



2017

**Armament Systems Forum &
Firing Demonstration**

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

Onsite Agenda

**May 1-4, 2017
Fredericksburg Expo & Conference Center
Fredericksburg, VA**

MONDAY, MAY 1, 2017

12:00 PM – 5:00 PM	Exhibitor/Poster Move-in
12:00 PM – 5:30 PM	Registration Open
1:00 PM – 5:30 PM	Tutorial Sessions

Time	Tutorial A	Tutorial B
1:00 PM – 2:30 PM	Insensitive Munitions Requirements, Technology, and Testing Dr. Ernie Baker, <i>NATO MSIAC</i>	ARDEC Tissue Damage Model - An Unclassified Damage Model for Use by Industry Mr. Gavin McFarland, <i>Mechanical Engineer, U.S. Army ARDEC</i>
2:30 PM – 4:00 PM	Kistler Transducer Calibration and Application Mr. Richard Cadille, <i>Kistler</i>	Lead Free Primer Formulation and Manufacturing Solutions for Small Caliber Ammunition - Board <ul style="list-style-type: none"> • Mr. Dan Mansfield, <i>Orbital ATK Lake City</i> • Mr. Anthony Hawthorne, <i>ARDEC Project Engineer, Project Manager Maneuver Ammunition Systems, U.S. Army</i> • Mr. Jeremy Mills, <i>Winchester</i> • Mr. Jared Smith, <i>Fiocchi</i> • Mr. Peter Spatz, <i>RUAG</i> • Mr. Bruce Webb, <i>NAMMO</i>
4:00 PM – 5:30 PM	Large Caliber Cannon Technology Shortfalls-Opportunities for Government & Industry Collaboration Dr. Joseph Kapp, <i>U.S. Army ARDEC</i>	

TUESDAY, MAY 2, 2017

7:00 AM – 6:30 PM	Registration Open
7:00 AM – 8:00 AM	Networking Breakfast
8:00 AM – 8:10 AM	Welcome and Administrative Announcements <ul style="list-style-type: none"> • Mr. Dave Broden, <i>NDIA Armament Division Chair; President, Broden Resource Solutions, LLC</i>
8:10 AM – 8:15 AM	NDIA Welcome <ul style="list-style-type: none"> • CAPT Bruce Roulstone, <i>USN (Ret), Vice President, Program Development, NDIA</i>
8:15 AM – 8:45 AM	DoD Keynote Address <ul style="list-style-type: none"> • Mr. Vincent Sabio, <i>Program Manager, Strategic Capabilities Office, DoD</i>
8:45 AM – 9:15 AM	MRAS Keynote Address <ul style="list-style-type: none"> • Mr. John Hedderich, III, <i>Director, U.S. Army, ARDEC</i>
9:15 AM – 9:45 AM	U.S. Army Keynote Address <ul style="list-style-type: none"> • COL William Nuckols, <i>USA, Director, Mounted Requirements Division, U.S. Army</i>
9:45 AM – 10:15 AM	Networking Break - Exhibit Hall

10:15 AM - 10:45 AM	U.S. Army Special Operations Command Keynote Address <ul style="list-style-type: none">• COL Samuel Ashley, USA, G-8, <i>U.S. Army Special Operations Command</i>
10:45 AM - 11:30 AM	Awards Presentation Small Arms Awards <ul style="list-style-type: none">• Chinn Award: Mr. Dan Shea, Phoenix Defense• Hathcock Award: Mr. Todd Hodnett, Accuracy 1st, Inc.• Ambrose Award: Oehler Research, Inc. GARM Awards <ul style="list-style-type: none">• Trifletti Award: Mr. Mike Till, NSWCCD E Department
11:30 AM - 1:00 PM	Luncheon - Exhibit Hall
1:00 PM - 1:30 PM	U.S. Navy Keynote Address <ul style="list-style-type: none">• Dr. John Burrow, <i>Navy Research, Development, Test and Evaluation</i>
1:30 PM - 2:00 PM	PEO - Ammunition Presentation <ul style="list-style-type: none">• Mr. Jim Shields, <i>Program Executive Officer, PEO Ammunition</i>
2:00 PM - 2:30 PM	DARPA Presentation <ul style="list-style-type: none">• Mr. Jerome Dunn, <i>Science & Technology Program Officer, Defense Advanced Research Projects Agency</i>
2:30 PM - 3:00 PM	Networking Break - Exhibit Hall
3:00 PM - 3:30 PM	Views from Congress on Acquisition Reform Presentation <ul style="list-style-type: none">• Mr. Jeremy Hayes, <i>Professional Staff, Section 809 Panel on Streamlining and Codifying Acquisition, Former Professional Staff Member, Senate Armed Services Committee</i>
3:30 PM - 4:00 PM	Guest Speaker <ul style="list-style-type: none">• Mr. Dan Shea, <i>General Director, Phoenix Defense/Small Arms Defense Journal</i>
4:00 PM - 4:30 PM	Guest Speaker <ul style="list-style-type: none">• David Law, <i>Technology Chief, Joint Non-Lethal Weapons Directorate (JNLWD)</i>
4:30 PM - 5:00 PM	DOTC <ul style="list-style-type: none">• Mr. Charles Zisette, <i>NAC/DOTC</i>
5:00 PM - 5:20 PM	Mandatory Meeting for All Companies Participating in the Firing Demonstration on Thursday (Entrance of the Exhibit Hall)
5:00 PM - 6:30 PM	Networking Reception - Exhibit Hall

