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IBS

26th International Symposium on BALLISTICS

Sponsored by the International Ballistics Society in association with the Ballistics Division of the National Defense Industrial Association

SEPTEMBER 12-16, 2011
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HYATT REGENCY MIAMI ▸ MIAMI, FLORIDA

EVENT #1210

26th INTERNATIONAL SYMPOSIUM ON BALLISTICS

SEPTEMBER 12-16, 2011 ▸ MIAMI, FLORIDA, USA

The International Symposium on Ballistics is an opportunity for ballistics scientists, engineers, and others to report, share, and discuss current research and advances in ballistics and visions of the future. The International Symposium on Ballistics is jointly organized and supported by the International Ballistics Society (IBS), in conjunction with the National Defense Industrial Association (NDIA), Arlington, Virginia, USA.

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PREVIOUS INTERNATIONAL SYMPOSIA ON BALLISTICS

- Orlando, Florida, USA 1974
- Daytona, Florida, USA 1976
- Karlsruhe, Germany 1977
- Monterey, California, USA 1978
- Toulouse, France 1980
- Orlando, Florida, USA 1981
- The Hague, The Netherlands 1983
- Orlando, Florida, USA 1984
- Shrivenham, UK 1986
- San Diego, California, USA 1987
- Brussels, Belgium 1989
- San Antonio, Texas, USA 1990
- Stockholm, Sweden 1992
- Quebec City, Canada 1993
- Jerusalem, Israel 1995
- San Francisco, California, USA 1996
- Midrand, South Africa 1998
- San Antonio, Texas, USA 1999
- Interlaken, Switzerland 2001
- Orlando, Florida, USA 2002
- Adelaide, South Australia 2004
- Vancouver, BC, Canada 2005
- Tarragona, Spain 2007
- New Orleans, Louisiana, USA 2008
- Beijing, China 2010

FUTURE INTERNATIONAL SYMPOSIA ON BALLISTICS

- Freiburg, Germany 2013
- Atlanta, Georgia, USA 2014

AUTHORS & PRESENTERS FROM 30 COUNTRIES

- Australia
- Belgium
- Canada
- China
- Colombia
- Czech Republic
- Egypt
- Finland
- France
- Germany
- Greece
- India
- Israel
- Italy
- Japan
- Malaysia
- Mexico
- The Netherlands
- Norway
- Poland
- Russia
- South Africa
- South Korea
- Spain
- Sweden
- Thailand
- Turkey
- Ukraine
- United Kingdom
- USA

MONDAY, SEPTEMBER 12, 2011

8:00 AM - 7:00 PM Registration Open - Lobby Level

9:00 AM - 4:30 PM Tutorial Sessions - Brickell Room
*Additional Registration Fees Apply

AM Tutorial Session

9:00 AM: Warhead Mechanism
1.1 Blast Charges
1.2 Shaped Charges
1.3 Flat Cone Charges

10:45 AM: Coffee Break in Foyer

11:00 AM: Warhead Mechanism Continued
1.4 EFP Charges
1.5 Fragment Charges (Anti-AC/Anti-TBM)

12: 15 PM: Lunch for AM & PM Tutorial Attendees

PM Tutorial Session

1:30 PM: Overview on Armour for MBTs and APCs
2.1 RHA
2.2 Ceramics
2.3 Glass

3:00 PM: Coffee Break in Foyer

3:15 PM: Overview on Armour for MBTs and APCs Continued
2.4 Composites
2.5 ERA
2.6 NERA or Bulging
2.7 Active Defence Concepts

10:00 AM - 4:00 PM Exhibitor Move-In & Poster Set-Up - Riverfront Hall

5:00 PM Exhibit Hall Open - Riverfront Hall

5:00 PM - 7:00 PM Opening Reception in Exhibit Hall - Riverfront Hall

TUESDAY, SEPTEMBER 13, 2011

7:00 AM - 5:20 PM	Registration Open - Lobby Level
7:00 AM - 8:00 AM	Continental Breakfast - Ashe Auditorium Foyer
8:00 AM - 8:10 AM	Welcome & Administrative Remarks - Ashe Auditorium
8:10 AM - 8:45 AM	Update on the International Ballistics Society *Mr. Jack Riegel, President, International Ballistics Society; President, R3 Technology, Inc.*
8:45 AM - 9:30 AM	Keynote Address: An Overview of Analyzing Firearm, Tool Mark and Impression Evidence at the Miami-Dade Police Department *Mr. Gabriel A. Hernandez, Criminalist Supervisor, Miami-Dade Police Department*
9:30 AM - 9:50 AM	Invited Presentation: Effectiveness of Explosive Reactive Armour *Dr. Meir Mayseless, Israel*
9:50 AM - 5:20 PM	Exhibit Hall Open - Riverfront Hall
9:50 AM - 10:10 AM	Break in Exhibit Hall - Riverfront Hall
10:10 AM - 11:50 AM	General Session *Chaired by Zhongyuan Wang & Gordon Johnson*
10:10 AM - 10:30 AM	11826 - Analyzing Lubrication's Contribution to Cartridge Case Failure *Mr. Mark Minisi, USA*
10:30 AM - 10:50 AM	11946 - Reinforced Dense High-Explosive Fills for Gun Launch *Mr. Michael Minnicino, USA*
10:50 AM - 11:10 AM	11892 - Modeling of Fabric Impact with High-Speed Imaging and Nickel-Chromium Wires Validation *Dr. Sidney Chocron, USA; Mr. Trenton Kirchdoerfer, Ms. Nikki King, Dr. Christopher Freitas*
11:10 AM - 11:30 AM	11981 - Pressure Effects in an Enclosed Volume Due to EFP Impact *Mr. Jo Hagness Kiran, Norway*
11:30 AM - 11:50 AM	11993 - Numerical Analysis of the Initiation of High Explosives by Interacting Shock Waves Due to Multiple Fragment Impact *Dr. Andreas Heine, Germany; Mr. Martin Lueck, Dr. Matthias Wickert*
11:50 AM - 1:20 PM	Lunch - Regency Ballroom
1:20 PM - 3:20 PM	Terminal Ballistics & Impact Physics Poster Session - Riverfront Hall - See pg. 10 *Chaired by Tim Holmquist & Pieter Nel*
1:20 PM - 3:20 PM	Exterior Ballistics - Ashe Auditorium *Chaired by Marc Giraud & Ed Schmidt*
1:20 PM - 1:40 PM	11803 - Preliminary Testing of a 2-Fin Flechette *Mr. Ilmars Celmins, USA; Mr. Gregory S. Oberlin*
1:40 PM - 2:00 PM	11835 - Numerical Investigation of Lateral Jet Interaction on a Fin-Stabilized Projectile *Dr. James DeSpirito, USA*
2:00 PM - 2:20 PM	11894 - Predicting the Dynamic Stability of Small-Caliber Ammunition *Dr. Sidra I. Silton, USA; Mr. Bradley E. Howell*

