter solutions for the federal government, state and local agencies and commercial applications. We leverage our intellectual and technical strengths to provide our customers with leading edge professional services and solutions for mission success.
- Radiance Technologies, Inc.** 412
Radiance Technologies, an employee owned company, leverages small-business ingenuity and large-business competencies to provide high-quality systems engineering; technology and prototype development, integration, and testing; and operational support for the DoD, intelligence agencies, and other Government organizations. Radiance designs, develops, fabricates, integrates, and tests both components and systems.
- Sierra Bullets** 310
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- Small Arms Defense Journal** 307
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- U.S. Army RDECOM** 402
Based at Picatinny Arsenal, NJ and Aberdeen Proving Ground, MD (respectively), the Armament RDE Center (ARDEC) and Army Research Laboratory (ARL) provide critical research and underpinning technologies that support armament developments for Soldier weapons, ground combat vehicles, aircraft, mortars, and field artillery. ARDEC and ARL pursue this mission through interactions and collaboration with partners in government, industry, and academia and through a robust internal research and development capability.
- U.S. Optics** 406
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- Wilcox Industries Corp.** 409
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EXHIBITOR FLOORPLAN



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- Barrett
- FN America, LLC
- Glock, Inc.
- Heckler & Koch
- LaRue
- U.S. Army - PM Soldier Weapons
- U.S. Optics
- Wilcox Industries Corp.