



2018 ARMAMENT SYSTEMS FORUM

ARMAMENT SYSTEM RESPONSE TO THE EVOLVING THREAT SPECTRUM



Forum includes:

- Small Arms Systems
- Guns, Ammunition, Rockets, Missiles (GARM)
- Unconventional and Emerging Armament Systems(UEA)

Don't miss the Technology and Firing Demonstration at Camp Atterbury

May 7 – 10, 2018 | Sheraton Indianapolis Hotel at Keystone Crossing,
Indianapolis, IN

Register today at NDIA.org/Armament-Forum

Dear Attendees,

Welcome to the 2018 Armament Systems Forum and Technology Demonstration. The Armament Forum continues to confirm partnership of government and with the industrial base to ensure capability and readiness. This event is designed to provide the opportunity to examine aspects of Armament systems and technologies that underpin our military power today and in the future. The theme: “Armament System Response to the Evolving Threat Spectrum” and reflects the changing needs for Integrated Armament Systems to counter the evolving nature of the threat and the need for maintaining technological superiority in Armaments design and performance in the face of these threats. The 2018 Forum is focused to provide a vision for the evolving Armament System capability enhancing legacy systems and evolving, maturing, and fielding advanced systems. The importance of platform integration, enabler technologies meeting warfighter objectives is included.

The informative and challenging presentations address ensuring legacy armament enhancements and present a vision for future capability over the course of the next three days. Our speakers are experts in their fields and come together with you to share their insights and discuss challenges to shape opportunities. The agenda reflects participation by Allied International countries. I am sure you will benefit from interacting and networking. Our exhibitors are eager to show innovation and advanced technology, so please take time to visit with them to consider technology applications and benefits.

The firing demonstration on Thursday afternoon is always a highlight of this annual event. I want to thank Sal Fanelli and the demo team for their support and participation. In addition, I thank Camp Atterbury for providing the range and safety support so critical in ensuring a successful and safe experience for all participants.

I want to acknowledge and thank the planning committee, and especially the Chairs of the Division Committees – Small Arms Systems- Mr. Brian Berger, GTDS America, LLC, The GARM Industry and Government Leadership Team, and Unconventional and Emerging Technology Armament Systems- Mr. Daniel Hartman, Spectra Technologies, LLC. Without the support of the Armament Team leadership, NDIA staff, and each attendee this event would not offer the vision for Armament Systems evolving capabilities. The 2018 Forum provides value added vision for future Armament Technologies and Systems.

Thank you to the sponsors of this event who have stepped up to provide the support so vital in providing a quality experience for all participants. We appreciate their partnership and urge you to learn more about their capabilities.

Please enjoy the 2018 Armament Systems Forum and Firing Demonstration, and I look forward to speaking with you.

Sincerely,

David Broden
Armaments Division Chairman

2018 Armament Systems Forum and Firing Demonstration

“Armament System Response to the Evolving Threat Spectrum”

The 2018 NDIA Armament Systems Forum is a single event with concurrent parallel sessions for each of the three division committees to ensure synergism, communication, and networking opportunities across the armament community thus ensuring value and benefits for attendees and exhibitors. The Forum Theme recognizes the challenges and opportunities for Armament Systems to evolve legacy systems and introduce Emerging New Armaments and Technologies to meet changing threats. The concurrent events will provide in-depth - technical/oral presentations and poster presentations addressing subjects relevant to legacy and evolving future armament systems and enabler capabilities. The individual committees have planned agendas focused to the topics and scope desired by that community. Networking breaks, luncheons and a reception - are coordinated to encourage networking between the communities. The committees welcome and encourage discussion following each presentation.

Armament Forum Theme

The theme for this year, “Armament System Response to the Evolving Threat Spectrum”, addresses the dynamic change to international geopolitical, military, and terrorism challenges. In addition, the availability of technologies to our adversaries requires that the US and its allies make armament systems and technology adaptable to defeat the evolving threat spectrum. The theme expands and leverages the focus of the 2017 theme related to “Third Offset”. Achievement of adaptable capability will apply modularity, and scalability of Armament System capability response to threats. The Forum objectives include enabling attendee understanding and awareness of the Evolving Threat Spectrum and specific priorities and approaches for Armament System and Technology thrusts addressing these threats. Recognizing improvements to legacy systems continue to evolve topics addressing legacy capability and readiness are a focus.

Armament Systems Forum Track Themes:

The Armament Systems Forum brings together the three Division committees into a single joint event that addresses the full spectrum of Armaments in both a joint session as well as in focused tracks. The themes this year for the committee tracks are:

Small Arms Systems Track

Small Arms Technology Which Creates Asymmetric Operational Advantage for Soldiers, Sailors, Airmen, and Marines

Guns, Ammunition, Rockets & Missiles Systems Track (GARM)

Armament System Modularity and Scalability Enabling Operation Capability Across Expanding Threat Spectrum

Unconventional Emerging Technology Armament Systems Track (UEA)

Emerging Armaments: Kinetic to Electromagnetic and Other Defeat Mechanisms on Target

Technology Demonstration

On Thursday May 10, 2018, there will be a technology demonstration at Camp Atterbury, IN. The event in 2018 is a joint effort between the NDIA Small Arms, Guns Ammunition Rockets and Missiles (GARM) and Unconventional and Emerging Armament (UAE) Committees. Every year more manufacturers understand the importance of demonstrating their technologies and products to showcase how they advance our warfighters capabilities. The scope of the demonstration includes not only the firing demonstrations of various weapons and ammunition types but also items that complement or enable effective use of armament systems. The primary focus of the System Technology Demonstration is to assess new, innovative, and advanced capability applied to improve legacy systems and to advance emerging capabilities.