2:20 PM - 2:40 PM	11957 - An Automated Visual Scoring Algorithm for Assessing Gunfire Accuracy *Dr. Chris Weiland, USA; Mr. John F. Busic, Dr. Jon J. Yagla*
2:40 PM - 3:00 PM	11996 - Free-Flight Motion Analysis Based on Shock-Tunnel Experiments *Mr. Pierre Wey, France; Dr. Friedrich Seiler, Dr. Julio Srulijes, Mrs. Myriam Bastide, Mr. Bastien Martinez*
3:00 PM - 3:20 PM	12015 - Extended Range of 155mm Projectile Using an Improvised Base Bleed Unit: Simulations and Evaluation *Dr. Ing Nils Kubberud, Norway; Dr. Ing Ivar Øye*
3:20 PM - 3:40 PM	Break in Exhibit Hall - Riverfront Hall
3:40 PM - 5:20 PM	Exterior Ballistics Poster Session - Riverfront Hall - See pg. 11 *Chaired by Stephan Bless & Paul Weinacht*
3:40 PM - 5:20 PM	Terminal Ballistics & Impact Physics - Ashe Auditorium *Chaired by Mathias Wickert & Charlie Anderson*
3:40 PM - 4:00 PM	11487 - Development of a Novel Ceramic Armor System: Analysis and Test *Dr. David L. Hunn, USA; Dr. Sang J. Lee*
4:00 PM - 4:20 PM	11921 - Penetration Resistance of Porous (Damaged) Glass in Impact Velocities Interval From 300 m/s up to 1000 m/s *Mr. Valeriy V. Kartuzov, Ukraine; Boris A. Galanov, Sergei M. Ivanov, Yegor V. Kartuzov, Douglas W. Templeton, Stephan Bless*
4:20 PM - 4:40 PM	11925 - Scaled Impact Experiments into Borosilicate Glass *Dr. Charles E. Anderson, Jr., USA; Mr. Carl E. Weiss, Dr. Sidney Chocron*
4:40 PM - 5:00 PM	12012 - Interface Defeat of Long Rods Impacting Oblique Silicon Carbide *Mr. Thilo Behner, Germany; Dr. Charles Anderson, Mr. Timothy Holmquist, Dr. Matthias Wickert, Dr. Doug Templeton*
5:00 PM - 5:20 PM	12030 - Visualization and Analysis of Impact Damage in Sapphire *Mr. Elmar Strassburger, Germany; Dr. James W. McCauley, Dr. Parimal Patel*

WEDNESDAY, SEPTEMBER 14, 2011

7:00 AM - 2:10 PM	Registration Open - Lobby Level
7:00 AM - 8:00 AM	Continental Breakfast - Ashe Auditorium Foyer
8:00 AM - 2:10 PM	Exhibit Hall Open - Riverfront Hall
8:00 AM - 8:10 AM	Administrative Remarks - Ashe Auditorium
8:10 AM - 9:50 AM	Interior Ballistics Poster Session - Riverfront Hall - See pg. 11 *Chaired by Carlton Adam & Thelma Manning*
8:10 AM - 9:50 AM	Explosion Mechanics - Ashe Auditorium *Chaired by Andreas Helte & David Lambert*
8:10 AM - 8:30 AM	11755 - Perforator with Energetic Liner *Mr. David Davison, USA; Mr. Dan Pratt*
8:30 AM - 8:50 AM	11778 - Is Higher Detonation Velocity Needed for Shaped-Charges? *Dr. Meir Mayseless, Israel; Eitan Hirsch, Bill W. Harvey, J.E. Backofen*

8:50 AM - 9:10 AM	12056 - Glass as a Shaped Charge Liner Material *Dr. Ernest Baker, USA; Mr. Arthur Daniels, Mr. Tan Vuong, Mr. James Pham, S. DeFisher*
9:10 AM - 9:30 AM	12019 - A Novel Technology for Switchable Modes Warheads *Dr. Werner A. Arnold, Germany, M. Graswald, E. Rottenkolber*
9:30 AM - 9:50 AM	11897 - The Potential of FOX-7 in Insensitive Munition Design *Dr. Ian G. Cullis, UK; Mr. Richard Townsley*
9:50 AM - 10:10 AM	Break in Exhibit Hall - Riverfront Hall
10:10 AM - 11:50 AM	Launch Dynamics Poster Session - Riverfront Hall - See pg. 12 *Chaired by Nicholas Payne & Francisco Galvez*
10:10 AM - 11:50 AM	Terminal Ballistics & Impact Physics - Ashe Auditorium *Chaired by Danny Yaziv & William Gooch*
10:10 AM - 10:30 AM	11887 - The Erosion Threshold for High Velocity Geo-Penetrators *Dr. Norbert Heider, Germany; Mr. Manfred Salk*
10:30 AM - 10:50 AM	11917 - Effects of EFP Solidity in Terminal Ballistics *Mr. Ho Soo Kim, South Korea; Dr. Werner Arnold, Dr. Thomas Hartmann, Mr. Ernst Rottenkolber, Dr. Andreas Klavzar*
10:50 AM - 11:10 AM	12008 - Effects of Lateral Edges Toward Penetration Depths *Mr. Andreas Heine, Germany; Mr. Richard Cunrath, Mr. Hideaki Kobayashi, Mr. Matthias Wickert*
11:10 AM - 11:30 AM	12025 - An Experimental and Numerical Study of Ballistic Impacts on a Turbine Casing Material at Varying Temperatures *Dr. Francisco Gálvez, Spain; Mr. Borja Erice, Dr. David Cendón, Dr. Vicente Sánchez-Gálvez, Dr. Tore Borvik*
11:30 AM - 11:50 AM	12048 - The Penetration Process of Jets and Long Rods in Water *Dr. Dan Yaziv, Israel; Meir Mayseless, Zvi Cooper, Yehiel Reifen, Eitan Hirsch*
11:50 AM - 1:10 PM	Lunch - Regency Ballroom
1:10 PM - 2:10 PM	Vulnerability Poster Session - Riverfront Hall - See pg. 12 *Chaired by Gilles Pageau & Maurice Grudza*
1:10 PM - 2:10 PM	Interior Ballistics - Ashe Auditorium *Chaired by Clive Woodley & Jonathan Jablonski*
1:10 PM - 1:30 PM	11495 - Modeling the Internal Ballistics of Lightweight Plastic Driving Band Projectiles *Mr. Clive R. Woodley, UK*
1:30 PM - 1:50 PM	11782 - Burning Behavior of Gun Propellants Under the Influence of Pressure Oscillations – Theoretical Background and Simulation *Mr. Klaus-Achim Kratzsch, Germany*
1:50 PM - 2:10 PM	11940 - Multidimensional Interior Ballistics Modeling with Extensions to Igniter Design and Operation *Dr. Michael Nusca, USA*
2:30 PM - 7:00 PM	Miami Intercoastal Waterway Cruise & Reception *Aboard the Lady Windridge Yacht; Resort casual attire suggested* **Yacht will depart from the Hyatt dock at 3 pm; please board at 2:30 pm**