Adhesives, Sealants and Precision Application Equipment (19174)

- Mr. Harry Arnon, *Hernon Manufacturing*

Precision Small Arms and Optics Adaptation to Remote Turret Use Via Ocular Camera (19188)

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

Secondary Flash Reduction Through Weapon & Ammunition Loading Optimization (19197)

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

Modernization of Copper Cylinders for M4/M16M249 Firing Pin Indent Testing (19262)

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

Improved Bore Erosion Gaging for M4A1 (19263)

- Mr. Adam Foltz, *U.S. Army ARDEC*

Lead Free Primer Formulation and Manufacturing Solutions for Small Caliber Ammunition (19277)

- Mr. Anthony Hawthorne, *U.S. Army, PM-MAS*

Small Arms Signature Reduction in the Near IR and Visible Regions (19283)

- Dr. Frederick Long, *U.S. Army ARDEC*

Weapon Reliability Evaluation by Model Analysis (19339)

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

Effects of Production Techniques on Primer Performance (19362)

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

M4/M16 Conical Bolt Solution to Commonly Seen Malfunctions in Harsh Environments (19385)

- Mr. Michael Blank, *FRDI, LLC*

Material Models -- Elastic, Plastic, Ductile Damage, and Shear Damage (19396)

- Mr. Mark Lee, *Orbital ATK*

State of Material -- Material and Hardness Affect Assembly, Misfires, Leakers, Dropped Primers, Case Rupture, Bullet Pull, Extraction, Terminal Ballistics (19398)

- Mr. Mark Lee, *Orbital ATK*

Application of Energetic Materials in Small Arms with Enhanced Ballistic Breaching Capabilities (19399)

- Mr. Ross Nellums, *Rocky Mountain Scientific Laboratory*

Thermal Isolation/Barrier for Small Caliber Weapons (19400)

- Mr. Adam Foltz, *U.S. Army ARDEC*

Development of Material Characterization Methods for Next Generation Weapon Barrel Requirements (19404)

- Mr. Adam Foltz, *U.S. Army ARDEC*

Closed Loop Aimpoint Correction for Small Arms Mounts (19416)

- Dr. Mark Thoreson, *NSWC Crane*

Using MATLAB to Obtain Bullet Dimensions (19421)

- Mr. Kenneth Hohnerker, *U.S. Army ARDEC*

The Effects of Rifling Twist on Projectile Launch using Explicit Finite Element Analysis (19428)

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

Evaluation of Terminal Ballistics Modeling using the Peridynamic Method (19430)

- Mr. Raymond Chaplin, *U.S. Army ARDEC*

Using MATLAB to Mesh Barrel Rifling (19434)

- Mr. Kenneth Hohnerker, *U.S. Army ARDEC*

Impact Sensitivity Induced in Thin Film Nanoenergetics for Small Arms Primers

- Mr. Daniel Yates, *Spectre Enterprises*

WEDNESDAY, MAY 3, 2017

- 7:00 AM – 5:00 PM** **Registration Open**
- 7:00 AM – 7:30 AM** **Networking Breakfast**
- 7:30 AM – 7:40 AM** **Administrative Announcements**
- Mr. Brian Berger, *Chairman, Small Arms Committee; Global Technologies for Defense and Security America Corp.*
- 7:40 AM – 8:40 AM** **Session I: MCSC PM Weapons**
- COL Michael A. Manning, USMC, *USMC PM Infantry Weapon Systems*
- 8:40 AM – 9:40 AM** **Session II: PM Soldier Weapons**
- Chair: COL Brian Stehle, USA, *PM Soldier Weapons*
- LTC Loyd Beal, III, USA, *Product Manager, Crew Served Weapons*
 - LTC Steven Power, USA, *Product Manager, Soldier Weapons*
- 9:40 AM – 10:10 AM** **Networking Break – Exhibit Hall**
- 10:10 AM – 11:10 AM** **Session III: PM MAS**
- Chair: COL Moises Gutierrez, USA, *Project Manager, Maneuver Ammunition Systems*
- LTC John Masternak, USA, *Product Manager, Maneuver Ammunition Systems*
 - Mr. Christopher Seacord, *Product Manager, Maneuver Ammunition Systems*
- 11:10 AM – 12:10 PM** **Session IV: NATO Weapons and Sensors Working Group Panel Discussion**
- Chair: Dr. Barton Halpern, *NATO Weapon and Sensor Group Chairman*
- Mr. Mark McFadden, *JSSAP, U.S. Army ARDEC*
 - Dr. David Dye, *Naval Surface Warfare Center, Crane Division*
 - Mr. Adam Jacob, *U.S. Army ARDEC*
 - Mr. David Long, *Naval Surface Warfare Center, Crane Division*
 - Mr. Wayde Thomka, *PM Soldier Sensors and Lasers, U.S. Army*
 - Mr. Hendrik Vercruyssen, *Belgian Defence*
 - CWO John Yoshida, *Soldier Systems Program Management (DSSPM) Canadian Armed Forces*
- 12:10 PM – 1:10 PM** **Networking Luncheon**
- 1:10 PM – 2:10 PM** **Session V: PM Soldier Sensors & Lasers**
- Co-Chair: Mr. Lloyd Luedtke, *PM Soldier Sensors and Lasers*
- Co-Chair: Mr. Wayde Thomka, *Technology Management Director, PM Soldier Sensors and Lasers*
- 2:10 PM – 3:10 PM** **Session VI: JSSAST Panel**
- Chair: Mr. Augustine Funcasta, *U.S. Army RDECOM-ARDEC*
- Col Christopher Deguelle, USAF, *U.S. Air Force Security Forces Center*
 - Mr. Craig LaMudge, *U.S. Coast Guard*
 - CDR Christopher England USN, *N96C, Naval Surface Warfare*
 - LTC Mark Owens, USA, *PEO SOF Warrior*
 - COL Kurt “Travis” Thompson, USA, *Soldier Requirements Division*
 - Mr. Christopher Woodburn, *Maneuver Branch Marine Corps Capabilities Development Directorate*
- 3:10 PM – 3:40 PM** **Networking Break – Exhibit Hall**
- 3:40 PM – 5:00 PM** **Session VII: JSSAP Session**
- Chair: Mr. John Edwards, *U.S. Army RDECOM-ARDEC*
- 3:40 PM – 4:00 PM** **Optimization of Machine Gun Barrels Using Additive Manufacturing (19254)**
- Mr. Adam Jacob, *U.S. Army ARDEC*
- 4:00 PM – 4:20 PM** **JSSAP Science and Technology Advisory Council (19258)**
- Dr. Barton Halpern, *U.S. Army ARDEC*

