INTERNATIONAL INFANTRY & JOINT SERVICES
SMALL ARMS SYSTEMS
SYMPOSIUM, EXHIBITION & FIRING DEMONSTRATION

“Enhancing Small Arms Effectiveness in Current and Future Operations”
**MONDAY MAY 23 2011**

8:00 am - 3:00 pm  EXHIBITOR MOVE-IN

8:00 am - 6:30 pm  REGISTRATION OPEN

1:00 pm - 4:30 pm  TUTORIAL SESSIONS

1:00 pm - 2:00 pm  The Application of Technology Readiness Level Assessments in JSSAP (12186)
  - Mr. Wai Luk, *U.S. Army ARDEC*
  - Ms. Jean Choi, *U.S. Army ARDEC*

2:15 pm - 3:15 pm  2011 ITAR Update (12400)
  - Mr. Jason Wong, *Firearms Law Group*

3:30 pm - 4:30 pm  National Small Arms Center Educational Initiative (12417)
  - Dr. Ram Narayanan, *Pennsylvania State University*
  - Dr. Stephen Small, *U.S. Army ARDEC*

5:00 pm - 6:30 pm  RECEPTION - EXHIBIT HALL

**TUESDAY MAY 24 2011**

7:00 am - 6:30 pm  REGISTRATION OPEN

7:00 am - 8:00 am  CONTINENTAL BREAKFAST - FOYER

8:00 am - 8:10 am  WELCOME AND ADMINISTRATIVE REMARKS - REGENCY BALLROOM 4-5
  - Mr. Sam Campagna, Assistant Vice President, Operations, NDIA
  - Mr. Brian Berger, Vice President and General Manager, Simunition Operations, General Dynamics-OTS Canada; NDIA Small Arms Committee Chairman

8:10 am - 8:30 am  KEYNOTE ADDRESS
  - MG R. Martin Umbarger, ARNG, *Adjutant General of Indiana*

8:30 am - 8:50 am  KEYNOTE ADDRESS
  - LTG John Mulholland, USA, *Commanding General, USASOC (Airborne)*

8:50 am - 10:10 am  JSSAST PANEL (12176)
  **Moderator:** COL Scott Armstrong, USA, *Chairman, JSSAST; U.S. Army ARDEC*
  **Panelists:**
  - COL Geoffrey Ellerson, USA
  - CAPT Robert Stohlman, USCG
  - Mr. Charles Zeller, USN
  - Col Patrick Lopardi, USAF
  - LtCol Mark Brinkman, USMC
  - COL James Smith, USA, USSOCOM
  - Mr. Kevin Swenson, USMC, JNLWD
  - COL Douglas Tamilio, USA, PMSW

10:10 am - 10:40 am  BREAK - EXHIBIT HALL

10:40 am - 11:40 am  PM MAS SESSION
  - Mr. William Sanville, *DPM MAS*
  - LTC Jeffrey Woods, USA, *DPM Small Cal Ammo*

11:40 am - 12:35 pm  AWARDS LUNCHEON - GRIFFIN HALL
  - CHINN AWARD presented to Mr. Charles Buxton, *Naval Surface Warfare Center*
  *Presented by Mr. Steve Faintich, St. Marks Powder*
  - HATHCOCK AWARD presented to SGM Jason Beighley, USA (Ret)
  *Presented by Mr. Jim Schatz, LVT, Inc.*
12:40 pm - 1:00 pm
UPDATE ON INTERNATIONAL EFFORTS TO REGULATE MILITARY SMALL ARMS AMMUNITION
- Mr. Hays Parks, Former Senior Associate Deputy General Counsel (International Affairs), Office of General Counsel, Department of Defense

1:00 pm - 2:00 pm
PM SOLDIER WEAPONS
Session Chair: COL Doug Tamilio, USA
- LTC Tom Ryan, USA
- LTC Chris Lehner, USA
- MAJ Chris Conley, USA

2:00 pm - 4:50 pm
JOINT SERVICES SMALL ARMS PROGRAM (JSSAP) SESSION
Session Chair: Mr. Joel Goldman, Chief JSSAP Office, U.S. Army ARDEC

2:00 pm - 2:20 pm Joint Service Small Arms Program (JSSAP) Technology Research & Development Strategy (11760)
- Dr. Barton Halpern, U.S. Army ARDEC