The NDIA Armaments Division

The Armaments Division provides the forum for industry, military and government personnel to address the issues necessary to ensure a superior Armament system capability today and in the future. The division addresses Armament operational needs and requirements, approaches and concepts, system integration, weapons, munitions, fire control and other ancillary Equipment, and logistic support. Attention is given to total systems and to technology application and state-of-the-art technology advancements. The objectives of the Armaments Division are to:

- Focus on integrated Armament systems including those used by individual soldiers; utilized on crew-served systems; and integrated into land, sea and air platforms.
- Assess current Armaments and a vision of emerging military Equipment and operational capability applying advanced technology in total Armament systems.

ALL ATTENDEES PLEASE NOTE

Distribution Statements A and D—Registration Criteria

The NDIA 2018 Armament Systems Forum agenda will provide attendees with in depth state of art technology and system content information. The agenda includes topics related to legacy armament systems as well as evolving technologies and systems. To effectively include in - depth content the agenda includes sessions of two attendee access levels— Distribution A and D as indicated below:

Distribution A - Open to all Registered Attendees

- All Tutorials
- All Tuesday General Session
- Small Arms and GARM Sessions on Wednesday
- Small Arms on Thursday
- Any Session not specified as Distribution D, including Demonstration, Poster Sessions and Exhibits

Distribution D - Open to Registered Attendees Authorized for “Distribution D” Access (Canadian and US Citizens)

- GARM Sessions Designated for Distribution D only (Wednesday and Thursday)
- Unconventional and Emerging Technology Armament Systems (UEA)Sessions

Note: To attend the Distribution D content sessions you must have submitted a DD2345 Form and have been validated as being authorized to access Distribution D content prior to arriving. **There is no onsite validation available at the Forum.**

AGENDA AT A GLANCE**Monday, May 7**

12:00 PM – 5:30 PM Registration
1:00 PM – 5:30 PM TUTORIALS (Distribution A)

Tuesday, May 8

7:00 AM – 5:00 PM Registration Open
7:00 AM – 8:00 AM Networking Breakfast
8:00 AM – 5:10 PM COMBINED JOINT GENERAL SESSION (Distribution A)
5:15 PM – 5:30 PM Mandatory Meeting for All Companies Participating in the Firing
Demonstration
5:15 PM – 6:45 PM Networking Reception – Exhibit Hall

Wednesday, May 9

7:00 AM – 5:00 PM Registration Open
7:00 AM – 7:40 AM Networking Breakfast
7:40 AM – 5:40 AM SMALL ARMS TRACK (Distribution A)
GARM TRACK (Distribution A and D sessions)
UEA TRACK (Distribution A and D sessions)

Thursday, May 10

7:00 AM – 12:00 PM Registration Open
7:00 AM – 8:00 AM Networking Breakfast
8:00 AM – 12:00 PM SMALL ARMS TRACK (Distribution A)
GARM Track (Distribution D)
12:30 PM – 5:30 PM Technology Demonstration (Distribution A)

Day by Day Agenda

Monday	Tutorials Distribution A			
Tuesday	Combined Joint General Session Distribution A			
Wednesday	Small Arms Track		GARM Track	
	Session A Room 1 Distribution A	Session A Room 2 Distribution A	Session B Room 3 Distribution D	Session A Room 4 Distribution A/D
Thursday	Small Arms Track		GARM Track	
	Session B Room 1 Distribution A	Session C Room 4 Distribution A	Session C Room 3 Distribution D	
	Technology Firing Demonstration Camp Atterbury (Non-US Citizen Attendees must a Foreign Visit Request submitted to Camp Atterbury)			

TUTORIALS**Monday, May 7, 2018**

	Tutorials		
Time	ROOM	ROOM	ROOM
1:00 PM – 2:30 PM	Tutorial 1: US Export Controls Over Technology- ITAR and EAR Licensing Rules and Exemptions Johanna Reeves, Esq., Reeves & Dola, LLP	Tutorial 6: Bore Erosion Measurement and Inspection System -Small Caliber (BEMIS-SC) for QC and LAT Mr. Rand W. Hammel, Mechanical Engineering Technician, US Navy NSWC	Tutorial 3: What Gun Gurus Need to Know About “Accuracy” Jeff Siewert-----Arrow Tech Associates
2:30 PM – 4:00 PM	Tutorial 4: Additive Manufacturing— Army Plans for AM Capabilities to Enhance Warfighter Capabilities and Integrate in the Industrial Base James L Zunino USARMY RDECOM ARDEC	Tutorial 2: USAF AFRL Armament and Technology 2030 Initiatives— Air Force Research Laboratory	Tutorial 8: Small Caliber Ammunition Intermediate Caliber Panel Bruce Webb – NAMMO (Chair) (Invited Panelists) Troy Lawton – USA HQDA PM MAS – LTC Andrew Lunoff PM SW – LTC Lloyd Beal USSOCOM – LTC Mark Owens DHS – Devin Patterson Remington - Matt Ohlson CBC - Gustavo Domit MAC LLC - Nick Malkovich Black Hills Ammunition – Jeff Hoffman True Velocity – Russ Oliver
4:00 PM – 5:30 PM	Tutorial 7: TBD (pending)	Tutorial 5: TBD (<i>pending</i>)	Tutorial 9: Small Caliber Lead Free Primer Panel Chair: Steve Faintich, St. Marks - Dan Mansfield, OATK LCAAP (Invited) - Todd Townsend, S&T Director, PM- MAS, US Army (Invited) - Joel Sandstrum , Vista Outdoors - Jeremy Mills, Winchester (Invited) - Jared Smith, Fiocchi - Lina Norum, NAMMO - Gustavo Domit, CBC (Invited)