WEDNESDAY, MAY 3, 2017 CONTINUED

- 4:20 PM – 4:40 PM** **Measurement and Quantification of Blowback Resultant of Suppressor Use in Small Arms (19270)**
 • Mr. Adam Jacob, *U.S. Army ARDEC*
- 4:40 PM – 5:00 PM** **One-Way Luminescence (OWL) for Small-Caliber Ammunition (19402)**
 • Mr. William Battistelli, *U.S. Army ARDEC*
- 5:00 PM** **Adjourn**

THURSDAY, MAY 4, 2017

- 7:00 AM – 12:15 PM** **Registration Open**
- 7:00 AM – 8:00 AM** **Networking Breakfast**
- 8:00 AM – 8:10 AM** **Administrative Announcements**
 • Mr. Brian Berger, *Chairman, Small Arms Committee; Global Technologies for Defense and Security America*

	Session VIII: Ammunition Session Chair: Dr. Dion Serben, PhD, NSWC IHEODTD	Session IX: Related Enabling Technology and Modeling and Simulation (RETMS) Session Chair: Mr. Raymond Chaplin, ME, ARDEC
8:10 AM – 8:30 AM	.50 Caliber Baseline Study Overview, Results, and Emerging Requirements (19170) • Mr. Stephen McFarlane, <i>U.S. Army, PMMAS</i>	Test Methods for Quantitative Small Arms Flash Measurements (19406) • Dr. David Dye, <i>NSWC Crane</i>
8:30 AM – 8:50 AM	The Effects of Propellant Position on Small Caliber Ballistic Performance (19293) • Ms. Connie Lusto, <i>U.S. Army, ARDEC</i>	Development of Standardized Test Methods for Quantitative Small Arms Thermal Signature Measurements (19407) • Dr. David Dye, <i>NSWC Crane</i>
8:50 AM – 9:10 AM	Factors Affecting Dispersion of M118LR Sniper Ammunition (19393) • Mr. Zachary Krogstad, <i>U.S. Army ARDEC</i>	Studies on Composition and Manufacturing Process for 5.56mm Tracer Ammunition (19420 and 19433) • Mr. Daniel Mansfield, <i>Orbital ATK</i>
9:10 AM – 9:30 AM	Maintaining Overmatch and Standardization for Future NATO Small Arms (19394) • Mr. David Zhou, <i>Independent</i>	
9:30 AM – 9:50 AM	Advances in 6.5mm and 7.62mm Cased Telescoped Small Arms Systems (19423) • Mr. Paul Shipley, <i>Textron Systems/AAI Corporation</i>	Suppressed Upper Receiver (SURG) Testing Methods (19422) • Mr. Caleb McGee, <i>NSWC Crane</i>
9:50 AM – 10:10 AM	Design and Implementation of Reduced Range Training Ammunition (19429) • Mr. Raymond Chaplin, <i>U.S. Army ARDEC</i>	Improving 5.56 Tracer Ammunition Dispersion (19435) • Mr. Andy Boman, <i>Orbital ATK</i>
10:10 AM – 10:30 AM	Enhanced Training with Small Caliber Plastic Short Range Training Ammunition (19468) • Mr. Fredrik Erninge, <i>Nammo Vanäsverken AB</i>	

