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2019 **ARMAMENT** SYSTEMS FORUM

Leveraging Armament Technology Integration to Achieve
Modernization, Overmatch, and Operational Readiness

June 3 – 6 | Fredericksburg, VA | [NDIA.org/Armaments19](https://ndia.org/armaments19)



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WELCOME TO THE 2019 ARMAMENT SYSTEMS FORUM

Dear Attendees,

Welcome to the NDIA Armament Systems Forum and Technology Demonstration. The annual Armament Forum integrates the full spectrum of armament systems into a single event enabling communication and networking partnership of government with the industrial base. The 2019 Forum theme: “Leveraging Armament Technology Integration to Achieve Modernization, Overmatch, and Operational Readiness” reflects the U.S. and allied nation priorities for modernized capability that address changing threats from near-peer competitors. Achieving these capabilities requires advanced technology, system integration and readiness. The Forum highlights the government and industry partnership and the benefits of this collaboration. The program places emphasis on readiness and enhancement of legacy systems while developing and transitioning advanced capabilities.

The forum features Tutorials, Joint Sessions with Keynote speakers from each service, and concurrent sessions for Small Arms; Guns, Ammunition, Rockets, and Missiles; and Unconventional and Emerging Armament Systems. Our speakers, leaders and experts in relevant requirements, programs, and technology, deliver learning opportunities while networking provides information sharing and exchange among attendees. Participation from Allied partners extends the depth of the networking discussions, and the tutorial sessions offer in-depth group discussion of topics considered relevant to enable evolving capability. Our exhibitors display the scope of their innovative approaches to advanced technology and systems for your examination.

The Technology Demonstration taking place on Thursday afternoon highlights advances in Small Arms System Capability. Sal Fanelli and the demo team have coordinated and planned a detailed and informative event. This year Team Crucible has provided the range resources and support meeting the operational, safety, and observation objectives. Thanks to Team Crucible for their welcoming interest and commitment to the NDIA mission.

I want to acknowledge the Armament Division planning committee for their work toward a successful and forum. The committee chairs; Small Arms - Brian Berger, GTDS America; GARM - Matt Phillips, GD-OTS; and UEA - Alan Kull, General Atomic. Each of these chairs together with the government and industry executive teams have established an agenda that reflects the theme and includes topics relevant to government and industry attendees.

Thank you to the sponsors, supporting government agencies, and the industrial base who together form the partnerships demonstrated by the community. As we attend and participate in the 2019 Forum, we seek to build the network through relevance and collaboration among the Armament community. Your attendance and involvement throughout the week are key as NDIA completes its first 100 years of service to the nation.

Dave Broden
Division Chair
 Broden Resource Solutions, LLC

SCHEDULE AT A GLANCE

MONDAY, JUNE 3

Registration

Exhibit Hall A Lobby
11:00 am – 5:00 pm

Tutorial Sessions

Please reference agenda for locations
12:30 – 5:00 pm

TUESDAY, JUNE 4

Registration

Exhibit Hall A Lobby
7:00 am – 6:30 pm

Networking Breakfast

Grand Ballroom Foyer
7:00 – 8:00 am

General Session

Grand Ballroom
8:00 am – 5:10 pm

Exhibit Hall Open

Exhibit Hall A
9:30 am – 6:30 pm

Networking Lunch

Exhibit Hall A
12:00 – 1:00 pm

Networking Reception

Exhibit Hall A
5:00 – 6:30 pm

WEDNESDAY, JUNE 5

Registration

Exhibit Hall A Lobby
7:00 am – 6:00 pm

Networking Breakfast

Grand Ballroom Foyer
7:00 – 7:30 am

Concurrent Technical Sessions

Please reference agenda for locations
7:30 am – 5:00 pm

Networking Lunch

Exhibit Hall A
12:00 – 1:00 pm

Networking Reception

Exhibit Hall A
5:00 – 6:00 pm

THURSDAY, JUNE 6

Registration

Exhibit Hall A Lobby
7:00 am – 12:00 pm

Networking Breakfast

Grand Ballroom Foyer
7:00 – 7:30 am

Concurrent Technical Sessions

Please reference agenda for locations
7:30 am – 12:00 pm

Technology Demonstration

Team Crucible
12:00 – 4:00 pm



ARMAMENTS DIVISION

WHO WE ARE

The Armaments Division traces its heritage through 100 years of history to the founding of the Army Ordnance Association in 1919. The Armaments Division provides a forum for industry, military, government and academic personnel to address the issues necessary to ensure a superior armament systems capability today and in the future. The division addresses armament operational needs and requirements, approaches and concepts, system integration, weapons, munitions, fire control, other ancillary Equipment, and logistic support.

LEADERSHIP

Dave Broden

Division Chair

Brian Berger

Chair, Small Arms Committee

Sal Fanelli

Chair, Technology Demonstration

Alan Kull

Chair, UEA Committee

Matt Phillips

Chair, GARM Committee



WHO WE ARE

The National Defense Industrial Association is the trusted leader in defense and national security associations. As a 501(c)(3) corporate and individual membership association, NDIA engages thoughtful and innovative leaders to exchange ideas, information, and capabilities that lead to the development of the best policies, practices, products, and technologies to ensure the safety and security of our nation. NDIA's membership embodies the full spectrum of corporate, government, academic, and individual stakeholders who form a vigorous, responsive, and collaborative community in support of defense and national security. NDIA is proud to celebrate 100 years in support of our warfighters and national security. The technology used by today's modern warfighter was unimaginable 100 years ago. In 1919, BG Benedict Crowell's vision of a collaborative team working at the intersection of science, industry, government and defense began what was to become the National Defense Industrial Association. For the past century, NDIA and its predecessor organizations have been at the heart of the mission by dedicating their time, expertise and energy to ensuring our warfighters have the best training, equipment and support. For more information visit NDIA.org

EVENT INFORMATION

EVENT THEME

Leveraging Armament Technology Integration to Achieve Modernization, Overmatch, and Operational Readiness

The 2019 Armament Forum theme connects the U.S. National Security objectives and those of Allied Nations to the stated priorities for modernization, superior capability and readiness and seeks to communicate the U.S. and Allied response through innovation in technology, integration, and collaboration. Topics address emerging challenges and opportunities and outline roadmaps to maturity and readiness. Attention to the complete armament system (soldier as a system), manned and unmanned autonomous platforms are included in the agenda.

SURVEY AND PARTICIPANT LIST

You'll receive via email a survey and list of attendees (name and organization) after the conference. Please complete the survey, which helps make our event even more successful in the future.

EVENT CONTACT

Meredith Mangas
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SPEAKER GIFTS

In lieu of speaker gifts, a donation is being made to the Fisher House Foundation.

HARASSMENT STATEMENT

NDIA is committed to providing a professional environment free from physical, psychological and verbal harassment. NDIA will not tolerate harassment of any kind, including but not limited to harassment based on ethnicity, religion, disability, physical appearance, gender, or sexual orientation. This policy applies to all participants and attendees at NDIA conferences, meetings and events. Harassment includes offensive gestures and verbal comments, deliberate intimidation, stalking, following, inappropriate photography and recording, sustained disruption of talks or other events, inappropriate physical contact, and unwelcome attention. Participants requested to cease harassing behavior are expected to comply immediately, and failure will serve as grounds for revoking access to the NDIA event.

SESSION TRACKS

SMALL ARMS SYSTEMS

The Next Generation of Small Arms Integrated Systems: Weapons, Ammunition, Enablers, Training

The Small Arms section of the program will include presentations from PM Soldier Weapons, PM MAS, JSSAST, and JSSAP on next generation systems technologies. In addition, the agenda features panel discussions on fire control technology, reduced range ammunition, and lightweight ammunition technology.

GUNS, AMMUNITION, ROCKETS & MISSILES SYSTEMS

Realizing Future Gun, Ammunition, Rocket, and Missile Systems

The GARM sessions address plans, challenges and modernization approaches for present and future gun systems greater than Cal 0.50. These sessions also address guns, feed systems, ammunition and associated fuzes, fire control, and platform integration.

UNCONVENTIONAL EMERGING TECHNOLOGY ARMAMENT SYSTEMS

Accelerating a Broad Spectrum of Future Target Effects to the Warfighter

The UEA sessions address technologies, systems, capabilities, and applications that encompass a wide range of alternative combat capabilities to include Hypersonics, EM, Directed Energy, Lasers and Integrated Robotic Systems.

