

TUESDAY 10 MAY 2016

8:00 AM - 18:15 PM	Registration Open
9:00 AM - 9:10 AM	Welcome & Administrative Remarks <i>Clive Woodley and Ian Cullis</i>
9:10 AM - 9:35 AM	Keynote Address <i>Paul Opie of DE&S, MOD</i>
9:35 AM - 10:15 AM	Keynote Address - <i>Jutland, 100 Years On - The Interior Ballistics Advances in Time</i> <i>Don Carlucci, U.S. Army ARDEC, USA; Mike Nusca, ARL, USA; Clive Woodley, QinetiQ, UK</i>
10:00 AM - 18:20 PM	Exhibit Hall Open
10:15 AM - 10:35 AM	Networking Coffee Break
10:35 AM - 11:20 AM	Keynote Address - <i>Penetration Mechanics: Analytical Modeling</i> <i>Charles Anderson, CEA, USA</i>
11:20 AM - 12:00 PM	Keynote Address - <i>Shaped Charges: What Has Been Done and Where Do We Stand?</i> <i>Pierre-Yves Chanteret, France</i>
12:00 PM - 12:05 PM	Administrative Remarks
12:05 PM - 13:25 PM	Networking Lunch
13:25 PM - 14:35 PM	General Oral Session <i>Chaired by Zhongyuan Wang and Dennis Baum</i>
13:25 PM	509 - <i>The Ballistics Performance of the Bombard Mons Meg</i> <i>Rachael McAlister, Ian Lewtas, Adam Wallis, QinetiQ, UK</i>
13:45 PM	355 - <i>Some Features and Applications of Ballistics Science and Technology in China</i> <i>Li Baoming, China Academy of Ordnance, China</i>
14:35 PM - 15:55 PM	Terminal Ballistics (TB1) Oral Session <i>Chaired by Charles Anderson and Nicholas Lynch</i>
14:35 PM	546 - <i>A Numerical Investigation on the Response of Thick Ultra-High Molecular Weight Polyethylene Composite to Ballistic Impact</i> <i>Nguyen Long, RMIT University, Australia</i>
14:55 PM	583 - <i>Back Face Deformation (BFD) Response Comparison Between KM2 and HB80 Flat Panels</i> <i>Timothy Zhang, TKC Global, USA</i>

TUESDAY, 10 MAY 2016 (CONTINUED)

- 15:15 PM 624 - Transverse Impact on S-2 Glass Yarns: Analysis of Crimp and Other Effects on the Critical and Transverse Wave Velocities
Sidney Chochron, SWRI, USA
- 15:35 PM 659 - On the Shock Response of an Ultra-High-Molecular-Weight Polyethylene Composite
David Wood, Defence Academy, UK
- 15:55 PM - 16:15 PM Networking Coffee Break
- 15:55 PM - 18:00 PM Explosion Mechanics Poster Session (P1)
Chaired by Ernie Baker and Philip Church
- 16:15 PM - 18:15 PM Interior Ballistics and Launch Dynamics (IB LD1) Oral Session
Chaired by Clive Woodley and Li Baoming
- 16:15 PM 531 - Measurement of In-Bore Side Loads and Comparison to First Maximum Yaw
Don Carlucci, U.S. Army ARDEC, USA
- 16:35 PM 614 - High Velocity Gun Launch Fragment Impact Studies and How Events Can Go Very Wrong!
John Stubberfield, QinetiQ, UK
- 16:55 PM 505 - Innovative Nitrogen-Doped Boron Propellants
Thelma Manning, U.S. Army RDECOM, ARDEC, USA
- 17:15 PM 391 - Microcellular Foaming of Cellulose Acetate Binder-Based Combustible Objects by Supercritical CO₂
Weitao Yang, Xian Modern Chemistry Institute, China
- 17:35 PM 420 - Research on Combustion Characteristic Between Plasma Ignition and High-Energy Nitramine Gun Propellant
Jiangbo Zhang, Xian Modern Chemistry Institute, China
- 17:55 PM 526 - Mass Asymmetry Assessment Using Launch Video Analysis
Ryan Decker, U.S. Army RDECOM, ARDEC, USA
- 18:15 PM Adjourn