10:30 AM – 10:50 AM	Networking Break – Exhibit Hall
10:50 AM – 12:10 PM	Session X: Weapons Chair: Mr. David Long, <i>Technical Warrant Holder (acting) Small Arms and Weapons Small Arms Weapons Systems Division Chief Engineer, NSWCC Crane</i>
10:50 AM – 11:10 AM	Multiple Trajectory 40mm Grenade Launching System (19185) <ul style="list-style-type: none">• Mr. Howard Kent, <i>Armor Development Group, LLC</i>
11:10 AM – 11:30 AM	Phase Change Micro-Barrel Jacket Liquid Cooled Machine Gun Barrel For Continuous Fire (19187) <ul style="list-style-type: none">• Mr. Howard Kent, <i>Armor Development Group, LLC</i>
11:30 AM – 11:50 AM	KEYMOD™ VS. M-LOK™ TM Modular Rail System Comparison (19427) <ul style="list-style-type: none">• Mr. Caleb McGee, <i>NAVSEA</i>
11:50 AM – 12:10 PM	Evolving Legacy DON Stabilized Small Arms Weapon Systems by Enhancing At-Sea Live Fire Testing Without Using Water (19291) <ul style="list-style-type: none">• Dr. Mark Thoreson, <i>NSWC Crane</i>
12:10 PM – 12:15 PM	Closing Remarks <ul style="list-style-type: none">• Mr. Brian Berger, <i>Chairman, Small Arms Committee; Global Technologies for Defense and Security America</i>
12:15 PM	Load Buses and Depart for Technology Demonstration
2:00 PM – 5:00 PM	Live Fire Demonstrations Chair: Mr. Alan Matthews, <i>PM Weapons MCSC</i>
5:00 PM – 6:00 PM	Transport to Convention Center

WEDNESDAY, MAY 3, 2017

- 7:00 AM – 5:50 PM** **Registration Open**
- 7:00 AM – 8:00 AM** **Networking Breakfast**
- 8:00 AM – 8:05 AM** **Administrative Announcements**
- Mr. Matt Solverson, *Chair, GARM Committee; Director, Medium Caliber Ammunition Marketing and Business Development, General Dynamics Ordnance and Tactical Systems*
- 8:05 AM – 8:25 AM** **Technology Impacts Keynote Address**
- Mr. Joe Pelino, *Director of Technology, U.S. Army ARDEC*
- 8:25 AM – 9:50 AM** **MRAS Panel Discussion**
- Chair: Mr. Dave Broden, *NDIA Armament Division Chair; President, Broden Resource Solutions, LLC*
- Mr. John Hedderich, III, *U.S. Army, ARDEC*
 - Mr. Chris King, *BAE Systems*
 - Mr. Mike Pattison, *Meggitt Defense Systems*
 - Mr. Rollie Dohrn, *Orbital ATK*
- 9:50 AM – 10:30 AM** **Armament Systems Session**
- Session Chairs: Mr. Steven Sohm, *BAE Systems* and Mr. Anthony Cannone, *U.S. Army ARDEC*
- 9:50 AM – 10:10 AM** **A New Concept in Mobile Weapon Systems (19375)**
- Mr. Jerome Nathan, *Senior Design Engineer, Mandus Group, Ltd.*
- 10:10 AM – 10:30 AM** **Abrams Lethality Enabler (ALE) (19476)**
- Mr. Anand Bahadur, *U.S. Army ARDEC*
- 10:30 AM – 11:00 AM** **Networking Break – Exhibit Hall**
- 11:00 AM – 11:40 AM** **Direct and Indirect Fire Guns Session**
- Session Chairs: Mr. Darrel Morris, *United Technologies Sensors and Intergrated Systems* and Ms. Robin Lacy, *NSWC-Dahlgren*
- 11:00 AM – 11:20 AM** **25mm MK38 MOD 3 Machine Gun System Qualification Status (19444)**
- Mr. Jim McConkie, *NSWC Dahlgren*
- 11:20 AM – 11:40 AM** **Design of a Muzzle Brake to Reduce Firing Impulse Noise During Training (19204)**
- Mr. Alex Davies, *QinetiQ*
- 11:40 AM – 2:35 PM** **Ammunition Session**
- Session Chairs: Mr. Mike Pattison, *Meggitt Defense Systems* and Mr. Ralph Tillinghast, *U.S. Army ARDEC*
- 11:40 AM – 12:00 PM** **Guided Projectiles for Enhanced Expeditionary Engagement Capability (19271)**
- Mr. Sanford Steelman, *NSWC Dahlgren*
- 12:00 PM – 1:30 PM** **Networking Luncheon – Exhibit Hall**
- 1:30 PM – 2:30 PM** **Ammunition Session Continued**
- 1:30 PM – 1:50 PM** **25mm APEX Ammunition**
- Ms. Eva Friis, *Nammo Raufoss AS*
- 1:50 PM – 2:10 PM** **40mm Net Munition for UAS Defeat**
- Mr. Tomasz Blyskal, *U.S. Army ARDEC*