2:20 pm - 2:40 pm Advanced Lethal Armament Technology for Small Arms (12145)
- Mr. Chris Gandy, U.S. Army ARDEC

2:40 pm - 3:00 pm Advances in Recoil Mitigation Technology for Small Arms (12167)
- Mr. Hansen Lukman, U.S. Army ARDEC

3:00 pm - 3:30 pm
BREAK - EXHIBIT HALL

3:30 pm - 3:50 pm Advanced Fire Control for Small Arms (12141)
- Dr. Eric Beckel, U.S. Army ARDEC

3:50 pm - 4:10 pm Lightweight Small Arms Technologies - The Final Installment (12170)
- Mrs. Kori Phillips, U.S. Army ARDEC

4:10 pm - 4:30 pm Facility Infrastructure Study for Caseless Ammunition (12599)
- Mr. Christopher Perhala, Battelle

4:30 pm - 4:50 pm National Small Arms Center/National Small Arms Technology Consortium (12190)
- Mr. Frank Puzycki, U.S. Army ARDEC

5:00 pm - 6:30 pm
RECEPTION - EXHIBIT HALL

WEDNESDAY MAY 25 2011

7:00 am - 4:50 pm
REGISTRATION OPEN

7:00 am - 8:10 am
CONTINENTAL BREAKFAST - FOYER

8:10 am - 4:50 pm
CONCURRENT SESSIONS

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Chair</th>
<th>Topic</th>
<th>Time</th>
<th>Session Chair</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:10 am</td>
<td>Mr. Tim Ream, NSWC Crane</td>
<td>12407 - U.S. Coast Guard Caliber .40 Ammunition</td>
<td>8:30 am</td>
<td>Mr. Adam Jacob, U.S. Army ARDEC</td>
<td>12430 - Lightweight Small Caliber Ammunition</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mr. Jim Schatz, LVT, Inc.</td>
<td></td>
<td></td>
<td>Mr. Adam Jacob, U.S. Army ARDEC</td>
<td>12118 - Development of an Alternate M240B Ammunition Container for Coast Guard HH65 Aircraft</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>Session 1</td>
<td>Session 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>-----------</td>
<td>-----------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mr. Jim Schatz, LVT, Inc.</td>
<td>Mr. Christopher Brown, NSWC Crane</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:10 am</td>
<td>12322 - .50 Cal. Advanced Propellants</td>
<td>12221 - Weapon Command and Control System for the MH-60S</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mr. Jonathan Howard, St. Marks Powder</td>
<td>Mr. William Reed, NSWC Crane</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:30 am</td>
<td>12437 - Solid Propellant Propulsion System for Low-Velocity, Non-Lethal Projectiles with High Initial Thrust for Spin Stabilization from Fast-Twist Rifling</td>
<td>12570 - Increasing ROWS Lethality with Optical Weapon Detection Systems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dr. Jeffrey Widder, Battelle</td>
<td>Dr. Pete Weiland, Radiance Technologies</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9:50 am - 10:20 am  BREAK - EXHIBIT HALL
10:20 am - 11:40 am  CONCURRENT SESSIONS CONTINUED

<table>
<thead>
<tr>
<th>Time</th>
<th>Session 1</th>
<th>Session 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:20 am</td>
<td>12612 - 40mm High Explosive Multi-Mode (HEMM) Grenade Concepts</td>
<td>12257 - 360º Slew to Cue on the CROWS II</td>
</tr>
<tr>
<td></td>
<td>Mr. Christopher Perhala, Battelle</td>
<td>Mr. Tim Eagleson, Kollmorgen Electro Optical</td>
</tr>
<tr>
<td>10:40 am</td>
<td>12759 - Cartridge Case Development: Continued Success with an Advanced Lightweight Material</td>
<td>12414 - Advanced Remote/Robotic Armament System (ARAS)</td>
</tr>
<tr>
<td></td>
<td>Mr. Christian Miller, ATK Armament Systems</td>
<td>Mr. Robert Testa, U.S. Army ARDEC</td>
</tr>
<tr>
<td>11:00 am</td>
<td>12200 - 7.62mm Lethal Limited Range Round</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mr. Stephen McFarlane, U.S. Army</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Session 1</th>
<th>Session 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:20 am</td>
<td>12343 - Influence of Material Properties on Cartridge Case Function</td>
<td>12171 - Non Lethal Capabilities International Approach, Current/Future</td>
</tr>
<tr>
<td></td>
<td>Mr. Daniel Gubernat, U.S. Army RDECOM-ARDEC</td>
<td>Mr. John Edwards, U.S. Army ARDEC</td>
</tr>
</tbody>
</table>