MONDAY, JUNE 3	TUESDAY, JUNE 4	WEDNESDAY, JUNE 5	THURSDAY, JUNE 6
TUTORIALS	COMBINED JOINT GENERAL SESSION SMALL ARMS	SMALL ARMS TRACK GARM TRACK UEA TRACK	SMALL ARMS GARM TRACK UEA TRACK TECHNOLOGY DEMONSTRATION

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MONDAY, JUNE 3

11:00 am – 5:00 pm **REGISTRATION**
EXHIBIT HALL A LOBBY

TUTORIALS (DISTRIBUTION A)

	Ballroom A	Ballroom B	Ballroom C
12:30 – 2:00 pm	Tutorial 1: U.S. Export Controls Related to Technology Johanna Reeves Reeves & Dola, LLP	Tutorial 2: Intelligence Integration into Capability Dwayne Hynes USD, Department of Defense	Tutorial 3: Middle Tier Acquisition – Section 804 Lynne Giordano Defense Acquisition University
2:00 – 3:30 pm	Tutorial 4: Industrial Base Cyber Risks and Protection Susan Ebner Stinson, LLP Rolando Sanchez Sanchez PLC	Tutorial 5: What Gun and Ammunition Designs Need to Know About Case-Chamber Interaction Jeff Siewert Arrow Tech Associates	Tutorial 6: Evolving Platform and Armament System Integration Dave Broden Broden Resource Solutions, LLC <i>Moderator</i> Mark Signorelli BAE Systems Platforms and Services Matt Dooley Robotics Division, NDIA John Chadbourne AM General Art O'Donnell Northrop Grumman Innovation Systems
3:30 – 5:00 pm	Tutorial 7: Artificial Intelligence Ross Arnold Combat Capabilities Development Command Armaments Center, U.S. Army Futures Command Dr. Jorge Buenfil Combat Capabilities Development Command Armaments Center, U.S. Army Futures Command	Tutorial 8: DOD Foreign Comparative Testing Overview Col Doug Creviston, USAF OUSD R&E Randy Everett (GTO) G3/Operations U.S. Army Combat Capabilities Development Command Office	Tutorial 9: Intellectual Property Objectives, Criteria, and Approach Col Wesley Hallman, USAF (Ret) NDIA Corbin Evans NDIA

TUESDAY, JUNE 4 – GENERAL SESSION (DISTRIBUTION A)

7:00 am – 6:30 pm **REGISTRATION**
EXHIBIT HALL A LOBBY

7:00 – 8:00 am **NETWORKING BREAKFAST**
GRAND BALLROOM FOYER

8:00 – 8:10 am **WELCOME AND OPENING REMARKS**
GRAND BALLROOM

Dave Broden
NDIA Armament Division Chair

Dave Chesebrough
Vice President, Divisions, NDIA

8:10 – 8:30 am **WELCOME FROM TEAM CRUCIBLE**
GRAND BALLROOM

John Garman
President, Team Crucible

8:30 – 9:00 am **NDIA ENTERPRISE VISION AND POLICY INITIATIVES**
GRAND BALLROOM

MG James Boozer, USA (Ret)
Executive Vice President, NDIA

Col Wesley Hallman, USAF (Ret)
Senior Vice President, Strategic Program & Policy, NDIA

9:00 – 9:30 am **KEYNOTE SPEAKER**
GRAND BALLROOM

BG Alfred Abramson, USA
Program Executive Officer & Senior Commander, Picatinny Arsenal, Joint Program Executive Office Armaments and Ammunition (JEPO A&A)

9:30 – 10:00 am **FEATURED SPEAKER**
GRAND BALLROOM

Anthony Sebasto
Executive Director, Enterprise and Systems Integration Center, Combat Capabilities Development Command Armaments Center

9:30 am – 6:30 pm **EXHIBIT HALL OPEN**
EXHIBIT HALL A

10:00 – 10:30 am **NETWORKING BREAK & POSTER REVIEW**
EXHIBIT HALL A

10:30 – 11:15 am **FEATURED SPEAKER**
GRAND BALLROOM

Dr. Michael Richman
SSTM, Technical Deputy, Missile Modernization and Development CCDC Aviation and Missile Center

11:15 am – 12:00 pm **LONG RANGE PRECISION FIRE LINES OF EFFORT**
GRAND BALLROOM

COL(P) John Rafferty, USA
Director, Long Range Precision Fires Cross Functional Team, U.S. Army Futures Command

12:00 – 1:00 pm **NETWORKING LUNCH**
EXHIBIT HALL A

1:00 – 1:30 pm **FEATURED SPEAKER**
GRAND BALLROOM

Amy O'Donnell
Deputy Technical Director, NSWC Indianhead Explosive Ordnance Disposal Technology Division

1:30 – 2:00 pm **FEATURED SPEAKER**
GRAND BALLROOM

Dr. David Lambert
Chief Scientist, Munitions Directorate, Air Force Research Laboratory

SMALL ARMS TRACK (DISTRIBUTION A)

ROOM AF

Joint Service Small Arms Synchronization Team (JSSAST) Panel

1:00 – 2:00 PM

MAJ Ian Welch, USA
Combat Capabilities Development Command, Armaments Center, U.S. Army Futures Command
Moderator

Matthew Walker
U.S. Army Futures Command

William Epperson
Capabilities Integration Officer, USMC

Col Enrico Venditti, USAF
U.S. Air Force Security Forces Center

Craig LaMudge
Office of Specialized Capabilities, U.S. Coast Guard

LCDR Peter Downes, USN
DCNO N9

LTC Marcos Cervantes, USA
PEO SOF Warrior

2:00 – 2:30 pm

WEAPONS FOR A DISAGGREGATE BATTLE

GRAND BALLROOM

MG Robert Scales, USA (Ret)
Former Commandant, U.S. Army War College

SMALL ARMS TRACK

ROOM AF

Joint Services Small Arms Program (JSSAP) Introduction

2:00 – 2:05 PM

Augustine Funcasta

Combat Capabilities Development Command
Armaments Center, U.S. Army Futures Command

Joint Services Small Arms Requirements Integration (JSSARI)

2:00 – 2:15 PM

MAJ Ian Welch, USA

MILDEP, JSSAP Office

Joint Science And Technology Advisory Council (JSTAC)

2:15 – 2:30 PM

Marc Ritt

Combat Capabilities Development Command
Armaments Center, U.S. Army Futures Command

2:30 – 3:00 pm

NETWORKING BREAK & POSTER REVIEW

EXHIBIT HALL A

2019 HYPERSONICS CAPABILITIES CONFERENCE

ENABLING TECHNOLOGICAL SUPERIORITY: DEFINE. DEVELOP. DELIVER.

NDIA, in partnership with Purdue University, will host a comprehensive program on hypersonic systems. Together with government, industry and academia partners, NDIA will present the technical foundations of hypersonic systems, the current approach to rapidly developing hypersonic capabilities, and the warfighter, policy, and acquisition perspectives to delivering a sustainable operational capability. With keynotes from military, government, and congressional leaders, and insightful presentations from industry, policy leaders and acquisition executives, this program will emphasize the importance of joint collaboration in technology development and acquisition to create an affordable and sustainable capability in a critical national security priority.