WEDNESDAY, MAY 3, 2017 CONTINUED

- 2:10 PM – 2:30 PM** **Leveraging Next Generation Extended Range, Precision Mortars as Air Dropped Weapons (19401)**
• Mr. Alan Perkins, *UTC Aerospace Systems*
- 2:30 PM – 3:50 PM** **Fire Control Session**
Session Chairs: Mr. Mark Serben, *U.S. Army ARDEC* and Mr. Stephen Sohm, *BAE Systems*
- 2:30 PM – 2:50 PM** **Rethinking User Interface Design and Evaluation (19343)**
• Ms. Korinne Dobosh, *U.S. Army ARDEC*
- 2:50 PM – 3:10 PM** **Direct Lay Laser for Nighttime Mortar Engagements (19290)**
• Mr. Steven Sadowski, *U.S. Army ARDEC*
- 3:10 PM – 3:30 PM** **Third and Fourth Generation Air-Bust Programming Technology - Ballistic Kernels, Processors, Sensors and Methodologies (19419)**
• Mr. Kevin Sullivan, *NOSTROMO*
- 3:30 PM – 3:50 PM** **Automated Pointing of Indirect Weapon Systems - A Lesson in Kinematics (19256)**
• Mr. Joshua Stapp, *U.S. Army ARDEC*
- 3:50 PM – 4:10 PM** **Networking Break in Exhibit Hall**
- 4:10 PM – 5:30 PM** **Missiles and Rockets Session**
Session Chairs: Mr. Steve Piper, *Piper Pacific International* and Mr. Howie Wendt, *NSWC Dahlgren*
- 4:10 PM – 4:30 PM** **Composite Canister Profile Manufacturing by Pultrusion Process (19397)**
• Mr. Erdal Sapanci, *Roketsan*
- 4:30 PM – 4:50 PM** **APKWS Responds to Fixed Wing Need (19414)**
• Mr. Mark Falco, *BAE Systems*
- 4:50 PM – 5:10 PM** **Future Fires - Next Generation Expeditionary USMC Artillery Concepts (19208)**
• Mr. Kevin Lefeave, *NSWC Dahlgren*
- 5:10 PM – 5:30 PM** **Advanced Shoulder-Launched Low-Cost Missiles**
• LTC Gideon Weiss, *USA (Ret), Rafael USA, Inc.*
- 5:30 PM – 5:50 PM** **Warheads and Energetics Session**
Session Chairs: Mr. Richard Cadille, *Kistler* and Mr. Jeff Siewert, *Arrow Tech Associates, Inc.*
- 5:30 PM – 5:50 PM** **MSIAC - Supporting the Munitions Safety Community (19250)**
• Dr. Ernest Baker, *NATO Munitions Safety Information Analysis Center*
- 5:50 PM** **Adjourn**

THURSDAY, MAY 4, 2017**7:00 AM – 12:00 PM** **Registration Open****7:00 AM – 8:00 AM** **Networking Breakfast****8:00 AM – 11:20 AM** **Concurrent Sessions**

	Continuation of Warheads and Energetics Session Session Chairs: Mr. Ralph Tillinghast, <i>U.S. Army ARDEC</i> and Mr. Jeff Siewert, <i>Arrow Tech Associates, Inc.</i>	U.S. Citizens Only* Session Chairs: Mr. Mark Serben, <i>ARDEC</i> and Mr. Anthony Cannone, <i>ARDEC</i>
8:00 AM	Sub-Miniature Laser Igniters (19472) Mr. John Hirlinger, <i>U.S. Army ARDEC</i>	U.S. Ammunition Industrial Base - Chemical Supply Vulnerabilities (19331) Mr. Douglas Marqueen, <i>Naval Surface Warfare Center Dahlgren Division</i>
8:20 AM	Accurate Determination of Weapon System Attitude in a Testing Environment (19426) Mr. Andrew Tse, <i>U.S. Army ARDEC</i>	Advanced High Thermal Conductivity High Erosion Resistant Light Weight Gun Barrels (19438) Mr. Brian Beckwith, <i>ATS-MER, LLC</i>
8:40 AM	Development of Accurate Finite Element Models and Testing Procedures for Bolted Joints in Large Caliber Gun Weapon Systems (19409) Mr. Michael Koehler, <i>U.S. Navy</i>	JSF Gun System Qualification Test Results (19410) Mr. Matthew Diehl, <i>General Dynamics –OTS</i>
9:00 AM	Adjourn	Networking Break - Exhibit Hall
9:20 AM		High Temperature Composite Mortar Tubes (19425)* Mr. Joshua Root, <i>U.S. Army ARDEC</i>
9:50 AM		Electrochemical Machining of Cannon Barrels (19417)* Mr. Anthony Cannone, <i>U.S. Army ARDEC</i>
10:10 AM		The Influence of Variable Winds on Direct Fire Engagements (19364)* Mr. Tomas Bober, <i>U.S. Army ARDEC</i>
10:30 AM		ARDEC Munition Technology Development for a Multi-Role Mission (19475)* Mr. Michael Donadio, <i>U.S. Army ARDEC</i>
10:50 AM		Counter Unmanned Aerial Systems (CUAS) (19440)* Mr. Bhavanjot Singh, <i>U.S. Army, ARDEC</i>
11:10 AM		Adjourn

11:10 AM – 11:20 AM **Concluding Remarks****12:15 PM** **Depart for Technology Demonstration**

*Government attendees with a CAC Card must show that credential to gain entrance.