11:40 am - 1:00 pm  LUNCHEON SPEAKER - GRIFFIN HALL
"Hidden Histories: American Small Arms - Making (1798-1830)"
  Dr. Stephen Small, JSSAP
### REGENCY BALLROOM 5
**MODELING & SIMULATION**

*Session Chair: Mr. Mark Minisi, U.S. Army ARDEC*

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker/Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00 pm</td>
<td>11872 - Update on Gas Flow and Heat Transfer Modeling in Small Arms Systems</td>
<td>Dr. Laurie Florio, <em>U.S. Army ARDEC</em></td>
</tr>
<tr>
<td>1:40 pm</td>
<td>12620 - Lubrication’s Contribution to Ammunition Failure</td>
<td>Mr. Mark Minisi, <em>U.S. Army ARDEC</em></td>
</tr>
<tr>
<td>2:00 pm</td>
<td>12441 - Ballistic Performance of Steels and Aluminums in FE Firing Simulations</td>
<td>Dr. Justin Mach, <em>ATK Small Caliber Systems</em></td>
</tr>
<tr>
<td>2:20 pm</td>
<td>12720 - Measuring and Simulating Weapons Shock and its Effect on Mounted Accessories</td>
<td>Mr. James Donovan, <em>NSWC Crane</em></td>
</tr>
</tbody>
</table>

### REGENCY BALLROOM 4
**INTERNATIONAL**

*Session Chair: Mr. John Edwards, U.S. Army ARDEC*

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker/Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00 pm</td>
<td>12314 - The Evolution of Nammo’s 40mm x 53 AGL Ammunition</td>
<td>Mr. Helge Stadheim, <em>Nammo Raufoss</em></td>
</tr>
<tr>
<td>1:20 pm</td>
<td>12315 - NATO Small Arms Ammunition Interchangeability via Direct Evidence Testing</td>
<td>Mr. Dominic Pellegrino, <em>U.S. Army ARDEC</em></td>
</tr>
<tr>
<td>1:40 pm</td>
<td>12333 - Introduction to Chinese Grenade Launchers? Part II?</td>
<td>Ms. Juan-juan Yang, <em>China R&amp;S Academy Machinery</em></td>
</tr>
<tr>
<td>2:00 pm</td>
<td>12397 - Improving In-Service Small Arms Systems; An Australian Experience</td>
<td>Mr. Graham Evenden, <em>Thales Australia</em></td>
</tr>
<tr>
<td>2:20 pm</td>
<td>12402 - Multifunctional Cartridge Technology</td>
<td>Mr. An Baolin, <em>Small Arms Research Institute, PLA</em></td>
</tr>
<tr>
<td>3:10 pm</td>
<td>12299 - The HAMR Project</td>
<td>Mr. Xavier Gavage, <em>FN Herstal</em></td>
</tr>
<tr>
<td>3:30 pm</td>
<td>12299 - The HAMR Project</td>
<td>Mr. Fredrik Eringe, <em>Nammo Talley</em></td>
</tr>
</tbody>
</table>

### REGENCY BALLROOM 5
**WEAPONS**

*Session Chair: Mr. T.C. Phillips, FN USA, LLC*

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker/Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:10 pm</td>
<td>12109 - Rapid Development and Integration of Remote Weapon Systems to Meet Operational Requirements</td>
<td>Mr. Joseph Burkart, <em>NSWC Crane</em></td>
</tr>
<tr>
<td>3:30 pm</td>
<td>12252 - Explosively-Clad Refractory Barrel Liners for Small Caliber Machine Guns</td>
<td>Dr. Douglas Taylor, <em>TPL, Inc.</em></td>
</tr>
<tr>
<td>3:50 pm</td>
<td>12299 - The HAMR Project</td>
<td>Mr. Xavier Gavage, <em>FN Herstal</em></td>
</tr>
</tbody>
</table>