ARMAMENT DIVISION BUSINESS MEETINGS

Monday, May 7, 2018

5:30 PM – 6:00 PM	Armament Division Leadership and NDIA Staff Meeting (internal meeting)		
6:00 PM – 6:30 PM	Small Arms Executive Committee (internal meeting)	GARM Executive Committee (internal meeting)	UEA Executive Committee (internal meeting)

Tutorial Descriptions

Tutorial 1 - ITAR Technology Considerations-US Export Controls Over Technology

Ms. Reeves' practice focuses on regulatory compliance under US export controls and the federal firearms laws and regulations. The tutorial will feature a comprehensive overview of US Export Controls over US Technology.

Tutorial 2-USA F AFRL ARMAMENT AND TECHNOLOGY 2030 INITIATIVES

The USAF Air Force Research Laboratory (AFRL) is developing a vision of technologies and systems for USAF capability in 2030 and beyond. AFRL personnel will describe the Initiative program, overview the technology and system focus, and outline how government, academia, and industry can partner to identify and evolve innovative capabilities. This tutorial will provide an "open forum dialogue for flow of ideas, concepts etc.

Tutorial 3 – What Armament System, Weapon, and Ammunition Developers Need to Know About "Accuracy"

Jeff Siewert, will present an in-depth tutorial addressing system performance focused on accuracy and dispersion. The tutorial will cover the difference between accuracy and dispersion, factors influencing short and long range accuracy, short range dispersion trouble shooting, interior and exterior ballistic dispersion influences, bias vs. random factors in error budgets, and strategies for minimize **error**. The sources and remedies for achieving desired dispersion are presented with a focus on the needs of System, Weapon, and ammunition developers and manufacturers.

Tutorial 4—Additive Manufacturing Evolving Capability

The evolving Additive Manufacturing capabilities offer benefits to government and industry development and manufacturing of armament systems. The tutorial will provide status of Additive Manufacturing, overview multiple application examples, and outline the vision for applying Additive Manufacturing to facilitate development and integrate with production. Additive Manufacturing of electronics, polymers, metals, and energetics will be addressed.

Tutorial 5—Topic TBD — Description Pending

Tutorial 6 - Bore Erosion Measurement and Inspection System - Small Caliber (BEMIS-SC) for QC & LAT

Drawings are now aligned with current barrel dimensions as a baseline. As new barrels are accepted using the laser-based BEMIS SC, we can verify and validate the qualities that prove to enhance accuracy. The final aspect of the BEMIS SC is that every aspect of measurement is recorded providing a historical record of that barrel.

Tutorial 7 – Topic TBD Pending**Tutorial 8 - Small Caliber Ammunition Intermediate Caliber Panel**

Discussion regarding Small Arms Intermediate Calibers. The Committee has defined "Intermediate" to be a caliber between 5.56mm x 45 and 7.62mm x 51 that along with a family of weapons would have better performance (accuracy, lethality, penetration, recoil, etc.) than one or both current cartridges and could be used for both individual and a squad weapons.

Tutorial 9 - Small Caliber Lead Free Primer Panel

US Army seeking to remove lead from small caliber primers. Panelists will provide an update on progress made with green primers. USG will address a secondary objective which is to automate primer manufacturing.

Additional Tutorial Descriptions will be added as Details are Finalized.

GENERAL SESSION**Tuesday, May 8, 2018**

7:00 AM – 5:00 PM	Registration Open
7:00 AM – 8:00 AM	Networking Breakfast
8:00 AM – 8:20 AM	Welcome and Administrative Announcements Mr. Dave Broden, NDIA Armament Division Chair
8:20 AM – 8:30 AM	NDIA Welcome and Introduction of NDIA CEO Mr. Frank Michael, SVP Programs and Membership, NDIA
8:30 AM – 8:45 AM	NDIA Enterprise Vision Major General James Boozer, USA (ret), Chief of Staff
8:45 AM – 9:00 AM	NDIA Policy Vision Mr. Wesley Hallman, SVP Policy, NDIA
9:00 AM – 9:30 AM	Networking Break – Exhibit Hall
9:30 AM – 10:00 AM	Keynote Address “Armament Response to the Evolving Threat Spectrum” Lieutenant General, Dave Halverson, USA (Ret) Chairman and Chief Executive Officer, Cypress International
10:00 AM – 10:30 AM	Keynote Address Mr. John Hedderich, III, Director, U.S. Army, ARDEC
10:30 AM – 11:15 AM	Awards Presentations <i>Chinn Award</i> Richard D. Jones, Curator Emeritus National Firearms Collection <i>Presented by Dan Shea- Phoenix Defense</i> <i>Hathcock Award</i> Stephen Toboz Jr., Naval Special Warfare Command <i>Presented by Buford Boone</i> <i>Ambrose Award</i> Wilcox Industries Corporation <i>Presented by Brian Berger, GTDS America LLC</i> <i>Trifiletti Award</i> Vic Galgano Presented by Ralph Tillinghast, ARDEC <i>Professional Service Awards</i> John H. Edwards, RDECOM-ARDEC, JSSAP <i>Presented by Brian Berger, GTDS America LLC</i> Mark Serben <i>Presented by David Broden, Broden Resource Solutions, LLC</i>