THURSDAY, SEPTEMBER 15, 2011

7:00 AM - 5:20 PM	Registration Open - Lobby Level
7:00 AM - 8:00 AM	Continental Breakfast - Ashe Auditorium Foyer
8:00 AM - 8:10 AM	Administrative Remarks - Ashe Auditorium
8:10 AM - 9:50 AM	Explosion Mechanics *Chaired by Markus Graswald & William Walters*
8:10 AM - 8:30 AM	11770 - The Trouble with TNT Equivalence *Mr. Paul M. Locking, UK*
8:30 AM - 8:50 AM	11926 - Effect of Set Up Parameters of Landmine Blast Over Transferred Energy to a Rigid Body: Experimental and Computational Study *Dr. Juan P. Casas Rodriguez, Colombia; Jose A. Hoyos Uribe, Victor H. Bastidas Poveda*
8:50 AM - 9:10 AM	12006 - Experimental Studies of Scalable Effects Warhead Technologies *Dr. Markus Graswald, Germany; Dr. Werner Arnold*
9:10 AM - 9:30 AM	11948 - Results and Analysis from Mine Impulse Experiments Using Stereo-Digital Image Correlation *Mr. Craig Barker, USA; Douglas Howle, Terry Holdren, Jeffrey Koch, Raquel Ciappi*
9:30 AM - 9:50 AM	12036 - An Investigation of Aerosolization and Associated Phenomena Resulting from the Detonation of Explosives *Mr. Luke S. Lebel, Canada; Mr. Patrick Brousseau, Dr. Lorne Erhardt, Dr. William S. Andrews*
9:50 AM - 3:40 PM	Exhibit Hall Open - Riverfront Hall
9:50 AM - 10:10 AM	Break in Exhibit Hall - Riverfront Hall
10:10 AM - 11:50 AM	Terminal Ballistics & Impact Physics Poster Session - Riverfront Hall - See pg. 13 *Chaired by Ewa Lidén & Dennis Nandlall*
10:10 AM - 11:50 AM	Launch Dynamics - Ashe Auditorium *Chaired by Nicholas Bruno & Don Carlucci*
10:10 AM - 10:30 AM	11764 - Inclusion of Rifling and Variable Centerline in Gun Tubes for Enhanced Modeling of Launch Dynamics *Mr. Charles Eichhorst, USA; Dr. William H. Drysdale, Mr. Michael Minnicino, Mr. David A. Hopkins*
10:30 AM - 10:50 AM	11937 - 5.56mm M855 Accuracy and Jump Measurements *Mr. Ilmars Celmins, USA*
10:50 AM - 11:10 AM	12029 - Modeling of the Dynamics of a 40 mm Gun and Ammunition System During Firing *Mr. Nicolas Eches, France; Mr. Didier Cosson, Mr. Quentin Lambert, Mr. André Langlet*
11:10 AM - 11:30 AM	12062 - Characterization of a Potting Material for Gun Launch *Dr. Aisha Haynes, USA; Dr. Jennifer Cordes*
11:30 AM - 11:50 AM	12063 - Gun Launch Dynamics of Pyrotechnic Materials *Dr. Aisha Haynes, USA; Mr. Justin John, Mr. Anthony Sherwood*
11:50 AM - 1:20 PM	Lunch - Regency Ballroom