WEDNESDAY, MAY 3, 2017

- 7:00 AM – 3:50 PM** **Registration Open**
- 7:00 AM – 8:00 AM** **Networking Breakfast**
- 8:00 AM – 9:20 AM** **Future Concepts for the Next Fight – Third Offset**
Session Chair: Dr. Bart Halpern, *Chief Technical Officer, U.S. Army ARDEC*
- 8:00 AM – 8:20 AM** **Do Small Arms Have a Role in the Tactics of Future Battlefield Confrontations? (19268)**
• Dr. Bart Halpern, *Chief Technical Officer, U.S. Army ARDEC*
- 8:20 AM – 8:40 AM** **When Will Weapon Systems Think for Themselves? How Artificial Intelligence and Machine Learning May Play a Role in Our Future (19289)**
• Mr. Ralph Tillinghast, *U.S. Army ARDEC*
- 8:40 AM – 9:00 AM** **Augmented Reality Fire Control Enhancements (19306)**
• Mr. David Musgrave, *U.S. Army ARDEC*
- 9:00 AM – 9:20 AM** **SPARCS: Soldier Parachute Aerial Reconnaissance Camera System (19442)**
• Mr. Cheng Hok Aw, *Pte, Ltd.*
- 9:20 AM – 9:50 AM** **Networking Break – Exhibit Hall**
- 9:50 AM – 11:50 AM** **Sensors and Enabling Technology Session**
Session Chair: Mr. Dan Hartman, *Spectra Technologies, LLC*
- 9:50 AM – 10:10 AM** **3D Intelligent Technical Data (19195)**
• Mr. Jeff Windham, *U.S. Army ARDEC*
- 10:10 AM – 10:30 AM** **Air Blast from a Structural Reactive Material Solid (19288)**
• Dr. Fan Zhang, *Defence Research and Development Canada*
- 10:30 AM – 10:50 AM** **Integrated Antenna and Package Technologies for Projectiles (19292)**
• Mr. Lawrence Rubin, *Systems Engineering Group, Inc.*
- 10:50 AM – 11:10 AM** **Weapon-Target Assignment Optimization that Minimizes the Cost of Engaging Weapons, Minimizes Overkill of Targets, and Keeps Collateral Damage in Check (19355)**
• Dr. Zbigniew Bogdanowicz, *U.S. Army ARDEC*
- 11:10 AM – 11:30 AM** **3D Printed Weapons: Challenges and Opportunities in Advanced Manufacturing (19403)**
• Dr. Sharon Flank, *InfraTrac*
- 11:30 AM – 11:50 AM** **Atmospheric Measurements in Propane and Liquid-Pool Fast Cook-off Fires (19464)**
• Dr. David Hubble, *U.S. Navy*
- 11:50 AM – 12:50 PM** **Luncheon – Exhibit Hall**
- 12:50 PM – 2:30 PM** **U.S. Only Session: Directed Energy, Rail Gun & Hypervelocity Projectile**
Session Chair: Dr. Jennifer Ciezak-Jenkins, *U.S. Army Research Laboratory*
- 12:50 PM – 1:10 PM** **Railgun Technology Development (19179)**
• Mr. Robert Taylor, *General Atomics*
- 1:10 PM – 1:30 PM** **Disruptive Energetics – Fundamental Science for 3rd Offset Needs (19181)**
• Dr. Jennifer Ciezak-Jenkins, *U.S. Army Research Laboratory*
- 1:30 PM – 1:50 PM** **Cyber Risk Management (19189)**
• Ms. Cecilia Anastos, *Meta Intelligence, LLC*

WEDNESDAY, MAY 3, 2017 CONTINUED

1:50 PM – 2:10 PM	Next Generation Fire Control System Training Simulation Capability (19411) <ul style="list-style-type: none">Mr. Matthew Diehl, <i>General Dynamics Ordnance and Tactical Systems</i>
2:10 PM – 2:30 PM	Next Generation Fire Control System with RF Airburst (19412) <ul style="list-style-type: none">Mr. Matthew Diehl, <i>General Dynamics Ordnance and Tactical Systems</i>
2:30 PM – 2:50 PM	Networking Break – Exhibit Hall
2:50 PM – 3:10 PM	Advanced Optical Communications Systems for Munitions (19439) <ul style="list-style-type: none">Dr. Stephen Guerrero, <i>Creative Microsystems</i>
3:10 PM – 3:30 PM	Abrams Lethality Enable (19476) <ul style="list-style-type: none">Mr. Anand Bahadur, <i>U.S. Army, ARDEC</i>
3:30 PM – 3:50 PM	Next-Generation Non-Lethal Weapons – Science & Technology (S&T) <ul style="list-style-type: none">Mr. David Law, <i>Joint Non-Lethal Weapons Directorate (JNLWD)</i>
3:50 PM	Adjourn

ARMAMENT DIVISION CHAIR

Mr. Dave Broden
Broden Resource Solutions
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GUNS, AMMUNITION, ROCKETS & MISSILES COMMITTEE CHAIR