11:15 AM – 12:30 PM	Luncheon
12:30 PM – 1:00 PM	Army S&T efforts to Modernize Lethality Michael Holthe, Director for Lethality, ASA(ALT)/ODASA Research & Technology
1:00 PM – 1:30 PM	PEO Ammunition Vision “PEO Ammo Today and Vision for the Future” Brigadier General Alfred F. Abramson III, Program Executive Officer Ammunition, Commanding General, Picatinny Arsenal
1:30 PM – 2:00 PM	Keynote Address: Close Combat Ground Forces—Initiatives and Vision MG Robert Scales, USA (ret.)
2:00 PM – 2:30 PM	USN Keynote Address “Surface Combatant Weapon System Response to the Evolving Threat” Mr. John Fiore Technical Director NSWCDD—Dahlgren
2:30 PM – 3:00 PM	Networking Break
3:00 PM - 3:45 PM	USAF Keynote Address “USAF Armament Systems Vision Ahead – AFRL 2030 Initiative” Dr. David E. Lambert, Chief Scientist, Munitions Directorate, AFRL, Eglin Air Force Base
3:45 PM – 4:15 PM	Guest Speaker “Ensuring Armament System Performance Readiness thru Evolving T&E” James O’Byron; The O’Byron Group
4:15 PM – 4:45 PM	Guest Speaker “Modern Trends & Developments in Global Ordnance 2017 - 2018” Mr. Dan Shea, Phoenix Defence, General Director
4:45 PM – 5:15 PM	National Armament Consortium Mr. Butch Burgess, DOTC Mr. Charlie Zisette, Executive Director National Armaments Consortium
5:15 PM – 5:15 PM	Closing Remarks
5:15 PM – 6:45 PM	Networking Reception – Exhibit Hall
5:40 PM – 6:00 PM	Mandatory Meeting for All Companies Participating in the Firing Demonstration

SMALL ARMS SYSTEMS TRACK**Wednesday, May 9, 2018 — ROOM 1**

7:00 AM – 5:00 PM	Registration Open
7:00 AM – 7:50 AM	Networking Breakfast
7:50 AM – 8:00 AM	Announcements – Brian Berger, Chairman Small Arms Committee
8:00 AM – 8:20 AM	Welcome CAPT Oesterreich, NSWC Crane Commander
8:20 AM – 9:40 AM	PM Soldier Weapons (PM SW) Panel Chair: COL Elliott Caggins <ul style="list-style-type: none"> • LTC Lloyd Beal III Product Manager, Crew Served Weapons • LTC Steven Power, Product Manager, Individual Weapons • Gabe Bailey, SIG Sauer, M17/M18 Pistol
9:40 AM – 10:10 AM	Networking Break – Exhibit Hall
10:10 AM – 11:10 AM	PM Maneuver Ammunition Systems (PM-MAS) Panel Chair: COL Hector Gonzalez, USA, Project Manager, PM-MAS <ul style="list-style-type: none"> • Mr. Christopher Seacord, Product Manager, Medium Caliber Ammunition • LTC Andrew Lunoff, Product Manager Small Caliber Ammunition • Tom Coradeschi, Chief Engineer, PM-MAS)
11:10 AM – 12:10 PM	NATO Weapons and Sensors Working Group Panel Chair: Dr. Barton Halpern, NATO Weapon and Sensor Group Chairman <ul style="list-style-type: none"> • Callum Jensen, Land Engineering Agency DoD – Australia • Dr. Amal Bouamoul, DRDC - Canada • Aldo Sluga, DMO – The Netherlands • Cdr. Jens Tore Moen Alfei, DLO Land Systems – Norway • Douglas Cohen, US Army • Robert Dionisio – US Army ARDEC • Dr. David Dye - NSWC • Mr. Adam Jacob, USA, ARDEC • Mr. Mark McFadden, USA, ARDEC, JSSAP • David Long - NSWC • Mr. Wayne Thomka, USA Project Manager Soldier Sensors and Lasers Technology Management Director • Dr. Mark Thoreson - NSWC
12:10 PM – 1:10 PM	Networking Lunch
1:10 PM – 2:10 PM	PM Soldier Sensors and Lasers (PM SSL) Panel Chairs: COL Christopher Schneider, USA, PM Soldier, Sensors, and Lasers Co-Chair: Wayne Thomka, USA, Technology Management Director, PM Soldier Sensors, and Lasers