### REGENCY BALLROOM 4
**INTERNATIONAL**

*Session Chair: Mr. John Edwards, U.S. Army ARDEC*

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker/Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:10 pm</td>
<td>12677 - The MK 19 Capability Upgrade Package: The Rheinmetall Velan Programmable Airburst Ammunition &amp; Vingmate Fire Control Unit</td>
<td>Mr. Franz von Stauffenberg, <em>Rheinmetall Waffe Munition GmbH</em></td>
</tr>
<tr>
<td>3:30 pm</td>
<td>12330 - 40mm Low Velocity Air-Burst Munitions System</td>
<td>Mr. Aw Cheng Hok, <em>ST Kinetics</em></td>
</tr>
</tbody>
</table>

---

**AGENDA: 05/25/11**

- **2:40 pm - 3:10 pm**: Break - Exhibit Hall
- **3:10 pm - 4:50 pm**: Concurrent Sessions Continued
THURSDAY MAY 26 2011

7:00 am - 12:00 pm  REGISTRATION OPEN

7:00 am - 8:00 am  CONTINENTAL BREAKFAST - FOYER

8:00 am - 8:10 am  ADMINISTRATIVE ANNOUNCEMENTS - REGENCY BALLROOM 4-5
                  ▶  Mr. Brian Berger, Vice President and General Manager, Simunition Operations, General Dynamics-OTS Canada; NDIA Small Arms Committee Chairman

8:10 am - 8:30 am  State of the NDIA and New Non-Traditional Armament Section
                  ▶  Mr. Dave Broden, Broden Resource Solutions, LLC; NDIA Armaments Division Chair
                  ▶  Mr. Peter Spatharis, Chief Executive Officer, ACAGI; NDIA Non-Traditional Committee Chair

8:30 am - 10:50 am  WARFIGHTER EFFECTIVENESS
                     Session Chair: MAJ Matthew Bowler, USA, U.S. Army ARDEC
                     8:30 am - 8:50 am  XM25 Individual Semi-Automatic Airburst System (ISAAS) (12439)
                            ▶  Mr. Michael Stucki, ATK
                     8:50 am - 9:10 am  Wireless Technologies for Enhancing Small Arms Effectiveness (12546)
                            ▶  Dr. Ram Narayanan, Pennsylvania State University
                     9:10 am - 9:30 am  Technical Description Methods Used in the Measurements of Accuracy/Percision (12901)
                            ▶  Mr. Charles Marsh, NSWC Crane
                     9:30 am - 9:50 am  BREAK - FOYER
                     9:50 am - 10:10 am  SWEAT Course (12791)
                            ▶  Mr. Michael Wilson, U.S. Army ARDEC
                     10:10 am - 10:30 am  Aggressor Suppression via the Use of Non-Lethal Projectiles and Launcher Systems (12267)
                            ▶  Mr. Dan Hartman, General Dynamics-OTS
                     10:30 am - 10:50 am  Rapid Acquisition of Crew Served Weapons Accessories (12499)
                            ▶  Mr. Jason Davis, NSWC Crane

10:50 am - 11:15 am  Closing Remarks
                     ▶  Mr. Brian Berger, Vice President and General Manager, Simunition Operations, General Dynamics-OTS Canada; NDIA Small Arms Committee Chairman

12:00 pm - 12:15 pm  Board Buses for Firing Demonstration

1:30 pm - 4:30 pm  Firing Demonstration at Camp Atterbury
                  ▶  Lunch provided at Camp Atterbury
AWARD INFORMATION

CHINN AWARD
The Chinn Award is presented annually to honor a government or industry individual who, in the opinion of the Small Arms Committee Executive Board, has made significant contributions to the field of small arms and/or infantry weapons systems. A significant contribution is considered to be a creative invention, new design or innovative concept in small arms weapons, ammunition or ancillary equipment that provides an advancement in the state-of-the-art or capability enhancement that clearly benefits the warfighting or general military capability of the U.S. The Chinn Award may also be conferred as recognition to an individual who has performed sustained superior service in a career field of science, engineering, test and evaluation, manufacturing program management, academic study and research, publishing or maintenance relating to military small arms or infantry weapons.