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3:00 – 3:45 pm

USMC CAPABILITY OBJECTIVES AND PROGRAMS

GRAND BALLROOM

Col Michael Manning, USMC

USMC Portfolio Manager Ground Combat Element Systems
Moderator

LtCol Tim Hough, USMC

Program Manager, Infantry Weapons

LtCol Brad Sams, USMC

Program Manager, Fires, USMC

John Knapp

Program Manager, Infantry Combat Equipment, USMC

3:45 – 4:30 pm

DOD NON-LETHAL WEAPONS PROGRAM

GRAND BALLROOM

Col Wendell Leimbach

Director, Joint Non-Lethal Weapons Directorate (JNLWD)

Kevin Swenson

Acquisition Division Chief, Joint Non-Lethal Weapons
Directorate (JNLWD)

David Law

Technology Division Chief, Joint Non-Lethal Weapons
Directorate (JNLWD)

4:30 – 5:00 pm

FEATURED SPEAKER

GRAND BALLROOM

Charlie Zisette

Executive Director, National Armaments Consortium

5:00 – 5:10 pm

CLOSING REMARKS

GRAND BALLROOM

5:00 – 6:30pm

NETWORKING RECEPTION

EXHIBIT HALL A

SMALL ARMS TRACK

ROOM AF

Joint Services Small Arms Program (JSSAP) Portfolio

3:00 – 3:30 PM

Terence Rice

Combat Capabilities Development Command
Armaments Center, U.S. Army Futures Command

JSSAP Special Topics Update

3:30 – 4:00 PM

Matthew Moeller

Combat Capabilities Development Command
Armaments Center U.S. Army Futures Command

Adam Jacob

Combat Capabilities Development Command
Armaments Center, U.S. Army Futures Command

Small Arms Awards Ceremony

4:00 – 5:00 PM

Chinn Award

Thomas Nelson

Presented by Dan Shea

Hathcock Award

Bryan Litz

Presented by Sal Fanelli

Ambrose Award

Arrow Tech Associates, Inc accepted by

Jeff Siewert

Presented by Sal Fanelli

Professional Service Award

Mike Tauber, in memoriam

Presented by Brian Berger

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	Small Arms Track: Session 1 Room A, Distribution A	GARM Track: Session 1 Room CD, Distribution A	UEA Track: Session 1 Room BE, Distribution D
7 am	BREAKFAST - GRAND BALLROOM FOYER		
7:30 am	Small Arms Administrative Announcements Brian Berger NDIA Small Arms Committee Chair	GARM Administrative Announcements Matt Phillips NDIA GARM Committee Chair	UEA Objectives, Purpose, Challenges, Opportunities Alan Kull NDIA UEA Committee Chair
7:40 am	Modern Trends, Threats, and Developments in Global Ordnance Dan Shea Phoenix Defence	Discussion of GARM Dave Broden NDIA Armaments Division Chair <i>Moderator</i> Matt Phillips NDIA GARM Committee Chair	Cost Effective C-UAS Using COTS Components to Improve Exchange Rate Howard Kent Armor Development Group, LLC
8:00 am	PM Maneuver Ammunitions Systems (MAS) Panel COL Hector Gonzalez, USA Maneuver Ammunition Systems <i>Moderator</i> LTC Andre Johnson, USA Medium Caliber Ammunition LTC Andrew Lunoff, USA Small Caliber Ammunition	CCDC Armament Center GARM Related System Technology Mike George Combat Capabilities Development Command Armaments Center, U.S. Army Futures Command	Semi-Autonomous Slew and Firing to Defeat Highly Maneuvering Aerial Targets Cliff Chang U.S. Army Futures Command
8:30 am			Reactive Material Technology and Application Jeb Brough MATSYS, Inc.
9:00 am	PM Soldier Weapons Panel COL Elliott Caggins, USA Product Manager Soldier Weapons <i>Moderator</i> LTC Jason Bohannon, USA Product Manager, Next Generation Weapons LTC Steven Power, USA Product Manager Individual Weapons Peter Errante Product Director, Crew Served Weapons Matthew Walker Capabilities Developer, Solider Lethality Cross Functional Team, U.S. Army Futures Command	CCDC AvMC GARM Related Technology Susan Dunbar U.S. Army Futures Command	Small UAS Gunship Lucius Taylor NSWC Crane
9:30 am		Close Combat Support (CCS) to Army Modernization Priorities Joe Pelino Close Combat Systems	How Block Chain and Smart Contracts Will Impact Armament Systems Ralph Tillinghast Combat Capabilities Development Command Armaments Center U.S. Army Futures Command
10 am	NETWORKING BREAK & POSTER REVIEW - EXHIBIT HALL A		
		Combat Ammunition Systems (CAS) Support to Army Modernization Priorities LTC Pat Farrell, USA Ammunition SME Dan Napolitano Ammunition SME's	Pulsed Power Developments for Directed Energy Systems Charlie Wiesel VIS, LLC

	Small Arms Track: Session 1	GARM Track: Session 1	UEA Track: Session 1
	Room A, Distribution A	Room CD, Distribution A	Room BE, Distribution D
10:30 am	<p>NATO NIAG-228 Study</p> <p>Yves Roskam NATO Industrial Advisory Group</p> <p>Fabrice Fontanier NATO Industrial Advisory Group</p>	<p>Next Generation Combat Vehicle (NGCV) Vision</p> <p>COL Warren Sponsler, USA Next Generation Combat Vehicles Cross Functional Team, U.S. Army</p>	<p>Reference Architecture for Deep Learning Based Security Systems</p> <p>Dr. Jorge Buenfil Combat Capabilities Development Command Armaments Center, U.S. Army Futures Command</p>
10:50 am	<p>Unconventional Emerging Technology Armament Systems</p> <p>Vincent Battaglia BML Tool Manufacturing</p>	<p>NGCV System, Technology, and Vision Panel</p> <p>Dave Broden NDIA Armaments Division Chair <i>Moderator</i></p> <p>LTC Andre Johnson, USA Medium Caliber Ammunition</p> <p>Gary Milcheck Combat Capabilities Development Command Armaments Center U.S. Army Futures Command</p> <p>Jeff Hart Combat Capabilities Development Command Armaments Center, U.S. Army Futures Command</p> <p>Spencer Hudson Combat Capabilities Development Command, Aviation and Missile Center, U.S. Army Futures Command</p> <p>Robert Ruhland Northrop Grumman Innovation Systems</p> <p>Tim Brumfield Northrop Grumman Innovation Systems</p> <p>Matt Phillips General Dynamics</p> <p>Eric Eickstaedt Northrop Grumman Innovation Systems</p> <p>Kyle Patterman Meggitt Defense Systems</p>	<p>Multicore Considerations for Safety Critical Software Applications</p> <p>Brian Connell Combat Capabilities Development Command Armaments Center, U.S. Army Futures Command</p>
11:10 am	<p>Lightweight Small Cal Ammunition Panel</p> <p>LTC Andrew Lunoff, USA Small Caliber Ammunition <i>Moderator</i></p> <p>Mark Owens True Velocity</p> <p>Lanse Padgett PCP</p> <p>Joe Gibbons MAC</p> <p>Pierre Lemay GD-OTS Canada</p> <p>Gino Spinos Concurrent Technology Corp (CTC)</p>		<p>Low Cost COTS-Based VTOL UAS for Stealthy Take Downs</p> <p>Robert Serino Applied Research Associates, Inc.</p>
11:30 am			<p>Applying Multi-Agent Swarm Artificial Intelligence to Armament Systems</p> <p>Ross Arnold Combat Capabilities Development Command Armaments Center, U.S. Army Futures Commanderi</p>
12 pm	NETWORKING LUNCH - EXHIBIT HALL A		

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	Small Arms Track: Session 2	Small Arms Track: Session 3	GARM Track: Session 1	UEA Track: Session 1
	Room A, Distribution A	Room F, Distribution A	Room CD, Distribution A	Room BE, Distribution D
1:00 pm	Fire Control Technology and System Panel Terence Rice JSSAP <i>Government Moderator</i> Bob Guarasi Wilcox Industries <i>Industry Moderator</i> Doug Cohen PM Soldier Weapons Ross Towers Fire Control, U.S. Army Futures Command Dr. Mark Thoreson NSWC Crane Tony Bacarella DRS EOIS Bryan Bockmon Aim-Lock, Inc. Lennart Ljungfelt Aimpoint	Propellant Optimization Tyler Holland Combat Capabilities Development Command Armaments Center, U.S. Army Futures Command Andrew Caldwell Olin Corp – Winchester Division	Long Range Precision Fires (LRPF) Panel Dave Broden NDIA Armaments Division Chair <i>Moderator</i> Robert Picht LRPF CFT Ole Knudson Northrop Grumman Innovation Systems David Musgrave Combat Capabilities Development Command Armaments Center, U.S. Army Futures Command Rich Granitzki Combat Capabilities Development Command Armaments Center, U.S. Army Futures Command Dr. Michael Richman Combat Capabilities Development Command Armaments Center, U.S. Army Futures Command Charles Hayden General Dynamics	Distributed, Coordinated, and Cooperative Defeat Technologies Dr. David Lambert Munitions Directorate, Air Force Research Laboratory
1:20 pm		Contributing Factors in Small Cal Pierced Primers Andy Boman Northrop Grumman Innovation Systems		
1:40 pm		Environmentally Benign Composition for the M209 Shotshell Primer Jim Wedwick Northrop Grumman Corporation		
2:00 pm		Incendiary Composition Analytical Study for Small Cal Ammunition Daniel Mansfield Northrop Grumman Corporation, Lake City Army Ammunition Plant	Long Range Precision Fires CCDC AC Mike George Strategic Technology Investment Office	Emerging Technology System Perspective – Navy Dr. Frank Peterkin Office of Naval Research
2:30 pm	NETWORKING BREAK & POSTER REVIEW – EXHIBIT HALL A			
3:00 pm	“Gummy” Metals – Why Difficult to Cut and What Can be Done About it Jason Davis NSWC Crane	7.62mm Case Rupture Failure Analysis Zachary Krogstad Combat Capabilities Development Command Armaments Center, U.S. Army Futures Command Robert Woolsey Northrop Grumman Corporation	Long Range Precision Fires CCDC Aviation and Missile Center Dr. Michael Richman Combat Capabilities Development Command Aviation and Missile Center, U.S. Army Futures Command	Emerging Technology System Perspective - USAF Dr. Don Shiffler AFRL Directed Energy Directorate, AFMC AFRL/RD