2:10 PM – 3:10 PM	Joint Service Small Arms Synchronization Team (JSSAST) Panel Chair: MAJ Nathan Rozea, USA, RDECOM-ARDEC, JSSAP Panel: <ul style="list-style-type: none">• COL Kurt “Travis” Thompson, USA, Soldier Requirements Division• Mr. Christopher Woodburn, USMC, Capabilities Development Directorate• COL Enrico Vendetti, USAF Security Forces Center• Mr. Craig LaMudge, US Coast Guard• LCDR Peter Downes, USN, DCNO N9• LTC Mark Owens, USA PEO SOF Warrior
3:10 PM – 3:40 PM	Networking Break – Exhibit Hall
3:40 PM – 4:40 PM	Joint Service Small Arms Program (JSSAP) Session Chair: Mr. Augustine Funcasta, USA, RDECOM-ARDEC, JSSAP
3:40 PM – 4:00 PM	JSSAP Science and Technology Advisory Council (20148) Marc Ritt, US Army ARDEC
4:00 PM – 4:20 PM	Development of Material Characterization Methods for Next Generation Weapons Barrel Requirements Adam Foltz, P.E., US Army ARDEC
4:20 PM – 4:40 PM	Characterization of Machine Gun Barrel Temperature and Stress Conditions Through Correlation of Testing and Numerical Methods Adam Jacob, Dr. Laurie Florio and Mr. Adam Foltz, US Army ARDEC,
4:40 PM – 5:00 PM	Development of Small Caliber Barrel for Enhanced Performance Mr. Ryan Berg, ARES Inc. Adam Jacob, US Army ARDEC
5:00 PM – 5:20 PM	Precision Munition Technology Christopher Parisi, US Army ARDEC
5:20 PM – 5:40 PM	Development of Small Arms Blowback Test Methodology Adam Jacob, US Army ARDEC Mr. Douglas Ray, US Army ARDEC Mr. Arnt Johnsen, Norwegian Defence Research Establishment (FFI)

SMALL ARMS SYSTEMS TRACK**Thursday, May 10, 2018 -- ROOMS 1 & 4**

7:00 AM – 12:00 PM Registration Open
 7:00 AM – 8:00 AM Networking Breakfast
 8:00 AM – 11:10 AM Small Arms Concurrent Sessions:

	Session I – Room 1 Ammunition Session Chair: Bruce Webb	Session II – Room 4 Target Acquisition - Fire Control Session Chair: Mr. Robert Guarasi, Wilcox Industries Corp. Session Co-Chair: Mr. Terence Rice, RDECOM-ARDEC, JSSAP
8:00 AM – 8:10 AM	Announcements - Mr. Brian Berger Chairman - Small Arms Committee	Announcements - Mr. Robert Guarasi
8:10 AM – 8:30 AM	Multiplex Small Arms Cartridge Technology Christopher Parisi, US Army ARDEC	Target Acquisition - Fire Control Panel Session Chair: Bob Guarasi, Wilcox <u>Government Panelists</u>
8:30 AM – 8:50 AM	Improving Bullet Pull –FEA and Empirical Studies Daniel Meierhofer, Orbital ATK	<ul style="list-style-type: none"> • PM Soldier Weapons - COL Elliott Caggins • PM SSL – COL Chris Schneider • ARDEC Fire Control - Ross Towers, Darren Ward • NSW Crane - Dr. Mark Thoreson, Greg Petty • CERDEC NVESD - Dean Kessinger
8:50 AM – 9:10 AM	A Wild Ride- 9mm MK217 SMAW Spotting Cartridge Jay Bell, MAST/Brass Extrusion Labs Ltd.	<u>Industry Panelists</u> <ul style="list-style-type: none"> • Wilcox Industries Corp - Bob Guarasi • Aim-Lock Inc - Bryan Bockmon • DRS EOIS - Tony Bacarella • Aimpoint - Lennart Ljungfelt • L3 Brashear - Bill Schorr • American Rheinmetall Munitions – Matthew Warnick
9:10 AM – 9:20 AM	Networking Break	
	Session I – Room 1 Ammunition	Session II – Room 4 Target Acquisition - Fire Control Contd. Session Chair: Mr. Robert Guarasi, Wilcox Industries Corp. Session Co-Chair: Mr. Terence Rice, RDECOM-ARDEC, JSSAP
9:20 AM – 9:40 AM	Design, Modeling and Simulation, and Testing of a Lightweight Cartridge Case Raymond Chaplin, USA ARDEC	
9:40 AM – 10:00 AM	Contributions of Variables to Velocity Deviations in Small Caliber Ammunition, Connie Lusto, US Army ARDEC, David Stubler, Orbital ATK	

SMALL ARMS SYSTEMS TRACK**Thursday, May 10, 2018 -- ROOMS 1 & 4**

10:00 AM – 10:20 AM	Preparation Technique for High Liquid Content Energetics in Sensitivity Testing, and Thin Layer Propagation Testing Overview for Energetics Process Hazards Evaluation Daniel Mansfield	
10:20 AM – 10:40 AM	High Performance Propellants Using Thin Film Energetics, (20252); Thin Film Primer Technology (20255) Prof. Kevin Coffey Spectre Materials Science	
		Session III Room 4 Weapons Session Chair: David Long, NSWC, Crane
10:40 AM – 11:00 AM	Inductive Heating to Dry Environmentally Safe Case Mouth Waterproofing Andy Bowman, Wilfredo Ramos, Orbital ATK	Cryo Accurizing Mark O'Hare & Julie Lewis, Star Integrated Global Solutions
11:00 AM – 11:20 AM	Contributing Factors to Proper Tracer Performance Thomas Gmyrek, USA-ARDEC; Kaleb Luna, OATK LCAAP	International Collaboration in Stabilized Small Arms Testing and Evaluation Dr. Mark Thoreson & Ian Campbell, NSWC Crane
	Session III – Room Weapons Session Chair – David Long, NSWC Crane	
11:20 AM – 11:40 AM	Multi-Spectral Small Arms Signature Characterization Dr. David Dye, Dr. Mark Thoreson, NSWC Crane	Cooperative Barrel Erosion Study of 5.56mm Ball and Lead-Free Ammunition Matt Wolff, Joel Sandstrom, Paul Ferrier, Justin Pierce, Vista Outdoor/Federal Cartridge Company
11:40 AM – 12:00 PM	The Next Advancement for the Battle Proven M240 Weapon System Robert Landies, Ohio Ordnance Works	Mid-length vs Carbine-Length Gas System on 14.5-inch Upper Receiver Group Test Andrew Zirkelbach, NSWC Crane
12:00 PM – 12:05 PM	Closing Remarks – Brian Berger	