The Chinn Award is named in honor of LtCol George M. Chinn, USMC, a career Marine who dedicated his life to the study, development and refinement of machine gun mechanisms. LtCol Chinn is remembered for his work as a gun designer and for having compiled a five volume reference work entitled, “The Machine Gun.”

Presented to Mr. Charles Buxton, Naval Surface Warfare Center

HATHCOCK AWARD
The Hathcock Award is presented to recognize an individual who, in the opinion of the Small Arms Committee Executive Board, has made significant contributions in operational employment and tactics of small arms weapons systems which have impacted the readiness and capabilities of the U.S. military or law enforcement. A significant contribution is considered to be a superior performance of duties in an operational environment or the development of tactics or training.

The Hathcock Award is named in honor of Gunnery Sergeant Carlos N. Hathcock, II, USMC, a career Marine who dedicated his life to the service of this country in both the military and law enforcement communities. He was honest, tactful, considerate, courageous, quietly proud and determined in all things and all places from the range to the battlefield. “The Gunny” not only distinguished himself in combat as a scout-sniper, but also as a competitive marksman and trainer. In his capacity as a trainer, he not only significantly impacted the current United States Marine Corps Scout-Sniper Program, but also influenced the sniper programs of the other military services and similar law enforcement programs nationwide.

Presented to SGM Jason Beighley, USA (Ret)
EXHIBITING COMPANIES

Advanced Interactive Systems, Inc 19
Aimpoint, Inc 426
Airtronic USA 225
American Rheinmetall Munitions 214
American Sniper 223
Anniston Army Depot 407
ARDEC 314
ARES, Inc. 425
Armament Technology Incorporated 226
Arrow Tech 510
Ashbury International Group, Inc. 519
ATK 424
Avion Solutions Inc 526
Badger Ordnance 224
Barrett 18
Beretta USA Corp. 213
Capco, Inc. 219
Chemring Ordnance, Inc. 15
Colt Defense, LLC 404
Combined Systems, Inc. 520
Command Arms EMA Tactical 14
Contract Fabrication & Design 423
Dayton T. Brown, Inc. 503
DSG Technology AS 321
FNH USA, Inc. 414
GEMTECH 410
General Dynamics Armament and Technical Products 201
General Dynamics-OTS 220
Glock, Inc. 303
GSA Service, Co. 215
Heckler & Koch 309
ITT Enidine, Inc. 506
Joint Service Small Arms Program 308
KDH Defense Systems, Inc. 207
Knight’s Armament Company 408
Lancer Systems 209
LaRue Tactical 419
Laser Devices, Inc. 210
Laser Shot 516
Lasermax 521
Magpul Industries Corp. 508
Manroy Defense Systems 525
Marine Corps Logistics Command 204
MAST Technology, Inc. 326
McNett Corporation 323
Metal Storm Inc. 16
MICOR Industries 325
MILKOR USA, Inc. 518
Mission First Tactical 514
NIC Industries, Inc. 524
Nobles Manufacturing, Inc. 203
NSWC Crane 411
Ohio Ordnance Works, Inc. 221
Olin-Winchester 319
Otis Technology 509
Pelican Products 206
Platt Mounts - USA, Inc. 421
PM Soldier Weapons 304
Remington Arms 505
Ringfeder Corporation 211
Rock Island Arsenal 409
RUAG Ammotec 420
Samson Manufacturing 522
Schuler 422
Sierra Bullets 208
SIG SAUER 17
Silynx Communications, Inc 512
Small Arms Defense Journal 13
Smith & Wesson 324
Sturm, Ruger 504
TASER International 523
Textron Systems 11
Trijicon 320
US Ordnance 305
Vectronix, Inc. 12
VingTech 313

POSTER PRESENTATIONS

11451 - 300 ACC Blackout (7.62x35mm)
▶ Mr. Robert Silvers, Advanced Armament Corp.

12264 - Adapter for GREM Use on Short Barrel Rifles
▶ Mr. Anthony Hawthorne, U.S. Army

12269 - Advanced Aluminum Alloys Enabling High Performance Firearm Components
▶ Mr. Travis Schmidt, Alcoa Forgings & Extrusions

12329 - C4Grip - World’s First 2m Immersible Assault Rifle Smart Forward Grip
▶ Mr. Gil Limonchik, Silynx Communications, Inc.