	Small Arms Track: Session 2	Small Arms Track: Session 3	GARM Track: Session 1	UEA Track: Session 1
	Room A, Distribution A	Room F, Distribution A	Room CD, Distribution A	Room BE, Distribution D
3:20 pm	0.50 Cal Ball/Trace Cartridge Match Improvements David Stubler Northrop Grumman	Improving Gun Barrel Life and Accuracy George Kontis Gun IQ International, LLC	Future Vertical Lift (FVL) and Armament System Panel Matt Phillips NDIA GARM Committee Chair <i>Moderator</i> Michael Colonnello Combat Capabilities Development Command Armaments Center, U.S. Army Futures Command Bradford McHugh Combat Capabilities Development Command Armaments Center, U.S. Army Allan Walker Combat Capabilities Development Command Aviation and Missile Center, U.S. Army Futures Command Jim St. Germain General Dynamics Art O'Donnell Northrop Grumman Innovation Systems Jennifer Zonneveld Northrop Grumman Innovation Systems	Enhancing Weapons Capabilities through Smart Sensors Robert Meng Secubit, Inc.
3:40 pm	AeroShell Armor-Piercing Projectiles Lucius Taylor IV NSWC Crane			Speed of Battle LTC Andre Johnson, USA Combat Capabilities Development Command Armaments Center, U.S. Army Futures Command
4:00 pm	Sound Testing of Small Arms Weapons Laura Best NSWC Crane	Systemic Effects of Cartridge and Weapon Barrel Variation Thomas Gmyrek Caliber .50 APO		Quantifying the Accuracy of Wind Estimation Techniques in Direct Fire Ballistics Tomas Bober Combat Capabilities Development Command Armaments Center, U.S. Army Futures Command
4:20 pm	High Performance Composite Machine Gun Barrels David Armstrong NSWC Crane	Reevaluating Condemnation Criteria for Barrel Erosion/Wear Anthony Hawthorne Combat Capabilities Development Command, U.S. Army Futures Command		Protecting Smart Launchers using Advanced Anti-Spoofing Steve Alexander L3 Technologies
4:40 pm	Full-Auto Cycle Rate Reducer Transforms M4/M16 in New Full-Automatic Fire Scenario Terrence Bender High Performance Firearms, LLC	M14 Short Stroke - Analysis of Ammunition and Weapons System Influencing Factors Elyse Barone Combat Capabilities Development Command Armaments Center, U.S. Army Futures Command Tim Good Northrop Grumman Corporation		Virtual Reality Prototyping for Fire Control Platforms David Musgrave Combat Capabilities Development Command Armaments Center, U.S. Army Futures Command
5 pm	NETWORKING RECEPTION- EXHIBIT HALL A			

THURSDAY, JUNE 6

	Small Arms Track: Session 4	GARM Track: Session 2	GARM Track: Session 3	UEA Track: Session 2	
	Room A, Distribution A	Room F, Distribution D	Room CD, Distribution A	Room BE, Distribution D	
7 am	BREAKFAST - GRAND BALLROOM FOYER				7 am
7:30 am	Small Arms Administrative Announcements Brian Berger NDIA Small Arms, Committee Chair	GARM Administrative Announcements	GARM Administrative Announcements	UEA Objectives, Purpose, Challenges, Opportunities Alan Kull NDIA UEA Committee Chair, NDIA Armaments Division	7:30 am
7:40 am	40mm Low Velocity Jay Bell MAST Technology, Inc.	XM913 50mm Chain Gun Technology Development Tim Brumfield Northrop Grumman Innovation System	The Joint Packaging, Handling, Storage, and Transportation Center Robert Rossi Combat Capabilities Development Command Armaments Center, U.S. Army Futures Command Mike Hagn NSWC Indian Head	Development of High Reliability DPICM Replacement Kevin Cochran NSWC IHEOOTD Fuze and Initiation Systems Branch	7:40 am
8:00 am	M80A1 Dispersion Reduction Zachary Krogstad Combat Capabilities Development Command Armaments Center, U.S. Army Futures Command Steve Redd Northrop Grumman Innovation Systems	Excalibur Shaped Trajectory Arnaldo Colon Precision Indirect Fires, Land Warfare Systems, Raytheon	40MM Low Velocity Counter Unmanned Aerial System Cheng Hok Aw Advanced Material Engineering	Low-Blast High-Impulse Densified Propellant for Recoilless Gun, Rocket, Missile Systems Matthew Sanford Naval Surface Warfare Center Indian Head Explosives Ordnance Disposal Technology Division	8:00 am
8:20 am	Greater Penetration and Lethality for Small Bore Rifle, PDW and Handgun Cartridges Jonathan Berman Ammo and Bullet Mfg, Inc.	Reactive Material Technology and Application Jeb Brough MATSYS, Inc.	155MM Artillery Platform Projective Fallback Sensor Kevin Boland Combat Capabilities Development Command Armaments Center, U.S. Army Futures Command	Services Perspective on Hypersonics Rob Esslinger Combat Capabilities Development Command Aviation and Missile Center, U.S. Army Futures Command	8:20 am
8:40 am	Observations and Opportunities in Small Caliber Dispersion Jeff Siewert Arrow Tech Associates, Inc.	Armaments Health Monitoring for Autonomous Systems Anthony Cannone Combat Capabilities Development Command Armaments Center, U.S. Army Futures Command			

	Small Arms Track: Session 4	GARM Track: Session 2	GARM Track: Session 3	UEA Track: Session 2	
	Room A, Distribution A	Room F, Distribution D	Room CD, Distribution A	Room BE, Distribution D	
9:00 am	Reduced Range Ammunition Panel Evan Poole U.S. Crane <i>Moderator</i> Ray Chaplin Combat Capabilities Development Command Armaments Center, U.S. Army Futures Command	Technical Challenges Associated with Large Caliber Extended Range Missions: Gun Mounts Samuel Jacobs Combat Capabilities Development Command Armaments Center, U.S. Army Futures Command	USN Quad City Rock Island Arsenal Cartridge Case Capability Mike Hagn NSWC Indian Head	Industry Perspectives on Hypersonics Arthur Mabbett Adv High Speed Weapons, Raytheon Missile Systems John Wilcox Advanced Programs & Technology, Northrop Grumman Innovation Systems Dr. Kevin Bowcutt Hypersonics, Boeing	9:00 am
9:20 am	Kyle Kampo Combat Capabilities Development Command Armaments Center, U.S. Army Futures Command Pierre Lemay GD-OTS Canada	Burst Test of Composite Mortar Tube Section: Modeling and Experimentation Andrew Littlefield Combat Capabilities Development Command Armaments Center, U.S. Army Futures Command	USN Indianhead Trident Plant Revitalization Propulsion Capability/Technology Mike Lateulere NSWC Indian Head		
9:40 am	Fredrik Erninge Nammo Talley, Inc. Marcelo Moreno Companhia Brasileira de Cartuchos (CBC)	Fuze and Precision Armaments Test Capabilities and Facilities Pamela Ferlazzo Combat Capabilities Development Command Armaments Center, U.S. Army Futures Command	Fire Suppression Round Joshua Keena Automotive/Weapons Thread Leader, U.S. Military Academy at West Point		
10 am	NETWORKING BREAK - GRAND BALLROOM FOYER				