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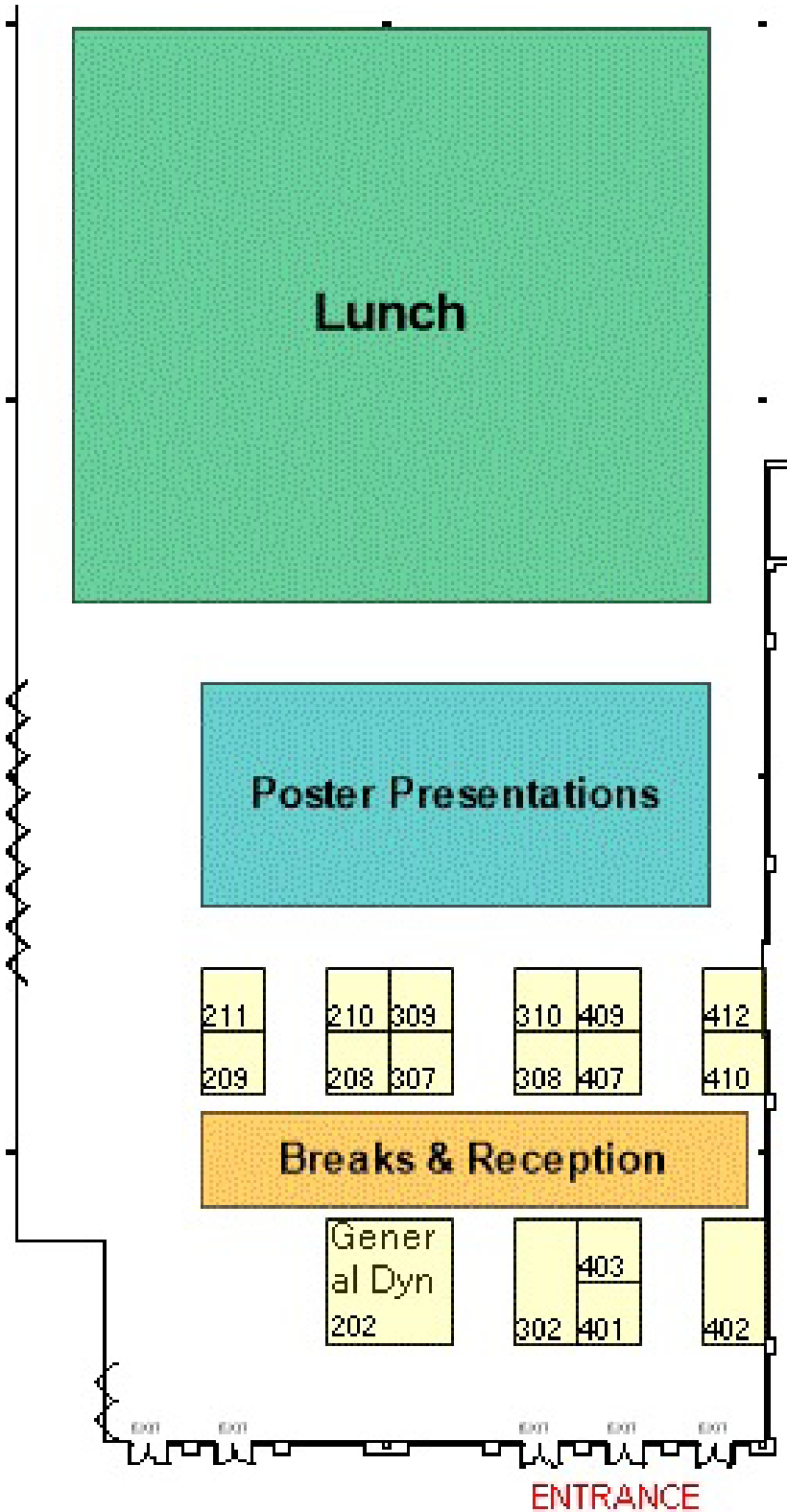
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TECHNOLOGY DEMONSTRATORS AT FORT A.P. HILL

**Barrett
Century Arms
DSG Industries
FN America
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EXHIBITING COMPANIES



Aimpoint, Inc.	410
American Rheinmetall Systems	310
Arrow Tech	205
BakerHostetler	307
Barrett	210
Bull Dog Equipment/Red Sled, Inc.	402
Century Arms	211
Chemring Ordnance, Inc.	207
FN America, LLC	201
General Dynamics - OTS	202
GLOCK	409
Heckler & Koch	308
Kistler Instrument Corp	407
NDIA	209
Sierra Bullets	309
Small Arms Defense Journal	408
Wilcox Industries	208

Aimpoint, Inc.**410**

For over 40 years, Aimpoint has been the world leader in design and manufacture of electronic red-dot sighting systems. Soldier tested and combat proven – don't settle for anything less.

American Rheinmetall Systems**310**

American Rheinmetall Systems, located in Biddeford, Maine and is a mechanical and electro-optical engineering company specializing in sophisticated system integration, assembling and R&D, working in close cooperation with customers worldwide. The company is a key sub-supplier to Kongsberg for the US Army's CROWS remote weapon station program, producing mounts, firing mechanisms and cameras, and is currently under contract for multiple fire control programs supporting the US military.

Arrow Tech**205**

Since 1987, Arrow Tech Associates, Inc. has been providing world class support in structural analysis, dynamic analysis, weapons system simulation and all aspects of ammunition design and analysis. Our PRODAS software provides customers with, Aerodynamics, Aero Stability, Trajectory, Interior Ballistics, Controlled Trajectory, Rocket Motor Design, Firing Tables, Dispersion, In Bore Balloting, Sabot Design, Cartridge Case Design, and Guidance and Control Prototyping simulations.