1:20 PM - 3:20 PM	**Explosion Mechanics Poster Session - Riverfront Hall** *Chaired by Frederik Mostert & Stan DeFisher*
1:20 PM - 3:20 PM	**Interior Ballistics - Ashe Auditorium** *Chaired by Paul Locking & Michael Nusca*
1:20 PM - 1:40 PM	11956 - Detailed Ballistic Performance Characterization of 120-mm Mortar System with Different Flash Tube Configurations *Dr. Kenneth Kuo, USA; Dr. Eric Boyer, Mr. Heath T. Martin*
1:40 PM - 2:00 PM	11441 - The Numerical Optimization of the Novel Kinetic Energy Penetrator for Tank Guns *Dr. Mariusz Magier, Poland*
2:00 PM - 2:20 PM	12024 - A Numerical Tool for Evaluating Solid Propellants Ignition Models *Mr. Christophe Boulnois, France; Dr. Camille Strozzi, Dr. Amar Bouchama, Pr. Philippe Gillard*
2:20 PM - 2:40 PM	11494 - Modeling the Effects of Non-Gaseous Igniter Combustion Products on the Ignition of Gun Propellants *Mr. Clive R. Woodley, UK*
2:40 PM - 3:00 PM	11945 - Modeling Explosive Cladding of Metallic Liners to Gun Tubes *Mr. Jack M. Pincay, USA; Dr. Ernest L. Baker, Mr. David G. Pfau*
3:00 PM - 3:20 PM	12080 - Finite Element Modeling of Primer Impact to Understand the Dynamics of Misfires *Mr. Mark D. Lee, USA*
3:20 PM - 3:40 PM	**Break in Exhibit Hall - Riverfront Hall**
3:40 PM - 6:30 PM	**Exhibit Hall Closed; Exhibitor Move-Out & Poster Dismantle**
3:40 PM - 5:20 PM	**Vulnerability - Ashe Auditorium** *Chaired by Philip Cunniff & Ho Soo Kim*
3:40 PM - 4:00 PM	11886 - Experimental Methodology Using Digital Image Correlation to Assess Ballistic Helmet Blunt Trauma *Mr. James C. Gurganus, USA; Dr. Dixie Hisley, Mr. Andrew Drysdale*
4:00 PM - 4:20 PM	11794 - Survivability Evaluation of Blast Mitigation Seats for Armored Vehicles *Dr. Ming Cheng, Canada; Mr. Doug Bueley, Dr. Jean-Philippe Dionne, Dr. Aris Makris*
4:20 PM - 4:40 PM	11991 - Attenuation of a Blast Wave Through Cranial Bone *Dr. Amy C. Courtney, USA; Dr. Michael W. Courtney*
4:40 PM - 5:00 PM	12040 - DESCENT Modeling in Rotorcraft Vulnerability Assessment *Mr. Andrew W. Drysdale, USA; Dr. Matthew Floros*
5:00 PM - 5:20 PM	12065 - Ammunition and Weapon Effects in Confined Operational Urban Theatre in the Vicinity of Own Troops *Mr. Theo Verhagen, The Netherlands; Mr. Martin v.d. Voorde*
6:30 PM - 10:00 PM	**Symposium Banquet - Hyatt Riverwalk** *Dinner and dancing under the Florida night sky; Business/cocktail attire suggested*

FRIDAY, SEPTEMBER 16, 2011

7:00 AM - 12:15 PM	Registration Open - Lobby Level
7:00 AM - 8:00 AM	Continental Breakfast - Ashe Auditorium Foyer
8:00 AM - 10:00 AM	Terminal Ballistics & Impact Physics - Ashe Auditorium *Chaired by James Walker & Pierre Chanteret*
8:00 AM - 8:20 AM	11776 - Penetration of Rigid Rods into Sand *Dr. Stephan Bless, USA; W. Cooper, K. Wantawabi*
8:20 AM - 8:40 AM	11997 - Blast Response Analysis of Reinforced Concrete Slabs: Experimental Procedure and Numerical Simulation *Mr. Gustavo Morales-Alonso, Spain; Dr. David A. Cendón, Dr. Francisco Gálvez, Mr. Borja Erice, Prof. Dr. Vicente Sánchez-Gálvez*
8:40 AM - 9:00 AM	12035 - Effect of Frictions on the Ballistic Performance of a 3D Warp Interlock Fabric: Numerical Analysis *Mr. Cuong Ha-Minh, France; Dr. François Boussu, Dr. Toufik Kanit, Dr. David Crépin, Prof. Abdellatif Imad*
9:00 AM - 9:20 AM	12055 - Why Impacted Yarns Break at Lower Speed than Classical Theory Predicts *Dr. James D. Walker, USA; Dr. Sidney Chocron*
9:20 AM - 9:40 AM	12067 - Unusual Transverse Compression Response of Non-Woven Ballistic Laminates *Dr. Brian R. Scott, USA*
9:40 AM - 10:00 AM	12108 - Protection of Light Armours Against Shaped Charge Projectiles *Prof. Adam Wisniewski, Poland*
10:00 AM - 10:10 AM	Break - Ashe Auditorium Foyer
10:10 AM - 11:30 AM	General Session *Chaired by Klaus Thoma & Jack Pincay*
10:10 AM - 10:30 AM	12095 - AMRDEC Lethality Modeling and Simulation Methodologies for Aerial Targets *Mrs. Dedra C. Moore, USA; Mr. Dustin Clark, Mr. Brent Deerman*
10:30 AM - 10:50 AM	11730 - Development of Blast Enhanced Explosive for an Anti-Structure Warhead *Mr. Hendrik Lips, Germany*
10:50 AM - 11:10 AM	11865 - Measurement of Blast Reflected Overpressure at Small Charge Standoff with Tourmaline-Based Piezoelectric Transducers *Dr. Roger L. Veldman, USA; Dr. Mark W. Nansteel, Dr. Charles Chen*
11:10 AM - 11:30 AM	Dr. Manfred Held Memorial Presentation
11:30 AM - 12:00 PM	Presentation of Awards
12:00 PM - 12:15 PM	Presentation of the 27th International Symposium on Ballistics *Freiburg, Germany*
12:15 PM	Symposium Adjourned

POSTER SESSIONS & EXHIBITS

TERMINAL BALLISTICS & IMPACT PHYSICS POSTER SESSION
TUESDAY 1:20 PM - 3:20 PM

11441 - The Numerical Optimization of the Novel Kinetic Energy Penetrator for Tank Guns

Dr. Mariusz Magier, Poland

11444 - Estimation of Yield Stress in Tungsten Rods at High Strain-Rates by Taylor's Impact Technique

Dr. Mariusz Magier, Poland; Mr. Rafal Bazela, Mr. Edward Wlodarczyk, Mr. Jacek Janiszewski, Mr. Wojciech Koperski

11480 - Ballistic Analysis of New Military Grade Magnesium Alloys for Armor Applications

Mr. Tyrone L. Jones, USA; Dr. Katsuyoshi Kondoh

11484 - Study on Penetration Resistance of Tubular Spaced Armor by Jet

Mr. HeQuan Cao, China; XiaoNing Zhao, XianFeng Zhang, JianBo Wang, SuJie Sun

11490 - A Computational Constitutive Model for Glass Subjected to Large Strains, High Strain Rates, and High Pressures

Mr. Timothy J. Holmquist, USA; Dr. Gordon R. Johnson

11527 - A Model of Compressible Jet Penetration

Dr. William J. Flis, USA

11585 - Sensitivity of Johnson-Cook Constitutive Model Parameters in Modeling Penetration of Rolled Homogeneous Armor Steel Targets by Tungsten Rods