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	Small Arms Track: Session 4	GARM Track: Session 2	GARM Track: Session 3	UEA Track: Session 2	
	Room A, Distribution A	Room F, Distribution D	Room CD, Distribution A	Room BE, Distribution D	
10:30 am		Laser-Based Inspection of Weapon Bores and Chambers James Doyle Laser Techniques Company	Point of Impact Shift from Muzzle Mounted Chronometer and Combining Ballistics and Differential Equation Modeling Joshua Keena Automotive/Weapons Thread Leader, U.S. Military Academy at West Point	Hypersonic Systems Panel Discussion Dave Broden Broden Resource Solutions, LLC Moderator Rob Esslinger Combat Capabilities Development Command Aviation and Missile Center, U.S. Army Futures Command Arthur Mabbett Adv High Speed Weapons, Raytheon Missile Systems John Wilcox Advanced Programs & Technology, Northrop Grumman Innovation Systems Dr. Kevin Bowcutt Hypersonics, Boeing	10:30 am
10:50 am	Quantifying Bullet Performance Against Transparent Barriers Martin Viligiardi QinetiQ	Interplay of Finite Element Modeling and Experiments in a Weapons Development Project Jon Yagla Bowhead Technical Services	20mm Mechanically Fuzed High Explosive Projectile Chris Idleman General Dynamics OTS	Emerging Technology Systems Panel Alan Kull NDIA UEA Committee Chair Mike George Strategic Technology Investment Office, Combat Capabilities Development Command Armaments Center Dr. Don Shiffler AFATL Directed Energy Rob Esslinger Combat Capabilities Development Command Aviation and Missile Center, U.S. Army Futures Command Dr. Frank Peterkin Office of Naval Research	11:00 am
11:10 am	Ammunition Production Equipment Diagnosis Katelyn Riha Northrop Grumman Innovation Systems	Simplified Instrumentation for Radiometrically Accurate Flash Movements Dr. David Dye NSWC Crane	Advanced Shoulder Fired Weapon and Ammunition System Dr. David Grymonpré Airtronic USA		
11:30 am	Marksmanship Dispersion, Statistical Approach to Dispersion and Recoil Shawn Spickert-Fulton Combat Capabilities Development Command Armaments Center, U.S. Army Futures Command	Next Generation Carbine Technologies Thomas Grego Combat Capabilities Development Command Armaments Center, U.S. Army Futures Command	Comprehensive Advanced Artillery Solutions Danny Schirding Elbit Systems Land		
11:50 am	Wrap Up Brian Berger NDIA Small Arms Committee Chair			Wrap up and Vision Forward Alan Kull UEA Committee Chair	11:45 am
12 pm	CONFERENCE ADJOURNS				

TECHNOLOGY DEMONSTRATION

12:00 – 12:20 pm	BOX LUNCH PICKUP EXHIBIT HALL A LOBBY
12:30 pm	BUSES HARD DEPART FOR TECHNOLOGY DEMONSTRATION
1:15 – 1:45 pm	ARRIVE AT DEMO SITE, SAFETY BRIEFING
1:45 – 2:15 pm	DEMONSTRATING COMPANIES BRIEF TECHNOLOGY INITIATIVES AND FEATURES
2:15 – 2:45 pm	TECHNOLOGY DEMONSTRATIONS
2:45 – 3:50 pm	ATTENDEE PARTICIPATION
4:00 pm	BUSES DEPART

TECHNOLOGY DEMONSTRATION

Ammo & Bullet Mfg. Inc.

New 9mm Frangible Armor
Piercing Ammunition

AMTEC Corporation

40mm Low Velocity (LV) cartridges

B.M.L. Tool & Mfg. Corp.

AMAG Multi-Caliber Rifle

Barrett Firearms

7.62mm version of the SOCOM Advanced
Sniper Rifle (ASR)

Extreme Defense, LLC

M4 Carbine / MK 4R Pistol

FN America

MK 20 6.5 Creedmoor, MK 48 6.5
Creedmoor & MK 48 7.62

GLOCK, Inc.

G19X / G45 / G17 MOS / G19 MOS /
G43X / G48 Pistols

HIPERFIRE

Full Auto Cyclic Rate Reducer (F.A.C.R.R.)

Knight's Armament Company

SR25 in 6.5 Creedmore & 7.62mm, SR16

LMT Defense

Suppressed MWS 7.62 & 6.5 CM / CSW
300BLK / Suppressed MARSL 5.56

Northrop Grumman

5.56mm and 7.62mm ammunition

Olin Winchester, LLC

New 9mm M1152 and M1153 ammunition
designed for use with M17/M18 Pistols

Secubit

Round Counters for Rifles,
Carbines and Pistols

Sig Sauer

New U.S. Army M17 and M18 Pistols

ST Engineering

Ultimax 100 MG / SAR 21 Std and MMS

Project Manager Soldier Weapons

40mm M320 Grenade Launcher, M26 12
gauge under-barrel Modular Accessory
Shotgun (MASS) and the M110 7.62mm
Semi-Automatic Sniper Systems (SASS)

Vista Outdoor

9mm and 12 gauge ammunition

POSTER PRESENTERS

155MM Artillery Platform Projectile Fallback Sensor

BOARD 01

Boland, K.

Combat Capabilities Development
Command Armaments Center, U.S. Army
Futures Command

Improved Ballistic Match and Accuracy for .50 Caliber Reduced Range Ammunition (RRA)

BOARD 02

Bourque, G.

General Dynamics - OTS Canada

Reference Architecture for Deep Learning Based Security Systems with Computer Vision and Human in the Loop

BOARD 03

Buenfil, J.

Combat Capabilities Development
Command Armaments Center, U.S. Army
Futures Command

Kinetic Defeat Modeling and Optimization for Counter-UAS Applications

BOARD 04

Caprara, R.

NSWC Crane

Using Physics Based Explicit FEA Codes to Model and Simulate Ballistic Impact Events

BOARD 05

Cataldi, M.

Combat Capabilities Development
Command Armaments Center, U.S. Army
Futures Command

Effects of Rifling Twist Rate and Geometry on Bullet Engraving During Launch

BOARD 06

Chaplin, R.

Combat Capabilities Development
Command Armaments Center, U.S. Army
Futures Command

Laser-based Inspection of Weapon Bores and Chambers to Improve Manufacturing Quality, Optimize Performance and Sustain Operational Readiness

BOARD 07

Doyle, J.

Laser Techniques Company

Systematic Effects of Cartridge and Weapon Barrel Variation

BOARD 08

Gmyrek, T.

Combat Capabilities Development
Command Armaments Center, U.S. Army
Futures Command

Next Generation Carbine Technologies Advanced Barrel Characterization

BOARD 09

Grego, T.C.

Combat Capabilities Development
Command Armaments Center, U.S. Army
Futures Command

Next Generation Carbine Technologies Signature and Recoil Reduction

BOARD 10

Grego, T.C.

Combat Capabilities Development
Command Armaments Center, U.S. Army
Futures Command

Next Generation Carbine Technologies

BOARD 11

Grego, T.C.

Combat Capabilities Development
Command Armaments Center, U.S. Army
Futures Command

Next Generation Family of Ammunition

BOARD 12

Hawthorne, A.

Combat Capabilities Development
Command Armaments Center, U.S. Army
Futures Command

MATLAB Script to Convert Tetrahedrals to Hexahedrals with Near-Optimal Element Quality

BOARD 13

Hohnecker, K.

Combat Capabilities Development
Command Armaments Center, U.S. Army
Futures Command

Acquisition-Intelligence

BOARD 14

Hynes, D.

USD(I)

Intelligence as Value Added

BOARD 15

Hynes, D.

USD(I)

Design and Implementation of Reduced Range Training Ammunition

BOARD 16

Kampo, K.

Combat Capabilities Development
Command Armaments Center, U.S. Army
Futures Command

Gun Camera Small Arms Applications of The Soldier Worn Network

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Kent, H.

Armor Development Group, LLC

Beating the Heat: Tungsten Ablation Coatings for Firearms

BOARD 18

Kent, H.

Armor Development Group, LLC

How the World Record Sniper Hit Was Made; Meet Charlie TARAC

BOARD 19

Kent, H.

Armor Development Group, LLC

Three Months from Poster to Product; The Frangible AP Story

BOARD 20

Kent, H.