12443 - RESET’s Rifle Integrated Power/Data Rail (RIPR)
▶ Mr. Mike Stucki, ATK

12445 - Multi Environment Ammunitions (MEA)
▶ Mr. SG Chung, International Trade & Tech

11582 - Small Caliber Dispersion Modeling
▶ Mr. Jeff Siewert, Arrow Tech Associates, Inc.

12478 - Enhancing the “Sniper” Effectiveness in Current and Future Operations
▶ Ms. Kim Dahl, Nammo Raufoss AS

12540 - High Speed, Three Dimensional Data Capture of Ballistic Impact, Fragmentation and Behind Armor Debris
▶ Mr. Oliver Frank, Airtronic, Inc.
<table>
<thead>
<tr>
<th>Abstract</th>
<th>Abstract Title</th>
<th>Secondary Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>12167</td>
<td>Advances in Recoil Mitigation Technology For Small Arms</td>
<td>Dr. Kevin Russell, P.E.</td>
</tr>
<tr>
<td>12176</td>
<td>Joint Service Small Arms Synchronization Team (JSSAST) Panel</td>
<td>COL Geoffrey Ellerson, Mr. Chuck Zeller, COL Patrick Lopardi, LtCol Mark Brinkman</td>
</tr>
<tr>
<td>12186</td>
<td>The Application of Technology Readiness Level Assessments in JSSAP</td>
<td>Ms. Jean Choi</td>
</tr>
<tr>
<td>12190</td>
<td>National Small Arms Center/National Small Arms Technology Consortium</td>
<td>Mr. Karl Lewis</td>
</tr>
<tr>
<td>12200</td>
<td>7.62mm Lethal Limited Range Round</td>
<td>Mr. Sung Chung</td>
</tr>
<tr>
<td>12257</td>
<td>360º Slew to Cue on the CROWS II</td>
<td>Mr. Michael Rose</td>
</tr>
<tr>
<td>12267</td>
<td>Aggressor Suppression via the Use of Non-Lethal Projectiles and Launcher Systems</td>
<td>Mr. Dan Hartman</td>
</tr>
<tr>
<td>12315</td>
<td>NATO Small Arms Ammunition Interchangeability via Direct Evidence Testing</td>
<td>Mr. Charles Kirkman</td>
</tr>
<tr>
<td>12322</td>
<td>.50 CAL. Advanced Propellants</td>
<td>Mr. Steve Faintich</td>
</tr>
<tr>
<td>12333</td>
<td>Introduction to Chinese Grenade Launchers?Part II?</td>
<td>Mr. Yulin Wang, Mr. Yuenong Dong, Mr. Yinguo Jin, Ms. Herui Mao</td>
</tr>
<tr>
<td>12338</td>
<td>Small Arms Flash Measurement</td>
<td>Mr. Mark Johnson</td>
</tr>
<tr>
<td>12343</td>
<td>Influence of Material Properties on Cartridge Case Function</td>
<td>Ms. Connie Hacket</td>
</tr>
<tr>
<td>12397</td>
<td>Improving In-Service Small Arms Systems; An Australian Experience</td>
<td>Mr. Collin Galvin</td>
</tr>
<tr>
<td>12402</td>
<td>Multifunctional Cartridge Technology</td>
<td>Mr. Ma Ligang</td>
</tr>
<tr>
<td>12414</td>
<td>Advanced Remote/Robotic Armament System (ARAS)</td>
<td>Mr. William Burgermeister, Mr. Brian Hoffman</td>
</tr>
<tr>
<td>12417</td>
<td>National Small Arms Center Educational Initiative</td>
<td>Dr. Stephen Small</td>
</tr>
<tr>
<td>12419</td>
<td>M2 HB Gun System Modeling and Simulation in Support of New Cartridge Development</td>
<td>Mr. Jon Conner</td>
</tr>
<tr>
<td>12430</td>
<td>Lightweight Small Caliber Ammunition</td>
<td>Mr. Stephane Lepine</td>
</tr>
<tr>
<td>12437</td>
<td>Solid Propellant Propulsion System for Low-Velocity, Non-Lethal Projectiles with High Initial Thrust for Spin Stabilization from Fast-Twist Rifling</td>
<td>Mr. Christopher Perhala, Mr. James Rascoe</td>
</tr>
<tr>
<td>12439</td>
<td>XM25/ Individual Semi-Automatic Airburst System (ISAAS)</td>
<td>Mr. Mike Stucki, Mrs. Barbara Muldowney, LTC Christopher Lehner</td>
</tr>
<tr>
<td>12441</td>
<td>Ballistic Performance of Steels and Aluminum in FE Firing Simulations</td>
<td>Mr. Mark Lee</td>
</tr>
<tr>
<td>12482</td>
<td>S&amp;T Activities in Support of the Canadian Small Arms Replacement Program</td>
<td>Mr. Gilles Pageau, Maj Bruce Gilchrist, LCol Luc Angiolini, LCol Mike Bodner</td>
</tr>
<tr>
<td>12570</td>
<td>Increasing ROWS Lethality with Optical Weapon Detection Systems</td>
<td>Dr. Pete Weiland</td>
</tr>
<tr>
<td>12599</td>
<td>Facility Infrastructure Study for Caseless Ammunition</td>
<td>Mr. Martin Hopkins, Mr. Steven Lorence, Mr. Byron Tolbert</td>
</tr>
<tr>
<td>12612</td>
<td>40mm High Explosive Multi-Mode (HEMM) Grenade Concepts</td>
<td>Dr. Michael Fisher, Mr. Richard Givens, Dr. Ivan Tornes, Mr. John Leach</td>
</tr>
<tr>
<td>12677</td>
<td>The MK 19 Capability Upgrade Package: The Rheinmetall Velan Programmable Airburst Ammunition &amp; Vingmate Fire Control Unit</td>
<td>Mr. Brian Sullivan</td>
</tr>
<tr>
<td>12818</td>
<td>Tracer Development in a Non-Conventional Plastic Moulded Frangible Projectile</td>
<td>Mr. Carol Jalbert, Mr. Etienne Munger, Mr. Christian Roy, Mr. Sylvio Prince</td>
</tr>
</tbody>
</table>
Kollmorgen Electro-Optical, located in Northampton, Massachusetts provides state-of-art imaging solutions to U.S. Army, Navy and International customers. Through close collaboration with the customer, we balance affordability with optimum technical performance. This understanding of customer needs is reflected in the design of the breakthrough O-N-E 360™ Situational Awareness System for combat vehicles. Protector O-N-E 360™ enables the war fighter to operate in a complete closed hatch environment by providing close in reconnaissance, surveillance and target acquisition. O-N-E 360™ allows the Soldiers to perform non threatening electro-optical interrogation of a target and Slew-to-Cue a remote weapon station for lethal engagements, or queue a long range electro optical system for further evaluation. The O-N-E 360™ provides a panoramic and flexible display reducing data overload and presenting the battlefield in user-friendly fashion. Integrated with CROWS, the 360° system provides an easily fielded solution to a critical capability gap.