Mr. Stephen Schraml, USA

11669 - Mass-Flux Model for Non Metallic Reactive Armor

Dr. Meir Mayseless, Israel; Stefano Bianchi, Zachi Katzir, Sergi Chanukaev

11706 - Experimental and Theoretical Study of Interaction Process Between Projectiles Containing Fluoropolymer and Titanium and Aluminum-Based Targets

D.Sc. Eugene A. Khmelnikov, Russia; Alexey V. Styrov, D.Sc. Valery L. Rudenko, Vladimir I. Falaleev, Artyom V. Klimenko

11727 - PELE at Hypervelocity

Dr. Stephan J. Bless, USA; Mr. Bradley A. Pedersen

11728 - Effectiveness of Whipple Shields with Backplate Compared to Homogeneous Mild Steel Alone Against EFP Threats

Dr. Amer Hameed, UK; Mr. Ghulam Hussain, Dr. A.Q. Malik, Peter Barton

11750 - Lethality Analysis Based on a Fragmentation Model for Naturally Fragmenting Shells

Dr. Adam T. Zagorecki, UK; Dr. Amer Hameed, Mr. Anoop Shukla

11753 - Development of Brick and Mortar Material Parameters for Numerical Simulations Using the Holmquist-Johnson-Cook Constitutive Model for Concrete

Mr. Christopher S. Meyer, USA

11754 - Theoretical Analysis on the Interface Defeat of a Conical-Nosed Long Rod Penetration

Mr. Jicheng Li, China; Xiaowei Chen, F. Ning

11768 - Deceleration Analysis on Penetration Projectile Considering Mass Loss

Prof. Xiaowei Chen, China; L.L. He

11817 - Experimental and Computational Study on High Velocity Fragment Impacts

Mr. Fabien Rondot, France; Mr. Julien Nussbaum

11843 - Numerical Study on Kinetic Energy Projectile Penetrating Multilayer Medium Target

Mr. Jian Feng Lou, China; Mr. Zheng Wang, Mr. Fengguo Zhang, Mr. Longhe Liang

11850 - Supersonic Penetration by Jet into Concrete: Research of Shaped Charge for Creating Large Cavity Diameter

Mr. Xiao Qiangqiang, China; Huang Zhengxiang, Zu Xudong, Han Dong-mei

11857 - Time Resolved Engineering Metal Penetration Models

Mr. Geert Roebroeks, The Netherlands; Mrs. Elena Abadjieva, Mr. Erik Carton

11864 - Ballistic Performance and Failure Mode of High Performance 2139-T8 and 7449-T6 Aluminium Alloys

Dr. Cedric Gasqueres, France; Dr. Julien Nussbaum

11866 - Transverse Impact Response of a Linear Elastic Ballistic Fiber Yarn

Mr. Bo Song, USA; Mr. Hwun Park, Mr. Wei-Yang Lu, Mr. Weinong Chen

11873 - Properties of Cross-Plied Unidirectional Aramid Fiber Laminates for a New Detailed Military Specification: MIL-DTL-32378

Dr. James Singletary, USA; Dr. Brian Scott, Mr. Richard Squillacioti, Dr. Karl Chang

11874 - The Dynamic Response of Kevlar and Float Glass Panels to Blast Loading

Mr. Izak Marius Snyman, South Africa; Mr. Frederik Mostert

11876 - Fiber Interfacial Surface Energetics for Controlled Adhesion

Dr. Jeffrey A. Chambers, USA; Ms. Rachel L. McSwain

11879 - The Role of the Wave Impedance of the Sandwich Material in the Composite Armor Against Shaped Charge Jet

Mr. Xu-Dong Zu, China; Zheng-xiang Huang, Qiang-qiang Xiao, Xin Jia

11880 - An Experimental Technique to Characterise the Dynamic Response of Materials, or Material Combinations, to Explosive Blast

Mr. Frederik Mostert, South Africa; Izak Snyman, Marius Olivier

11888 - The Mechanisms of Damage In Ballistic Fibers

Mr. Walter G. McDonough, USA; Dr. Gale A. Holmes, Mr. Kirk Rice, Ms. Amanda Forster, Dr. Haruki Kobayashi, Jae Hyun Kim

11889 - Ballistic Evaluation of Aluminum 7085-T7E01 and T7E02

Mr. Denver B. Gallardy, USA

11891 - Sporicidal Effects of Iodine-Oxide Thermite Reaction Products

Dr. Stephan Bless, USA; Mr. Rod Russell, Ms. Alexandra Blinkova, Ms. Tiffany Chen, M. Pantoya

11898 - 3D Flexible Hybrid Textile Structures Against High Velocity Impact

Dr. François Boussu, France; Jerome Vilfayeau, Julien Nussbaum

11905 - Experimental and Numerical Study of Aluminum 6061-T6 Fragmentation Process at Very High Strain Rates

Dr. Vitaly Leus, Israel; Mr. Yair Neumann, Dr. Eliahu Racah

11908 - Armoured Vehicle Response to the Roadside Mine Threat

Mr. Stanislav Rolc, Czech Republic; Mr. Jaroslav Buchar, Mr. Josef Kratky, Mr. Jan Krestan

11910 - Penetration Behaviour Simulation of Shaped Charge Jets in Water Filled Targets

Mr. Dev Raj Saroha, India; Mr. Davinder Kumar, Mr. Yashpal Singh

11915 - A Model for Behind Armor Debris from EFP Impact

Mr. Ho Soo Kim, South Korea; Dr. Werner Arnold, Dr. Thomas Hartmann, Mr. Ernst Rottenkolber, Dr. Andreas Klavzar

11920 - Modeling and Simulating the Performance of Transparent Spinel and the Effect of Defects on Dynamic Response

Dr. Costas G. Fountzoulas, USA; Dr. James M. Sands

11924 - Eulerian vs. Lagrangian Methods in the Finite Element Analysis of Small Caliber Thick Plate Penetration Events

Mr. Raymond Chaplin, USA

EXTERIOR BALLISTICS POSTER SESSION
TUESDAY 3:40 PM - 5:20 PM

11672 - A Computational Approach to the Determination of Tank Munitions Safety Zones