Armor Development Group, LLC

Programmable Dispersion of for Ammunition Production; Using External Ammunition Sealant to Produce Identical or Varying Dispersion on the Production Line

BOARD 21

Kent, H.

Armor Development Group, LLC

Commercial Lightweight Firearms Survey: What's New from the Wide World of the Commercial Firearms Industry

BOARD 22

Kent, H.

Armor Development Group, LLC

Advantages of 21st Century Materials & Manufacturing Processes on Small Caliber Ammunition

BOARD 23

Kent, H.

Armor Development Group, LLC

On- & Off-Cloud Inventory, Training & Qualification Solutions for Government Weapons: Who Knows What About What, What's Condition and Where Everything is for Fleet Management

BOARD 24

Kent, H.
Armor Development Group, LLC

ARDEC Terminal Performance Model - An Unclassified Damage Model for use by Industry

BOARD 25

McFarland, G.
ARDEC

Influencing Factors in Dropped and Leaking Primers

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Meierhofer, D.
Northrop Grumman Corporation

The Great Pacific N-W Silencer Study: How an Aerospace Manufacturer Approaches Sound Suppressor Design

BOARD 27

Morrison, R.
Aero Precision Corp

Exploring Cold Weather Performance of Traditional Asphaltic vs. External Ammunition Sealants

BOARD 28

Poirier, C.
STAC-Tactical

Art-of-the-Possible: Low-Cost COTS-Based VTOL-UAS for Stealthy Take-Downs

BOARD 29

Serino, R.
Applied Research Associates, Inc.

What Gun Gurus Need to Know About Case-Chamber Interaction

BOARD 30

Siewert, J.
Arrow Tech Associates

Predictive Modeling in Small Arms Testing

BOARD 31

Tashjian, N.
Combat Capabilities Development
Command Armaments Center, U.S. Army
Futures Command

Case Rupture.

BOARD 32

Woolsey, R.
Northrop Grumman Corporation

Longbow HELLFIRE Thermal Testing and Analysis

BOARD 33

Yagla, J.
Bowhead Technical Services

BIOGRAPHIES



BG ALFRED ABRAMSON III, USA

Joint Program Executive Officer Armaments & Ammunition and the Commanding General, Picatinny Arsenal

Brigadier General Alfred F. Abramson III became the Joint Program Executive

Officer Armaments & Ammunition and the Commanding General, Picatinny Arsenal on December 29, 2017, leading the mission to develop and procure conventional and leapahead munitions to increase the Warfighter's combat power. Prior to this, BG Abramson served as the Deputy Program Executive Officer Ammunition and Senior Commander Picatinny Arsenal.

Brigadier General Abramson was commissioned a Second Lieutenant in the Chemical Corps after graduating from Virginia State University where he received a Bachelor of Science degree in Chemistry. Brigadier General Abramson served in a

variety of positions overseas as well as the contiguous United States to include: Battalion Chemical Officer, 6-37th Field Artillery; Smoke Platoon Leader, 172nd Chemical Company; Company Commander, 266th Quartermaster Battalion; Chemical Staff Officer, Project Manager's Office for NBC Defense; Aide-De-Camp, Soldier Biological Chemical Command; Assistant Product Manager, NBC Point Detection; Program Executive Office Liaison Officer, Coalition Forces Land Component Command; Assistant Product Manager, NBC Reconnaissance Systems; Budget Team Chief, Office of the Assistant Secretary of the Army (Acquisition, Logistics and Technology); Joint Product Manager, Biological Detection Systems; Military Assistant to the Under Secretary of the Army; Joint Project Manager for NBC Contamination Avoidance;

Executive Officer for the Principle Military Deputy Assistant Secretary of the Army (Acquisition Logistics, and Technology); and previously served as the Deputy, Joint Program Executive Officer for Chemical and Biological Defense.

His civilian education includes a Master's degree in Chemistry from Johns Hopkins University, a Master's degree in National Security and Strategic Studies from the Naval War College, and a Master's degree in Strategic Studies from the Army War College. His military education includes the Chemical Officer Basic and Advanced Courses, the Combined Arms and Services Staff School, Command and General Staff College, the Advanced Program Management Course, the Senior Service College and Senior Leaders Course.



COL (P) JOHN RAFFERTY, USA

Director, Long Range Precision Fires Cross Functional Team, Army Futures Command

COL John Rafferty, enlisted in the US Army in 1987 and served as an indirect fire infantryman with the 8th Infantry Division in Mainz, Germany for two years. He then attended Longwood University in Farmville, Va where he was commissioned into the regular Army as a Field Artillery officer. His first assignment was in the 18th Field Artillery Brigade at Ft Bragg, NC as a fire direction officer and platoon leader in B Battery, 5th Battalion (AASLT), 8th FA. After two years, COL Rafferty joined the 3d Battalion, 75th Ranger Regiment at Ft Benning, GA where he served as the B Company fire support officer before moving to Marine Corps Base Quantico to attend the USMC Amphibious Warfare School. COL Rafferty then moved to Baumholder, Germany with the 1st Armored Division and served as a Division AFSCoord and DivArty S4 before assuming command of B Battery 1st Bn, 94th FA (MLRS), and then HHB 1st Armored Division Artillery. In 2002,

he returned to the 75th Ranger Regiment to serve as the fire support officer for 1st Ranger Battalion and deployed several times in support of both Operation Enduring Freedom and Operation Iraqi Freedom. COL Rafferty was then selected UK Joint Services Command and Staff College in Shrivenham, England. Following the staff college, COL Rafferty was assigned to the newly formed 4th BCT (Airborne), 25th ID at Ft Richardson, Alaska where he served as the BCT fires and effects coordinator, plans officer, and S3 during operations in Iraq. He then served as the S3 for 2d Bn, 377th PFAR. In 2008, COL Rafferty was assigned to the Office of the Chief of Legislative Liaison (OCLL) in Washington, D.C. where he served as the operations and readiness liaison to the US Congress. From February 2010 until June 2012, COL Rafferty served as the commander of the 1st Bn, 319th AFAR, 3d BCT, 82nd Airborne Division as part of the Global Response Force. He then attended the US Army War College, where he completed

the Advanced Strategic Art Program. COL Rafferty returned to OCLL to serve as deputy chief of the House of Representatives liaison division before deploying to Kabul, Afghanistan as the legislative advisor to the Commander, International Security Assistance Force/ US Forces-Afghanistan. COL Rafferty assumed command of the 18th Field Artillery Brigade in June 2015 and deployed with the Brigade headquarters to the CENTCOM area of responsibility to serve as both Joint Fires Cell-Syria and the CFLCC Force Field Artillery Headquarters for a multi-component HIMARS brigade distributed throughout the theater in support of Operations Inherent Resolve and Spartan Shield. After relinquishing command June 2017, he served as the Executive Officer for the Director of the Army Staff, Headquarters Department of the Army in the Pentagon.

His education includes a Bachelor of Arts degree from Longwood University, a Master of Arts degree from King's College London, and a Master of Strategic Studies from the US Army War College.



ANTHONY SEBASTO

Executive Director, Enterprise and Systems Integration Center, RDECOM-ARDEC

Mr. Sebasto was appointed to the rank of Senior Executive Service (SES) in June 2015 and assigned as the Executive Director of the Enterprise and Systems Integrations Center (ESIC) of the U.S. Army Combat Capabilities Development Command Armaments Center (CCDC AC) headquartered at Picatinny Arsenal, New Jersey with satellite locations at Rock Island and Watervliet Arsenals. In his role, Mr. Sebasto is responsible for leading a large research, development and engineering center responsible for establishing, guiding and measuring the progress of large, complex integrated product development teams and programs executed by CCDC AC in support of the Army, the Joint Services and OSD. He also currently serves as the Chairperson of the Army's Subterranean and Dense Urban Environment Community

of Practice. ammunition, mines and countermines, non-lethal weapons and ammunition and special operations gear.

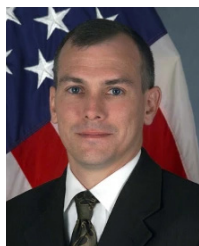
He also served as Associate Technical Director (Systems Concepts and Technology) where he was responsible for the Armament Technology Base Program executed by CCDC Armaments Center.

A career executive, he was appointed to the Senior Executive Service, the highest level of civilian government service, in November 1998.