12:30 PM Buses Depart for Firing Demonstration

GUNS, AMMUNITION, ROCKETS AND MISSILES (GARM) TRACK

Wednesday, May 9, 2018 – GARM Track ROOMS 2 & 3

(NOTE: 7:30 to 9:40 is Open Distribution A – At 10:10 Concurrent Distribution A and D sessions)

- 7:30 AM – 7:40 AM Administrative Announcements
- 7:40 AM – 8:00 AM GARM Vision
- 8:00 AM – 8:30 AM Evolving Technology Enabling Capability vs. Threat Spectrum
Dr. Anthony Pezzano, Director ARDEC Business Interface
- 8:30 AM – 9:40 AM Armament Response to Evolving Threat Spectrum Panel
- Dr. Anthony Pezzano, ARDEC
 - Michael Richman, AMRDEC (invited)
 - Michael Holte, US Army ASAALT
 - Dr. David Lambert, AFRL
 - USN—Participant--TBD
 - Others TBD
- 9:40 AM – 10:10 AM Networking Break – Exhibit Hall

GARM Concurrent Sessions

	Distribution A – Room 2	Distribution D - Room 3 - (Authorized Department of Defense and U.S. DoD contractors only)
10:10 AM – 10:30 AM	Panel Discussion: Ammunition vs. Missiles Application Considerations Moderator: Howard Kent (Pending participants from ARDEC and AMRDEC)	25mm Non-Energetic Fragmenting Cartridge for Joint Strike Fighter Rick Wright, GD-OTS
10:30 AM – 10:50 AM	PGU-47 APHEI-T James McConkie, NSWC Dahlgren	40mm x 53 High Exploding Air Burst Ammunition & Weapon Systems Rick Wright, GD-OTS
10:50 AM – 11:10 AM	One basic technology for different Multi-Purpose Tank Rd Danny Schirding, IMI SYSTEMS Ltd	Tube Launched Range Extended (T-Rex) Munition for a Multi-Role Mission Michael Donadio, ARDEC
11:10 AM – 11:30 AM	Improved 105mm Illuminating Candle M. Benoit Jolicoeur, General Dynamics OTS-Canada	Kinetic Defeat of Maneuverable Agile (Group 1) Unmanned Aerial Vehicle Targets Using an Integrated Precision Fire Control Radar, Remote Weapon Station and Small Caliber Munition Andre Aklian, ARDEC
11:30 AM – 11:50 AM	The Rheinmetall Day Zimmermann Munitions M430A1 ABM Retrofit Program Brian Sullivan, ARM Inc.	XM25 Counter Defilade Tactical Engagement (CDTE) System and Complimentary Counter Unmanned Aircraft System Capability Vince Martinez, Orbital ATK

Wednesday, May 9, 2018 – GARM Track ROOMS 2 & 3

11:50 AM – 12:10 PM	Analysis of Large Caliber Ballistic Perf and Base Pressure Gradient Jeff Siewert, Arrow Tech Associates	105mm Low Blast Overpressure Muzzle Brake for M119 Towed Howitzer Alan Ng, ARDEC
12:10 PM – 1:10 PM	Networking Lunch	
1:10 PM – 1:30 PM		Truck Mounted Howitzer Thomas DeVoe, ARDEC
1:30 PM – 1:50 PM	The Need for Increased Full- Spectrum Lethality for Light and Medium Vehicles Warwick Holloway, EOS Defense Systems	Fragmentation Characterization for Multi- Material Multilayer (M3L) Warhead Cases John Paul Shebalin, Mary Collings, NSWC Dahlgren
1:50 PM – 2:10 PM	Enabling Air to Ground Munitions to Survive Extended Ground Deployment Howard Kent, Armor Development Group LLC	Lightweight Tandem Warhead System for MOUT Targets for the Precision Shoulder Launched Munition (PSLM) David Pfau, ARDEC
2:10 PM – 2:30 PM	Modernizing Field Artillery Maintenance Equipment to increase Performance and Reduce Needed Resource James Brooker, Otis Technology	M72E8/E10 LAW FFE Qualification Effort Tyler Caudell, NSWC Crane
2:30 PM – 2:50 PM	Electronic Round Counter for 120mm Mortar (20186) Mr. Anthony Cannone, ARDEC	Testing of High Temperature Composite Materials Joshua Root, ARDEC
2:50 PM – 3:10 PM		Enabling Better Mortar Systems through Accuracy Testing and Modeling Michael Wright, ARDEC
3:10 PM – 3:40 PM	Networking Break	Networking Break
3:40 PM – 4:00 PM		Hostile Fire Signatures: Their Measurement and Analysis Jeffery Cameron, QuantiTech
		MK34 Gun Weapon System Capabilities and Recent Improvements Joe Segar
4:30 PM	Observations and Wrap Up	