Aron Pila, Israel; Vadim Kogan, David Touati, S. Peles

11757 - The Effect of a Variable Crosswind on Flat-Fire Trajectories – A Unique Measuring Technique and Compensation Methodology

Mr. Yoav Gur, Israel; Mr. Eugene Adamovski, Mr. Michael Gringauz

11783 - Multi-Core Computing Cluster for Monte-Carlo Analysis of GN&C Systems for Projectiles

Dr. Mark D. Ilg, USA

11845 - GPS-Based High Dynamic Projectile Flight Ballistic Real-Time Measurement Techniques

Dr. Yanning Gui, China; Prof. Yan Yang, Huang Zheng, Cheng Hongtao

11855 - Despin and Roll Attitude Control of a 2D Guided Fuze Kit

Mr. Roelof du Plessis, South Africa; Dr. Gerrit Viljoen

11858 - Magnus Effect: Physical Origins and Numerical Prediction

Dr. Roxan Cayzac, France; Eric Carette, Pascal Denis, Philippe Guillen

11881 - In-Bore Yaw Effects on Lateral Throwoff and Aerodynamic Jump Behavior for Small Caliber Projectiles Firing Sidewise From Air Vehicles

Dr. Elias E. Panagiotopoulos, Greece; Dr. Dimitrios N. Gkritzapis

11885 - Recent Improvements in Ballistic Data Reduction: Data Fusion

Mr. John R. Burnett, Jr., USA; Mr. John Whyte, Mr. Wayne H. Hathaway, Mr. Alan Hathaway, Mr. Mark Steinhoff

11929 - Comparison of Prediction Methods for Ricochet of a 30mm Projectile

Mr. Stephen S. Recchia, USA; Mr. Ernesto Vazquez

11967 - Hypersonic Aerothermal External Flow Field Depicted from Immersed Boundary Technique

Dr. Frederic Plourde, France; Dr. Christophe Grignon, Dr. Chi Cong Nguyen, Van Thuan Luu

11970 - Effects of Aerodynamic Coefficient Uncertainties on Trajectory Simulation of a Short-range Solid Propellant Free Rocket

Mr. Weerawut Charubhan, Thailand; Mr. Pawat Chusilp; Mr. Navapan Nutkumhang

11984 - Adjoint Analysis of Guided Projectile Terminal Phase

Mr. Timo Sailaranta, Finland; Mr. Ari Siltavuori

12021 - Inverse Aerodynamic Coefficients Identification of a Kinetic Energy Projectile from Flight Data

Miss Hélène Demailly, France; Mr. Franck Delvare, Mrs. Settie Heddadj, Mr. Christophe Grignon, Mr. Patrice Bailly

12027 - A Method of Self-Adaptive Container Opening Control for Rocket Assisted Cargo Mortar Projectile

Mr. Li Dong-Guang, China; Mr. Yang Rui-Wei, Mr. Yang Deng-Hong, Ms. Cui Xue-Jun

12032 - A Study on the Aerodynamic Characteristics for a Spin-Stabilized Projectile with PGK

Dr. SangEon Je, South Korea; Mr. Hyunsung Jung, Mr. Minsu Park, Prof. Taehwan Cho

12054 - Numerical Simulation and Experimental Study of Flowfield Around a Bullet with a Partial Core

Mr. Usiel Silva, Mexico; Dr. Juan M. Sandoval, Dr. Luis A. Flores, Dr. Narcizo Muñoz, Víctor Hernández

12077 - The Establishment of Threshold Criteria for Automated Acceptance Test Equipment Based on Battlefield Use of Tracer Ammunition

Ms. Stefana Reilly, USA; Mr. Rob Allen

INTERIOR BALLISTICS POSTER SESSION
WEDNESDAY 8:10 AM - 9:50 AM

11633 - Quasi-Dimensional Interior Ballistic Model and Numerical Simulation of Combustion Light Gas Gun

Mr. Ning Liu, China; Mr. Xiang-yan Zhang

11748 - Experimental and Numerical Investigations on Traveling Charge Gun Using Liquid Fuels

Mr. Xin Lu, China; Mr. Yanhuang Zhou, Mr. Yonggang Yu

11795 - Study of Bulk-Loaded Liquid Propellant Combustion Propulsion Processes with Stepped-wall Combustion Chamber

Prof. Yong-gang Yu, China; Miss Xue-xia Chang, Miss Na Zhao, Miss Shan-shan Mang, Yanhuang ZHOU

11798 - Improved One-Dimensional Unsteady Modeling of Thermally Choked Ram Accelerator in Sub-Detonative Velocity Regime

Dr. Yufeng Yao, UK; Dr. Tarek Bengherbia, Prof. Pascal Bauer, Dr. Marc Giraud, Dr. Carl Knowlen

11806 - Ballistic Diagnostic Methodologies for Gun Propulsion: An Overview

Dr. Lang M. Chang, USA

11812 - Ram Accelerator – State of the Art

Prof. Pascal A. Bauer, France; Dr. Carl Knowlen, Dr. Marc Giraud, Dr. Yufeng Yao, Dr. Tarek Bengherbia

11853 - Research on Burning Characteristics of Microfoam Propellants

Prof. Fu-ming Xu, China; San-Jiu Ying, Xi-ru Chen

11868 - Primer Force and Chamber Pressure Measurements at 5.56 mm Caliber

Dr. Richard A. Beyer, USA; Mr. Joseph W. Colburn

11878 - Reduced Vulnerability $BKNO_3$ Based Igniters for Gun Systems

Mr. Eugene Rozumov, USA; Dr. Thelma G. Manning, Dr. Joseph M. Laquidara, Duncan Park, Kimberly Chung, John O'Reilly, Jeffrey Wyckoff, David Thompson, Elbert Caravaca, Carlton P. Adam, Viral Patel

11890 - The Influence of Propellant Grain Shape, Size and Composition on Solid Phase Motion and Heat Transfer to the Gun Tube

Mr. Albert W. Horst, USA

11902 - Performance Analysis of Interior Ballistics According to Solid Propellant Positions in Chamber

Mr. Jinsung Jang, South Korea; Mr. Hyunggun Sung, Prof. Taeseong Roh, Prof. Dongwhan Choi