BakerHostetler**307**

BakerHostetler, LLP is one of the nation's largest law firms, representing clients around the globe and representing clients in the federal government contracting sector. BakerHostetler's Government Contracts team represents clients in all areas of public contract law, providing experience in the areas of bid protests, contract performance disputes, false claims and procurement fraud, ethics advice, compliance audits, mergers and acquisitions, and small business matters.

Barrett**210**

Headquartered in Tennessee, Barrett is the world leader in large-caliber rifle design and manufacturing. Our products are used by law enforcement agencies, the United States military and more than 73 State Department approved countries in the world. It's one thing to manufacture guns, and another to live and

breathe them. Whether we're carefully assembling our latest rifle or increasing the velocity and precision of the ammunition itself – we're always working for absolute perfection.

Bull Dog Equipment/Red Sled, Inc.**402**

Bulldog Tactical Equipment designs and manufactures custom gear for the US military. Our solutions are based upon the needs of the soldier. Our goals are to offer products that are mission critical and assure the customer that we will provide the finest equipment. All of our products are made in the USA and constructed with all American components.

Century Arms**211**

Born over 50 years ago, Century Arms has an extensive history of providing unique and affordable products to American citizens, law enforcement and military partners. That is carried on today with a state of the art manufacturing facility located in the USA as they continue to offer innovative products.

Chemring Ordnance, Inc.**207**

Chemring Ordnance (COR), an operating company within Chemring Group, Inc. COR is a center of excellence for the design, development and production of ordnance, pyrotechnic products and other munition components for military, homeland security and first responders. COR manufactures all types of 40mm low and high velocity ammunition; pyrotechnic signaling, tactical illumination devices, battlefield effects simulators, hand grenade fuzes and other ammunition components.

FN America, LLC**201**

The World's Most Battle-Proven Firearms™ – FN America, LLC is a wholly-owned subsidiary of FN Herstal, S.A. and is a leader in the development and manufacturing of high quality, reliable firearms for military, law enforcement and consumers in the U.S. Headquartered in McLean, VA with manufacturing operations in Columbia, SC, FN is passionately committed to providing its customers with a portfolio of products, training and support services that enhance their performance and safeguard their lives. For more information, visit www.fnamerica.com.

EXHIBITING COMPANIES

General Dynamics - OTS

202

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.

GLOCK

409

GLOCK is a leading global manufacturer of firearms. GLOCK's polymer-based pistols revolutionized the firearms industry, making GLOCK pistols a favorite among military and LE agencies worldwide. In 2016, GLOCK celebrates its 30th Anniversary in the U.S. Renowned for featuring three safeties, GLOCK pistols offer users confidence they can rely on.

Heckler & Koch

308

HECKLER & KOCH is the world's premier small arms systems company and a major supplier to the commercial market, global military and federal law enforcement agencies. An innovative leader in design and manufacturing, HECKLER & KOCH provides technologically advanced firearms, logistical support, training and specialized services with the highest standards of innovation and reliability.

Kistler Instrument Corp

407

Kistler will exhibit its full line of piezoelectric sensors including dynamic ballistic pressure sensors for various ballistics applications, along with high g accelerometers for recoil, high vibration and shock applications. The 6217A ballistics pressure sensor in a high sensitivity 2000 bar (30 kpsi) measuring range is our featured product; an ideal sensor for mortars, grenade launchers, flare guns, side air bag and more. We will have a new ballistics analyzer with complete software demos.

NDIA

209

NDIA engages thoughtful and innovative leaders to promote the best policies, practices, products and technology for warfighters and others who ensure the safety and security of our nation. NDIA offers 25 chapters, 27 divisions for corporate involvement, award winning publications, and numerous conferences and trade shows annually. Corporate and individual memberships are available. US government and military are welcome to join free of charge.

Sierra Bullets

309

Since 1947 Sierra Bullets has built a reputation on our tradition of precision. Our world famous MatchKing and Tipped MatchKing lines set the standard for long range precision bullets and are used in more competitions around the world than any other bullet. Our 30 caliber 175 grain and 22 caliber 77 grain MatchKing bullets have set the standard for military accuracy for many years. Our website can be accessed at www.sierrabullets.com. Please also look for us on Facebook and Twitter!

Small Arms Defense Journal

408

Chipotle Publishing, LLC is home to Small Arms Defense Journal, Small Arms Review, and www.SmallArmsReview.com. Distributed at defense trade shows worldwide, Small Arms Defense Journal is a bimonthly publication that focuses on small arms, accessories, soldier gear, new products, industry news, and defense trade show reviews. Small Arms Review is a 10 issue publication. Our purpose is to provide a forum for all Class 3 interests, as well as any aspect of the military small arms industry.

Wilcox Industries

208

Wilcox is an industry leader in the design and manufacture of high quality tactical equipment for use by military and law enforcement in the United States. Product lines such as our line of NVG Helmet Mounts, the PATRIOT® Hybrid Life Support System, Weapons Video Display, Mission Helmet Recording System, and Wilcox line of Vertical Grips that present a significant tactical advantage for the end user.