Thursday, May 10, 2018 - GARM Track – ROOM 3

7:00 AM – 12:00 PM Registration Open
 7:00 AM – 8:00 AM Networking Breakfast
 8:00 AM – 8:10 AM Announcements

	Fire Control Session – Distribution D (Authorized Department of Defense and U.S. DoD contractors only)
8:10 AM – 8:30 AM	The Fire Control Kill Chain Mr. Ralph Tillinghast, US Army ARDEC
8:30 AM – 8:50 AM	US Army ARDEC and NATO Software for Fire Control Systems Mr. Andre Sowa, Jason Fonner, US Army REDCOM ARDEC
8:50 AM – 9:10 AM	Helmet Display and Tracker System for US Navy MH-60S Multi-Mission Helicopters Mr. Caleb Michel, NSWC Crane
9:10 AM – 9:45 AM	Networking Break
9:45 AM – 10:05 AM	Lightweight Video Sight II (LVS II) - The Next Generation Fire Control Jonathan Piazza
	GPS Denied Guidance Session - Distribution D (restricted to US citizens only)
10:05 AM – 11:00 AM	GPS Denied Panel (Small Businesses & USG) <ul style="list-style-type: none"> • Brad Clawson—Director Technical Programs---NAVSYS Corporation • Mr. Fred Lisy • Anthony Corcella • NSWC Crane
11:00 AM – 11:20 AM	Guided Advanced Tactical Rocket (GATR) Weapon System Dr.Tom Ting, Orbital ATK
11:20 AM – 11:40 AM	GPS Denied/Degraded Navigation Fred Lisy

UNCONVENTIONAL EMERGING TECHNOLOGY ARMAMENT (UEA) SYSTEMS TRACK (Distribution A and D)

Wednesday, May 9, 2018 –ROOM 4 (UEA Agenda remains subject to change and major updates)

7:00 AM – 8:00 AM Networking Breakfast
 7:30 AM – 7:50AM UEA Objectives, Purpose, Challenges, Opportunities
 Mr. Dan Hartman, UEA Committee Chair

	UEA Track Session – Distribution A
7:50 AM – 8:00 AM	UEA Focus to 2018 Armament Theme; Evolving Technology and Systems to Shape Armament System Response to Evolving Threat Spectrum
8:00 AM – 8:40 AM	Major Defense Acquisition Programs and Meeting Chemical, Biological, Radiological and Nuclear Survivability Requirements Chris Ritchey, JPM-Protection PM-GMPCS, ECBC Protection Engineering Division
8:40 AM – 9:00 AM	Additive Manufacturing for Net Shape Munitions Dr. Bhanumathi Chelluri, BAE Systems
9:00 AM – 9:20 AM	The Secure Supply Chain Henry Newman, Seagate Government Solutions
9:20 AM – 9:40 AM	Adaptive Sensitivity Testing in Armaments: A Case Study Zachary Krogstad, Nick Tashjian, A
9:40 AM – 10:10 AM	Networking Break—Exhibit Hall
10:10 AM – 10:40 AM	An Alternate to Electroplated Chrome for Fabricating a Chrome Coating on the Inner Surface of a Gun Barrel Dr. James Withers, ATS-MER LLC
10:40 AM – 11:00 AM	Sci-Fi Today: Forward Deployed 3-D Unitized Polymer and Metal Fabrication Shops Howard Kent, Armor Development Group
11:00 AM – 11:20 AM	Conversion of Heat to Electricity using Setback Effect Thomas Grego, US Army ARDEC
11:20 AM – 11:40 AM	Micro- Laser Ignition (20293) Gregory Burke, Pictanny Arsenal, US Army
11:40 AM – 12:10 AM	Modular Active Protection System (MAPS) - A paradigm shift in APS
12:10 PM – 1:10 PM	Networking Lunch

Wednesday, May 9, 2018 – UEA Track –ROOM 4

The afternoon session is restricted to US citizens only

	UEA Track Session – Distribution D (Authorized Department of Defense and U.S. DoD contractors only)
1:10 PM – 1:20 PM	Unconventional and Emerging Technology Armament Systems Vision for Evolving Emerging Capabilities from Development to Fielding Dan Hartman, UEA Chair
1:30 PM— 2:00 PM	US Army EM Gun Technology and System Status Josiah Fay, U.S. Army ARDEC
2:00 PM— 2:30 PM	US Army Directed Energy Vision Craig Robin, AMRDEC SMDTC
2:30 PM- 3:00 PM	USAF Directed Energy Vision Dr. Diana Loree, Acting Chief Scientist AFRL
3:00 PM- 3:40 PM	Networking Break—Exhibit Hall
3:40 PM— 4:10 PM	Industry Directed Energy Vision Matt Stroup, NGC
4:10 PM- 4:40 PM	Hypersonic Weapons Dr. Richard P. Hallion
4:40 PM- 5:45 PM	Panel Discussion: Unconventional and Emerging Technology Armament Systems Focus, Vision, Enabling Response to Evolving Threat Spectrum---From Concept to Technology and Integrated System Readiness Moderator: TBD <ul style="list-style-type: none"> • Dr. Anthony Pezzano – ARDEC • Michael Holte - US Army ASAALT • Thomas Webber - Director, USASMDC/ARSSTRAT(invited) • Dr. Dave Lambert — USAF AFRL • USN-TBD • Craig Robbin – AMRDEC SMOTC • Dr. Diana Loree - Acting Chief Scientist, AFRL • Matt Stroup – NGC • Dr. Richard Hallion • Josiah Fay - ARDEC
5:45 PM	Observations and Wrap Up