WEDNESDAY, 11 MAY 2016

8:00 AM - 16:50 PM	Registration Open
8:30 AM - 16:50 PM	Exhibit Hall Open
9:00 AM - 9:05 AM	Administrative Remarks
9:05 AM - 12:15 PM	Interior Ballistics and Launch Dynamics Poster Session (P2) <i>Chaired by Don Carlucci, Daniel Corriveau, and John Stubberfield</i>
9:05 AM - 10:25 AM	Exterior Ballistics (EB1) Oral Session <i>Chaired by Pierre Wey and Zhongyuan Wang</i>
9:05 AM	339 - Innovative Course Correction Devices: MANEGE Program <i>Roxan Cayzac, Nexter Munitions, France</i>
9:25 AM	663 - Optimizing Guidance Strategy for Gun Launched Underactuated Weapons <i>Mark Ilg, Army Research Laboratory, USA</i>
9:45 AM	392 - On Resonance of Dual-Spin-Stabilized Projectiles Equipped with Canards <i>Sijiang Chang, Nanjing University of Science and Technology, China</i>
10:05 AM	570 - Supersonic Wake Flow Analysis of Finned Projectile Afterbodies at Various Spin Rates <i>Stephan Weidner, ISL, France</i>
10:25 AM - 10:55 AM	Networking Coffee Break
10:55 AM - 12:15 PM	Vulnerability & Survivability (V&S1) Oral Session <i>Chaired by Francisco Galvez and Deborah Carr</i>
10:55 AM	364 - Collateral Concerns in Conjunction with Weapon Effects <i>Heinrich Dorsch, IABG mbH, Germany</i>
11:15 AM	538 - Physical Mechanisms for Near-Field Blast Mitigation with Fluid Containers: Effect of Container Geometry <i>Huon Bornstein, DSTO, Australia</i>
11:35 AM	613 - Fuel Tank Vulnerability to Shaped Charge Jet <i>Thomas Hartmann, NUMERICS GmbH, Germany</i>
11:55 AM	677 - Injury Characterization Due to Penetrating Projectiles <i>Christopher Freitas, SWRI, USA</i>
12:15 PM - 13:50 PM	Networking Luncheon

WEDNESDAY, 11 MAY 2016 (CONTINUED)

- 13:50 PM - 16:50 PM Exterior Ballistics Poster Session (P3)
Chaired by Sijiang Chang and Vladimir Cech
- 13:50 PM - 15:10 PM Explosion Mechanics (EM1) Oral Session
Chaired by Paul Locking and Frikkie Mostert
- 13:50 PM 346 - Gurney Velocity Relationships
Paul Locking, BAE Systems, UK
- 14:10 PM 489 - Characterization of Shaped Charge Jet Erosion in Drilling Mud
Dennis Baum, Lawrence Livermore National Laboratories, USA
- 14:30 PM 510 - Shaped Precursor-Charge for a Multi-Effects Warhead System
Werner Arnold, MBDAS-TDW, Germany
- 14:50 PM 615 - Fragment Spatial Distribution of Continuous and Discontinuous Multi-Contoured Warheads
Kusumkant Dhote, ARDE, India
- 15:10 PM - 15:30 PM Networking Coffee Break
- 15:30 PM - 16:50 PM Terminal Ballistics (TB2) Oral Session
Chaired by Matthias Wickert and Phil Pitcher
- 15:30 PM 382 - Ballistic Resistance of Semi-Infinite and Finite-Thickness Adobe Targets
Andreas Heine, Fraunhofer EMI, Germany
- 15:50 PM 501 - Numerical Study of the Trajectory Stability of Lateral-Abnormal Projectiles Penetrating Soil at Small Angles of Attack
Qiran Sun, Nanjing University of Science and Technology, China
- 16:10 PM 607 - Simulations of a Gold Rod into Borosilicate Glass Using Experimentally Determined Constitutive Constants
Charlie Anderson, CEA Consulting, USA
- 16:30 PM 630 - Material Science Behind the Development of a New, Shapeable, Boron Carbide, Armour Material
Ian Crouch, Defence Materials Technology Centre, Australia
- 16:50 PM Adjourn
- 19:00 PM - 21:00 PM Reception at Edinburgh Castle
(see page 22 for walking directions)

THURSDAY, 12 MAY 2016

8:00 AM - 16:50 PM	Registration Open
8:30 AM - 16:50 PM	Exhibit Hall Open
9:00 AM - 9:05 AM	Welcome and Administrative Remarks
9:05 AM - 12:15 PM	Terminal Ballistics Poster Session (P4) <i>Chaired by Trent Shackelford and Manfred Salk</i>
9:05 AM - 10:25 AM	Interior Ballistics and Launch Dynamics (IB LD2) Oral Session <i>Chaired by Thelma Manning and Michael Minnicino</i>
9:05AM	672 - Influence of Chamber Misalignment on Cased Telescoped (CT) Ammunition Accuracy <i>Daniel Corriveau, Defence R&D, Canada</i>
9:25 AM	394 - Simulation of Closed Vessel Propellant Combustion Using the 2D ICT-Cellular-Combustion-Algorithm <i>Sebastian Wurster, Fraunhofer Institute for Chemical Technology, Germany</i>
9:45 AM	347 - Ambient Gas Pressure Effects on the Ignition of Pyrotechnic Countermeasure Decoy Flares <i>Clive Woodley, QinetiQ, UK</i>
10:05 AM	350 - Transient Burning Rate Model of Solid Propellant in Electrothermal-Chemical Launch <i>Yan-jie Ni, Nanjing University of Science and Technology, China</i>
10:25 AM - 10:55 AM	Networking Coffee Break
10:55 AM - 12:15 PM	Exterior Ballistics (EB2) Oral Session <i>Chaired by Marcelo Martinez and Mark Ilg</i>
10:55 AM	367 - Large-Eddy Simulation of a Turbulent Coanda Jet in an External Flow <i>Mickael Zeidler, Nexter Munitions, France</i>
11:15 AM	593 - A Direct-Fire Trajectory Model for Supersonic Through Subsonic Projectile Flight <i>Paul Weinacht, U.S. Army Research Laboratory, USA</i>
11:35 AM	381 - Improved Theory of the Generalized Meteo-Ballistic Weighting Factor Functions and Their Use <i>Vladimir Cech, Oprox, Inc., Czech Republic</i>
11:55 AM	440 - BALCO 6/7 DOF Trajectory Model <i>Pierre Wey, ISL, France</i>
12:15 PM - 13:50 PM	Networking Luncheon