Kollmorgen Electro-Optical recently opened a new 150,000 square foot facility located at 50 Prince Street in Northampton, MA. This modern, LEED certified center of excellence was designed for lean manufacturing. It is comprised of office and manufacturing space that facilitates a visual connection between the design, development and manufacturing of our products. The manufacturing spaces have been enclosed in glass to allow proper cleanliness, temperature and ESD control. The facility has a Class 10,000 clean room, a 65 foot tower used for vertical testing of submarine sensors and a separate, dedicated testing vestibule for Electro Optical directors. There is an Engineering Lab for the integration of prototype hardware and a Research and Development Lab used to pilot new technology and ideas. The building was designed and built with growth in mind and has 15,000 square feet of expansion space for future business needs.

Kollmorgen Electro-Optical produces the imaging systems that enable you to look, see and target threats on the battlefield.

For further information please contact Tim Eagleson at teagleson@eo.kollmorgen.com or visit our website at www.eo.kollmorgen.com.

SAVE THE DATE!
JOINT ARMAMENTS CONFERENCE, EXHIBITION & FIRING DEMONSTRATION
“21ST CENTURY WEAPON SYSTEMS - PROVIDING THE RIGHT RESPONSE”
SEATTLE, WASHINGTON, MAY 14-17, 2012
WWW.NDIA.ORG/MEETINGS/2610
THANK YOU TO OUR SPONSORS!

ATK

KOLLMORGEN
Electro-Optical

LaRue Tactical
Made dead-center of Texas, USA

www.larue.com

SCHULER