11904 - Laboratory Stand for Scale Test of Rocket Propelled Grenades Firing

Mr. Przemyslaw Kupidura, Poland; Mr. Zbigniew Leciejewski, Mr. Zbigniew Surma, Mr. Radoslaw Trlbliski

11907 - On Similarity of Combustion Conditions During Comparative Closed Vessel Tests

Mr. Zbigniew Leciejewski, Poland; Mr. Zbigniew Surma

11939 - Asymmetrical Muzzle Wear – A Historical Perspective

Dr. Elaine M. Humiston, USA; Jeanne C. Brooks

11955 - Initial Temperature Effect on M1020 Ignition Cartridge Behavior

Mr. Heath T. Martin, USA; Ryan W. Houim, Dr. Eric Boyer, Prof. Kenneth K. Kuo

11961 - Explicit Finite Element Model for Determining Influence of Cartridge Case Material Properties on Small Caliber Weapon Function

Mr. Daniel R. Gubernat, USA; C. Fischer

11974 - Simulation of Contamination Prevention for Optical Window in Laser Ignition Systems of Large-Caliber Guns

Dr. Xiaobing Zhang, China; Changjun Ma

11975 - Research for a Projectile Positioning Structure for Stacked Projectile Weapons

Dr. Xiaobing Zhang, China; Qiao Luo

11989 - Multi-Dimensional Two-Phase Flow Modelling Applied to Interior Ballistics

Dr. Julien Nussbaum, France; Philippe Helluy, Dr. Jean-Marc Hérard, Dr. Barbara Baschung

11995 - Benefits of Two Dimensional Internal Ballistics Modelling for Small Calibre Cased Telescoped Ammunition

Dr. Iain Robertson, UK; Dr. Martin P. Pocock, Mr. Clive Woodley, Mr. Simon Georgi, Miss Rebecca Threlfall, Mr. Chris Guyott

12031 - Investigation on Ignition and Combustion Process in Granular Solid Propellant Chamber

Dr. Hiroaki Miura, Japan; Prof. Akiko Matsuo, Dr. Yuichi Nakamura

12039 - Internal Ballistics Simulation of a NAWC Tactical SRM

Dr. Enrico Cavallini, Italy; Prof. Bernardo Favini, Prof. Maurizio Di Giacinto, Dr. Ferruccio Serraglia

12043 - Analyses of Fatigue Life Estimate for a Pressure Tap in a 40mm Gun Breech

Ms. Caitlin M. Weaver, USA; Dr. Jennifer A. Cordes, Mr. Lyonel Reinhardt, Dr. Aisha S. Haynes, Paulo A. Rigg

12072 - Deterred Propellant Optimization for Gun Systems

Mr. Carlton Adam, USA; Dr. Eugene Rozumov

12079 - Ballistic Performance of Steels and Aluminums in FE Firing Simulations

Dr. Justin Mach, USA; Mr. Mark Lee

12084 - Interior Ballistics of Co-Layered Gun Propellant

Dr. Thelma G. Manning, USA; Duncan Park, Kenneth Klingaman, Michael Leadore, Dr. Barrie Homan, Dr. Edmund Liu, Dr. James A. Luoma

LAUNCH DYNAMICS POSTER SESSION
WEDNESDAY 10:10 AM - 11:50 AM

11469 - Stress Relaxation of Composite Gun Barrels with High Tensioned Overwrap – Modeling

Dr. Jerome T. Tzeng, USA; Ryan Emerson

11481 - Measurement Principle of Moment of Inertia for Turret

Mr. Baoyuan Wang, China; Xiao-jun Shao, Hui-min Wu, Gang Heng, Fa-ming Zhou, Hua-sa Yu

11671 - Analysis of 120mm Tank Gun Failure Due to Bore Obstruction

Dr. David Touati, Israel; Irene Gelfeld, Ilan Azulay, Felix Shub

11673 - Launch Dynamics of the APAM-MP Round

Dr. David Touati, Israel; Ilan Azulay, Yoav Gur, Boris Manilov

11827 - Simulation and Instrumentation Used to Develop a Super-Caliber Fin Set for a Precision Mortar

Mr. John A. Condon, USA; Brad Davis, Peter Muller, Ben Topper

11941 - Failure Analysis of .50 Caliber M20 API-T Bullet Burst

Mr. David W. Stubler, USA; Mr. Timothy A. Spears

11947 - Influence of Material Properties on Sabot Performance

Mr. Michael Minnicino, USA

11972 - The Effect of Threaded Joints on the Transmission of Vibrations During Gun Launch

Mr. Lyonel Reinhardt, USA; Dr. Jennifer Cordes, R. Terhune

12088 - Gun Launch Dynamics – Benchmarking State of the Art

Dr. Donald E. Carlucci, USA; Dr. James F. Newill, Mr. Rollie H. Dohrn, Jr.

VULNERABILITY POSTER SESSION
WEDNESDAY 1:10 PM - 2:10 PM

11485 - Blast Mitigation Seats for Armored Platforms – Development and Evaluation Methodology

Dr. Moshe Ravid, Israel; Nimi Shapira, Dr. Zvi Assaf, Dr. Felix Aizik, Dmitry Narodizky, Mr. Hadar Raz, Mr. Doobie Avraham

11675 - A Methodology to Predict Personnel Injury from Reflective Spall

Mrs. Rebecca VanAmburg, USA

11724 - Ballistic Gelatine Behaviour Under Quasi-Static and Dynamic Loadings

Mr. L. Koene, The Netherlands; Mr. J.L. Barou, Mr. P. Viot

11751 - Fragment Analysis for the Joint Trauma Analysis and Prevention of Injury in Combat (JTAPIC) Program

Ms. Karen Pizzolat, USA

11836 - Vulnerability Model Validation for Commercial Aircraft

Dr. Mark A. Fry, USA

11871 - An Automated Methodology for Calculating Optimized Preset Fuze Time Delay Function in Conjunction with the AVAL Code

Dr. Gideon J.F. Smit, South Africa; Dr. Cornelis J. Terblanche

11882 - Analysis of Existing Injury Criteria in Order to Evaluate the Severity of Thoracic Impact Injury

Mr. Nicolas Eches, France; Mr. André Langlet, Mr. Julien Pavier, Mr. Jean-François Jacquet, Mr. Roxan Cayzac