Mr. Sebasto has over 35 years of experience in the research, development and production of small, medium, and large caliber armament systems for ground/air combat platforms, and for the individual soldier. He has led multiple large complex life-cycle engineering centers with annual budgets exceeding \$500M and workforces ranging

from 900-1900 civilian and military personnel all in support of life-cycle engineering (research, development, production, demilitarization) for integrated lethal and non-lethal Army and Joint Service armament systems and associated components. He has held numerous leadership assignments and credited with planning over \$1B of Science and Technology (S&T) projects in support of Army Modernization.

Mr. Sebasto has served as System Manager leading technical teams for S&T or supporting Project Manager Office managed armor, aviation, and soldier armament system programs to include the Advanced Rifle Program, XM-8 Armored Gun System, 120/140mm Advanced Tank Cannon Armament System, all utility and attack helicopter armaments with primary responsibility for the AH-64 Apache and OH-58D Kiowa Warrior Armed Reconnaissance helicopter armaments.



DR. MICHAEL RICHMAN

SSTM, Technical Deputy, Missile Modernization and Development CCDC Aviation and Missile Center

Dr. Michael Richman is the Technical Deputy, Missile Modernization and Development CCDC Aviation and Missile Center. Dr. Richman's aerospace career began as a project engineer and program manager with the Naval Air Systems Command Propulsion and Power Research and Engineering Department. He also served as staff specialist for Air Platforms the Office of the Secretary of Defense, Defense Research & Engineering (DDR&E) and Special Assistant and Chief of Staff to the Director - Defense Research and Engineering. Dr. Richman was responsible for the National Aerospace Initiative and served as a technical liaison between the Director and the components of the DDR&E organization, Congress, and other DoD and

federal agencies. As a Commander in the United States Navy (Reserve Component) he is Commanding Officer of the 83 member Norfolk Surge Maintenance Unit. His previous assignments have included tours of duty as the Executive Officer to the Deputy Director, Missile Defense Agency (MDA), Commanding Officer of the MDA Navy Reserve Unit as well as tours with the Norfolk Naval Shipyard as a project superintendent for guided missile cruiser and 688 attack submarine overhaul and repair, special projects officer with the Naval Sea Systems Command Ship Technology Directorate, the theater nuclear warfare program management support unit, Department Head coordinating Amphibious Assault Ship waterfront operations, and as the Disruptive

Technology War-game program lead for the Assistant Secretary of Defense (Research and Engineering) Joint Reserve Unit.

CDR Richman deployed, in support of Operation Enduring Freedom, to Afghanistan from December 2011 – December 2012 as the Chief of Operations for the NTM-A/CSTC-A Engineering Directorate.

Dr. Richman received his BSME from Purdue University, MSME from Florida Institute of Technology, and Ph.D. in Mechanical Engineering from Purdue University. Dr. Richman has published and lectured in the areas of, computational fluid dynamics, unsteady aero-mechanics and aero-elastics, multi-variable control system design, gas-turbine and rocket propulsion, high cycle fatigue, hypersonics, long-range strike, rotorcraft, and structures.



ASHLEY JOHNSON

Technical Director, Naval Surface Warfare Center Indian Head Explosive Ordnance Disposal Technology Division

Ashley Johnson is the technical director of the Naval Surface Warfare Center

Indian Head Explosive Ordnance Disposal Technology Division (NSWC IHEODTD). Mr. Johnson directs a multi-site workforce of approximately 1,900 employees with annual operations of more than \$1 billion.

NSWC IHEODTD is charged with leading the Department of Navy in providing energetics, ordnance and EOD technical capabilities for all DoD interests through research, development, testing, evaluation, engineering, manufacturing and in-service support. During his tenure as technical director, Mr. Johnson has led the development of several major initiatives: a comprehensive strategic plan to revitalize and reinvigorate the facility and workload; a business case analysis to ensure optimal capabilities are maintained and developed; and the implementation of Center for Industrial Technical Excellence partnerships.

Mr. Johnson also serves under the Chief Engineer of the Navy as the Deputy Warrant Officer for Explosive Ordnance Engineering (SEA-O5E).

Mr. Johnson began his career at the former NSWC Indian Head Division in 1987 and spent the next 12 years managing the command's manufacturing operations for missile, torpedo and projectile warhead production. From 1999 – 2001, he managed and directed facilities and personnel within the command's Surface Weapons and Ammunition Program. Mr. Johnson served as the Navy's official spokesperson for the scale-up and production of nitramine gun propellants during the Gulf War.

From 2006 – 2014, Mr. Johnson served as the acting department head and director for the Office of Naval Research's Hybrid Complex Warfare Science Division where he managed and directed the integration of a science and technology (S&T) program consisting of basic and applied research, advanced technology development and other

efforts. He also served as the applications director in the Expeditionary Maneuver Warfare and Combating Terrorism S&T Department where he oversaw both the Future Naval Capability and Exploration and Development programs.

Mr. Johnson's other assignments included a tour as the S&T advisor at U.S. Marine Corps Forces Pacific where he served with the U.S. Marine Corps Forces Central Command to include a deployment with the 15th Marine Expeditionary Unit.

Mr. Johnson completed his undergraduate studies in 1987 and has a Bachelor of Science in mechanical engineering from the University of Rochester in Rochester, N.Y. He graduated from the Industrial College of the Armed Forces in 2008 as the Commandant's Distinguished Graduate and has a Master of Science in national resource strategy. He has completed the Defense Acquisition University Senior Acquisition Course, Navy Strategic Thinking Course and the Massachusetts Institute of Technology Seminar XXI.



DR. DAVID LAMBERT

Chief Scientist, Munitions Directorate, Air Force Research Laboratory

Dr. David E. Lambert, a member of the scientific and professional cadre of senior executives, is the Chief Scientist, Munitions Directorate, Air Force Research Laboratory, Eglin Air Force Base, Florida. He serves as the principal scientific and technical adviser to the director and is the primary authority for the technical content of the directorate's science and technology portfolio. The Munitions Directorate leads the discovery, development and integration of affordable warfighting conventional air-launched weapon technologies for the U.S. Air Force. The directorate consists of a staff of more than 500 military, civilian and contracted professionals pursuing a wide variety

of research and development efforts in energetic and explosives, fuzes, warheads, missile seekers, guidance, navigation and control, weapon airframes, assessment methodology, and the integration of these into weapon systems.

Dr. Lambert joined the Munitions Directorate in 1987 as a mechanical engineer in the Bombs and Warheads Branch. He has fulfilled a variety of technical positions, ranging from bench level scientist, team leader, technical advisor and core technical competency leader while in AFRL/RW and its predecessor organizations (Air Force Armament Laboratory and then Wright Laboratories). Dr. Lambert is an esteemed Fellow of AFRL (inducted 2011) for his innovative research and strong technical

leadership in ordnance and weapons related sciences. He is recognized for his visionary research in detonation physics and explosive-metal systems leading to advanced warhead concepts. His research and widespread collaborations in detonation shock dynamics, non-ideal explosives and high rate material response studies has spearheaded the foundations of tomorrow's scalable and selectable effects munitions.

Dr. Lambert has published over 110 technical papers and proceedings in national and international journals and forums. He has an extensive experimental background in areas of fundamental characterization and advancement of detonation physics, focused energy warheads, penetration mechanics and ordnance integration.