THURSDAY, 12 MAY 2016 (CONTINUED)

- 13:50 PM - 16:50 PM Vulnerability and Survivability Poster Session (P5)
Chaired by Ian Crouch and Andreas Heine
- 13:50 PM - 15:10 PM Terminal Ballistics (TB3) Oral Session
Chaired by Amer Hameed and Mark French
- 13:50 PM 337 - Ballistic Testing of Australian Bisalloy Ultra-High Hardness Steel
Shannon Ryan, DSTO, Australia
- 14:10 PM 388 - Penetration and Ignition Performance of Reactive Fragments
Tracy Vine, QinetiQ, UK
- 14:30 PM 407 - Effective Depth-of-Penetration Range Due to Hardness Variation for Different Lots of Nominally Identical Target Material
Patrick Frueh, Fraunhofer EMI, Germany
- 14:50 PM 548 - Fragment-Simulating Impacts Into Aluminum Plates
Teresa Fras, ISL, France
- 15:10 PM - 15:30 PM Networking Coffee Break
- 15:30 PM - 16:50 PM Explosion Mechanics (EM2) Oral Session
Chaired by Pierre Chanteret and Adam Wisniewski
- 15:30 PM 354 - Evaluation of the Effect of an Explosive Charge Closed to a Steel Structure Plate
Lerich Denis, DGA/Tn, France
- 15:50 PM 542 - Development of a Novel Lightweight Recoilless EOD Disruptor
Douglas Kirkpatrick, Dstl, UK
- 16:10 PM 582 - Simulating Complex Blast Scenarios
Ian Cullis, QinetiQ, UK
- 16:30 PM 666 - Armor Panel Deformation Due to Simulated Land Mine Blast Testing and Simulation
James Walker, SWRI, USA
- 16:50 PM Adjourn
- 18:30 PM - 21:30 PM Symposium Banquet at National Museum Scotland
(see page 22 for walking directions)

FRIDAY, 13 MAY 2016

8:00 AM - 13:35 PM	Registration Open
9:00 AM - 9:05 AM	Welcome and Administrative Remarks
9:05 AM - 10:25 AM	Interior Ballistics and Launch Dynamics (IB LD3) Oral Session <i>Chaired by Nicholas Echtes and Axel Saettler</i>
9:05 AM	592 - Simulation of Asymmetric Shot Start in Small Caliber Ammunition <i>Michael Minnicino, ARL, USA</i>
9:25 AM	581 - Continuous Solvent-Free Extrusion of Propellant for 35 mm Caliber Ammunition <i>Chris van Driel, TNO, The Netherlands</i>
9:45 AM	372 - 3D Numerical Simulation and Analysis of Railgun Gouging Mechanism <i>JinGuo Wu, National Key Laboratory of Transient Physics, China</i>
10:05 AM	617 - A Novel Technique to Measure Small Caliber Projectile Balloting <i>John Ritter, ARL, USA</i>
10:25 AM - 10:55 AM	Networking Coffee Break
10:55 AM - 12:15 PM	Terminal Ballistics (TB4) Oral Session <i>Chaired by Sidney Chocron and Tom Mason</i>
10:55 AM	556 - Combined Approach for Characterization of Shaped Charge Jet Penetration <i>Vitaly Leus, Rafael, Israel</i>
11:15 AM	657 - Effect of Add-On Explosive Reactive Armor on EFP Penetration <i>Yangyang Wang, Beijing Institute of Technology, China</i>
11:35 AM	446 - Development and Validation of High Strain Rate Model for Water Ice <i>Philip Church, QinetiQ, UK</i>
11:55 AM	636 - Evaluation of Held's Criteria (V2D) vs. Penetration for a Small Shaped Charge Warhead <i>Arthur Daniels, U.S. Army ARDEC, USA</i>
12:15 PM - 13:30 PM	Presentation of Awards Louis and Edith Zernow Award <i>Tribute to Lou Zernow by Dennis Baum and Richard Zernow</i> <i>Presentation of Award by Lenore Zernow</i> Rosalind & Pei Chi Chou Award for Best Young Author Neill Griffiths Award for Best Shaped Charge Warhead Paper SABO Award for Best Poster Paper
13:30 PM - 13:35 PM	Invitation to the 30 th International Symposium on Ballistics <i>Long Beach, California, USA</i>
13:35 PM	Symposium Adjourned
13:40 PM - 14:15 PM	Society Business Meeting