UNCONVENTIONAL EMERGING TECHNOLOGY ARMAMENT (UEA) SYSTEMS TRACK (Distribution D)

Thursday, May 10, 2018 –ROOM 4 (UEA Agenda remains subject to change and major updates)

7:00 AM – 8:00 AM Networking Breakfast

7:30 AM – 4:40 PM UEA Session

	UEA Track Session – Distribution D (Authorized Department of Defense and U.S. DoD contractors only)
7:30 AM – 7:50 AM	Guns, Bullets, Fire Control and Artificial Intelligence Ralph Tillinghast, U.S. Army ARDEC
7:50 AM – 8:00 AM	Electrochemical Rifling of Large Caliber Cannons Christopher Humiston, RDECOM ARDEC Benet Laboratories
8:00 AM – 8:40 AM	Directed Energy Technology and Systems USAF Kirtland DE Lab, Speaker TBD
8:40 AM – 9:00 AM	Multi-Caliber Weapon; A Survival Weapon Incorporating New Technology Richard Hayes, Liberty Consulting Solutions
9:00 AM – 9:20 AM	UEA Wednesday Session Recap and Vision Ahead Mr. Dan Hartman, UEA Chair
9:20 AM – 9:40 AM	Additive Manufacturing for Net Shape Munitions Dr. Bhanumathi Chelluri, BAE Systems
9:40 AM – 10:10 AM	Networking Break
10:10 AM – 10:40 AM	Sci-Fi Today: Forward Deployed 3-D Unitized Polymer and Metal Fabrication Shops Howard Kent, Armor Development Group
10:40 AM – 11:00 AM	Analysis of Low Density, Low Velocity, Less Than Lethal Projectiles Kenneth Hohnecker, US Army ARDEC
11:00 AM – 11:20 AM	Multi-Caliber Weapon; A Survival Weapon Incorporating New Technology Richard Hayes, Liberty Consulting Solutions
11:20 AM – 11:30 AM	Observations and Wrap Up

TECHNOLOGY FIRING DEMONSTRATION**Thursday, May 10, 2018 – Camp Atterbury**

12:30 PM	Buses Depart for Firing Demonstration Pickup Box Lunch prior to boarding bus
2:00 PM	Arrive at Demonstration Site—Camp Atterbury
2:15 PM	Safety Briefing
2:30 PM	Demonstrating Companies Brief Technology Initiatives etc.
3:00 PM	Firing Demonstrations
3:30 PM	Attendee Firing Participation
4:30 PM	Buses Depart for Hotel
5:30 PM	Arrive at Hotel

POSTER SESSION PAPERS (This list will continue to evolve)**Small Arms Posters**

- Adhesives, sealants and precision application Equipment (19174)
- Precision Small Arms and Optics Adaptation to Remote Turret Use Via Ocular Camera (19188)
- Secondary Flash Reduction Through Weapon & Ammunition Loading Optimization (19197)
- Modernization of Copper Cylinders for M4/M16/M249 Firing Pin Indent Testing (19262)
- Improved Bore Erosion Gaging for M4A1 (19263)
- Lead free primer formulation and manufacturing solutions for small caliber Ammunition (19277)
- Small Arms Signature Reduction in the Near IR and Visible Regions (19283)
- Weapon Reliability Evaluation by Modal Analysis (19339)
- Effects of production techniques on primer performance (19362)
- M4/M16 Conical Bolt solution to commonly seen malfunctions in harsh environments (19385)
- Material Models--Elastic, Plastic, Ductile Damage, and Shear Damage (19396)
- State of Material--Material and Hardness affect assembly, misfires, leakers, dropped primers, case rupture, bullet pull, extraction, terminal ballistics (19398)
- Application of Energetic Materials in Small Arms with Enhanced Ballistic Breaching Capabilities (19399)
- Thermal Isolation/Barrier for Small Caliber Weapons (19400)
- Development of Material Characterization Methods for Next Generation Weapon Barrel Requirements (19404)
- Closed Loop Aimpoint Correction for Small Arms Mounts (19416)
- Third and Fourth Generation Air-Burst Programming Technology – Ballistic Kernels, Processors, Sensors and Methodologies (19419)
- Using MATLAB to Obtain Bullet Dimensions (19421)
- The Effects of Rifling Twist on Projectile Launch using Explicit Finite Element Analysis (19428)
- Evaluation of terminal ballistics modeling using the peri-dynamic method (19430)
- Using MATLAB to Mesh Barrel Rifling (19434)

NDIA Chapter Participation, Activities, and Benefits

Armament Division Links with Relevant Chapters

The 2018 Armament Forum provides an opportunity for Armament Community attendees to interface and network with NDIA Chapters which in the region as well as to expand interaction with other Chapters. Linking the Armament Division with Chapter provide opportunity for networking, enables awareness of industry and government resources in the Forum area thus offering value and benefits to NDIA members. NDIA Chapters welcome links and participation of all NDIA members. The Chapter below will be represented at the Forum. Please plan to visit the Chapter booth at the Forum for further information regarding each chapter and networking with Chapter members. Information regarding the activities, events and scope of these and other Chapters will be available at the Forum. Note that each Chapter has events which link to topics relevant to Armament Systems.

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