MG ROBERT SCALES, USA (RET)

Former Commandant, U.S. Army War College

Retired General (Dr.) Robert Scales is one of America's best known and most respected authorities on land warfare. He is currently President of Colgen, Inc, a consulting firm specializing in issues relating to landpower, wargaming and strategic leadership. Prior to joining the private sector Dr. Scales served over thirty years in the Army, retiring as a Major General. He commanded two units in Vietnam, winning the Silver Star for action during the battles around Dong Ap Bia (Hamburger Hill) during the summer of 1969. Subsequently, he served in command and staff positions in the United States, Germany, and Korea and ended his military career as Commandant of the United States Army War College. In 1995, he created the Army After Next program which was the Army's first attempt to build a strategic game and operational concept for future land warfare. He has written and lectured on warfare to academic, government, military,

and business groups in the United States, Australia, Asia, the Middle East, Europe, and South America. He is the author of two books on military history: *Certain Victory*, the official account of the Army in the Gulf War and *Firepower in Limited War*, a history of the evolution of firepower doctrine since the end of the Korean War. In addition, he is an authority on contemporary and future warfare. Concepts and ideas contained in his writings and studies have significantly influenced the course of contemporary modernization and reform within the military. He has written two books on the theory of warfare: *Future Warfare*, a strategic anthology on America's wars to come and *Yellow Smoke: the Future of Land Warfare for America's Military*. He was the only serving officer to have written books subsequently selected for inclusion in the official reading lists of three services; *Certain Victory* for the Army, *Firepower* for the Marine Corps and *Yellow Smoke* for the Navy. Congressman Ike Skelton has included *Yellow Smoke* in his National Security Book List sponsored

by National Defense University. His latest work, *The Iraq War: a Military History*, written with Williamson Murray has been reviewed very favorably by the New York Times, Atlantic and Foreign Affairs. He is a frequent consultant with the senior leadership of every service in the Department of Defense as well as Congress and many allied militaries. He is senior military analyst for The BBC, National Public Radio and Fox News Network. He has appeared as a commentator on The History Channel., The Discovery Channel, PBS, TLC, Channel 4 (France), NTK (Japan) and Star Television (China). His commentary is carried frequently on all major television outlets in the Peoples Republic of China. He has written for and been frequently quoted in The New York Post, The Wall Street Journal, The Washington Times, Time Magazine, Newsweek, Roll Call and virtually every service defense periodical and media network on issues relating to military history, future warfare and defense policy. He is a graduate of West Point and earned his PhD in history from Duke University.



EXHIBITORS BY BOOTH NUMBER

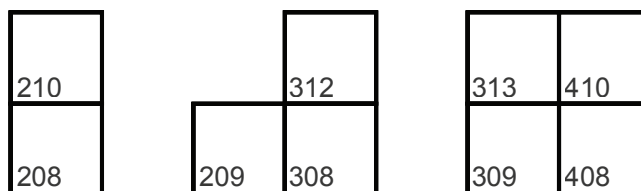
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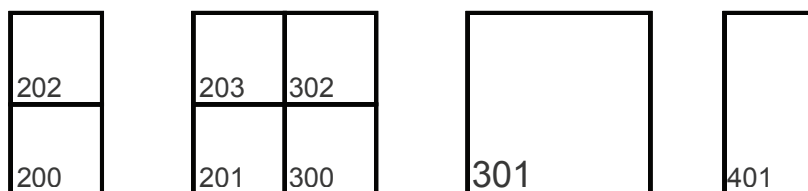
TUESDAY, JUNE 4
9:30 am – 6:30 pm

WEDNESDAY, JUNE 5
9:30 am – 6:00 pm

EXHIBIT HALL MAP



Networking Breaks & Receptions



EXHIBITOR DESCRIPTIONS

AIMPOINT, INC. 208

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.

ARROW TECH ASSOCIATES 202

Arrow Tech Associates is a small Non traditional contractor located in South Burlington, VT specializing in ammunition design including exterior, interior ballistics, trajectory simulation and reconstruction, test data analysis, structural analysis and design (interior balloting, case chamber interaction, sabot design), Guidance, Navigation and Control, Hardware in the Loop (HIL) Development, Truth Modeling (Firing Tables and Fire Control) along with Technical and Program Management.

BARRETT 209

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.

CBC 408

World leader in ammunition for portable weapons and one of the main suppliers to NATO, CBC is the premier Defense brand in the small caliber segment. CBC products are used globally and contribute to the protection and security of millions of people.

DEFENSE SYSTEMS INFORMATION ANALYSIS CENTER (DSIAC) 200

The Defense Systems Information Analysis Center (DSIAC) is a component of the U.S. Department of Defense's (DoD's) Information Analysis Center. As an information and knowledge resource for DoD, DSIAC leverages expertise and knowledge from other Government agencies, research laboratories, industry, and academia to help solve the toughest scientific and technical problems of the Defense Systems community.

GENERAL DYNAMICS - OTS 301

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.

HECKLER & KOCH DEFENSE 312

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.

HIPERFIRE 203

HIGH PERFORMANCE FIREARMS, LLC dba HIPERFIRE is a firearms technology company, bringing proprietary innovation mainstream. Our solutions are novel, unexpected. Others see problems, we see opportunity. Our products transform the shooter and shooting experience in new ways making elevated skill and excellence more accessible to Everyman, civilian and warfighter. HIPERFIRE is veteran operated. Our products are made in the USA by Americans.

KISTLER INSTRUMENT CORP. 302

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. This year, we will showcase the 6239A used in a tangential mounting configuration directly touching the plastic cartridge. This setup eliminates the need for drilling each shot shell prior to the ballistic pressure measurement.

KNIGHT'S ARMAMENT COMPANY 313

Knight's Armament Company is the premier U.S. developer and manufacturer of Small Arms, Signature Reduction Devices, Night Vision Equipment and Accessories for military and law enforcement globally.

LMT DEFENSE 210

Est. in 1980, Lewis Machine & Tool Company manufactures M4 type carbines, 7.62 x 51 rifles, and M203 40mm launchers. LMT is 100% US made and an ISO 9001:2015 registered US Govt. GSA contractor. Models include the MWS classified by the UK MOD as the L129A1 DMR and the 5.56 x 45 monolithic rifle with ambidextrous features, classified as the MARS-L, Modular Ambidextrous Rifle System, Light. Our products are currently in service with the US Govt., SOCOM, and 40 countries around the world.

NATIONAL ARMAMENTS CONSORTIUM (NAC) 300

The National Armaments Consortium (NAC) serves as the industry partner for the Department of Defense Ordnance Technology Consortium's (DOTC) and the Aviation and Missile Technology Consortium (AMTC). Our robust, transparent, and unique collaboration approach, once considered a novel and unrealistic concept, has evolved into a well-established process through which our DoD stakeholders acquire the innovative Armament technologies needed to maintain U.S. technological superiority.

RUGER FIREARMS 201

Ruger has a long history of serving the Law Enforcement and Military communities with both handguns and rifles. That tradition continues with a number of firearms designed to meet the continually changing needs of both Law Enforcement and Military professionals. From the Mini-14®, AR-556 SBR and the PC Carbine™ to the Ruger American Pistol® and LCP® II, Ruger has a firearm for individual officer back up and off-duty use, departmental issue or Military use.

SECUBIT 309

Secubit's solution combines three integrated technological components: The revolutionary WeaponLogic Smart Counter, a powerful handheld Reader and a centralized Dashboard and analytics system. Together, they provide a comprehensive new analytical approach for effective weapon management and maintenance. Monitor Weapon AND Operator. Waterproof. Battery life of 10 years. Future integration with NETT Warrior, Real -Time Track weapon performance Rugged MIL-STD-810G compliant mobile reader

SMALL ARMS DEFENSE JOURNAL 410

Distributed at defense trade shows worldwide, Small Arms Defense Journal is a bimonthly publication focused on small arms, accessories, soldier gear, new products, industry news, and defense trade show reviews. Small Arms Review is a 10 issue publication. Our aim is to provide a forum for all aspects of Class 3 interests and the military small arms industry. Semper Fi highlights the charitable works and fellowship of the Marine Corps League and covers league and chapter events across the U.S.A.

TEXTRON SYTEMS 308

Textron Systems' innovative approach to lightweight weapons and ammunition significantly reduces the warfighter's burden, while maintaining the same trusted performance of current systems. Visit us at booth #308 to learn more!

TRIJICON 401

Backed by a limited-lifetime warranty, Trijicon's aiming systems are proven on the range and in the field. As a result, Trijicon has earned the trust of those who are most in need of aiming accuracy and dependability. Our customers include the United States Marine Corps, United States Army, United States Special Operations Forces, United States Government, and state and local Law Enforcement.



Going above and beyond to create innovative, customized
Solutions.



*Concurrent
Technologies
Corporation*



*Enterprise
Ventures
Corporation*

Concurrent Technologies Corporation (CTC) is an independent, nonprofit, applied scientific research and development professional services organization. Together with our affiliate, Enterprise Ventures Corporation (EVC), we leverage research, development, test and evaluation work to provide transformative, full lifecycle solutions.

CTC has a long history of ammunition research, development, and testing. The company is now focusing on an alternative metallic case design that provides significant improvements over conventional ammunition manufacturing processes and costs, performance, and weight. CTC has received national recognition for its innovative approach to manufacturing lightweight ammunition that improves logistics and the end products.

Visit ctc.com and evc.ctc.com to learn more.



CTC and EVC are Equal Opportunity Employers.