11899 - The Impact of High Accuracy Target Geometry in Modeling and Simulation to Support Live Fire Test and Evaluation

Mr. Scott N. Hornung, USA

11906 - A Comprehensive Approach to Characterizing the Hazards of Explosive Countermeasures with Respect to Dismounted Troops

Ms. Patricia S. Frounfelker, USA; Mr. Stephen P. Swann, Mr. Gregory K. Dietrich

11919 - MUVES 3 - Vulnerability/ Lethality Analysis Tool of the Future

Mrs. Elaine M. Hunt, USA; Mr. Mark Burdeshaw

11935 - Overview of MUVES 3 and the MUVES 3 V/L Service

Mr. Ronald A. Bowers, USA

11952 - Utilizing Vehicle Response Data from Under-Body Blast Tests

Mr. Brian Benesch, USA

11960 - WeaponFX Vulnerability and Optimization Code for Fragmenting Warheads

Mr. John Tartis, USA; Mr. Partick D. Buckley

11962 - Ballistic Vulnerability Analysis of Ground Combat Vehicles, Understanding the Process and Impact

Ms. April Siano, USA

11979 - Standardization of Skin Penetration Assessment for Non-Lethal Impact Projectiles

Dr. Alexandre Papy, Belgium; Mr. Cyril Robbe, Mr. Nestor Nsiampa

11985 - Impact Measurements of Different 40mm Non-Lethal Sponge Grenades

Mr. Cyril Robbe, Belgium; Mr. Nestor Nsiampa, Dr. Alexandre Papy

11987 - Numerical Simulation of Kinetic Energy Non-Lethal Projectiles on Human Thorax

Mr. Nestor Nsiampa, Belgium; Mr. Cyril Robbe, Dr. Alexandre Papy

12018 - Rapid Assessment of the Vulnerability of a Structure to Blast Effects

Dr. Victoria E. Ingamells, UK; Dr. Ian G. Cullis, Mr. Michael Hamblin, Mr. Paul Morrissy

12037 - Numerical Modeling of Rocket Warhead Detonation and Fragmentation

Dr. Joseph D. Baum, USA; Dr. Daniel G. Williams, Dr. Orlando A. Soto, Dr. Fumiya Togashi, Prof. Rainald Lohner

12075 - Capability Improvements for Modeling Fragment Impact in ALE3D

Dr. Lara D. Leininger, USA; Sarah Minkoff, Dr. Robert Dorgan, Stanley DeFisher, Dr. Rose McCallen, H. K. Springer

TERMINAL BALLISTICS & IMPACT PHYSICS POSTER SESSION
THURSDAY 10:10 AM - 11:50 AM

11928 - Shock Impact Failure of Polycrystalline Microstructures: Modeling and Simulation

Dr. Martin O. Steinhauser, Germany

11930 - Rigid-body Concrete Penetration and the Sectional Momentum Effect

Mr. Garet Itz, USA; Mr. Darrel Barnette

11934 - Polymers as Potential Shaped Charge Liner Materials

Dr. Michael R. Edwards, UK; Mr. Romello Arulanandam, Mr. Stefan M. Hille

11943 - A Comparison of Penetration Algorithms: Predictions vs. Test Data for Kinetic Energy Rods

Mr. John R. Auten, USA

11950 - Investigation of Projectile Trajectory in Multi-hit Scenarios and the Influence of Damage Characteristics in Glass-Ceramic Transparent Armor

Mr. Timothy G. Talladay, USA; Ms. Katherine T. Leighton, Mr. John J. Carberry, Mr. Carsten Weinhold, Dr. Douglas W. Templeton

11951 - Innovative Transparent Armor Concepts

Mr. Erik Carton, The Netherlands; Mr. Hans Broos

11953 - Detrimental Effects of Flexible Linear Shaped Charge (FLSC) to Nearby Plates Due to Varying Backspace Distance

Mr. Cagin G. Bingol, Turkey; Dr. Raif O. Yildirim

11954 - Soft Recovery of Medium-Caliber Projectiles

Dr. Stephen Ray, USA; Mr. Michael Hermanson

11963 - Experimental Investigation on Dynamic Crack Propagating Perpendicularly Through Interface in Glass

Mr. Hwun Park, USA; Dr. Weinong W. Chen

11966 - Light Metal-Ceramic Passive Armour for Special Application

Mr. Bartlomiej Plonka, Poland; Dr. Juliusz Senderski, Dr. Adam Wisniewski

11973 - Discontinuity in the Energy Absorbed During Ballistic Impact in Aluminum Targets

Mr. Eldad Shemer, Israel; A. Armon, Z. Bar

11976 - New Generation Maraging Steel and High-Carbon Bainitic Steel for Armours

Mr. Jaroslaw Marcisz, Poland; Mr. Wojciech Burian, Bogdan Garbarz, Mariusz Adamczyk, Adam Wisniewski

11978 - Numerical Investigation of Formation of Steel Linered Shaped Charge Jets

Mr. M. Sarper Yavuz, Turkey; Dr. R. Orhan Yildirim

11980 - A Concrete Tension Failure Model Under Impact Loading

Dr. Wang Zheng, China; Dr. Lou Jianfeng, Dr. Liang Longhe, Dr. Zhang Fengguo

11982 - The Effect of Temperature on AEP 55 Vol. 2 Level 1 DM-31 Surrogate Performance

Dr. Moshe Ravid, Israel; Mr. Nimi Shapira, Dr. Stanislav Rolc, Mr. Ofer Medem, Dr. Felix Aizik, Dr. Josef Kratky, Dr. Jan Krestan

11983 - Improving the Design Capability for Fragment Protection

Dr. Nicholas J. Lynch, UK; Leslie Nyogeri, Philip Church

11986 - Experimental-Numerical Study of Inclined Impact in Al7075-T7351 Targets by 0.3 AP Projectiles

Dr. Zvi Anosh Asaf, Israel; Mr. Vadim Favorsky, Mr. Asaf Borenstein, Mr. Amit Vizel, Dr. Felix Aizik, Dr. Moshe Ravid, Mr. Nimi Shapira

11990 - Influence of Impacting Explosive Formed Projectiles on Long Rod Projectiles

Mr. Stanislav Rolc, Czech Republic; Mr. Jaroslav Buchar, Mr. Zbynek Akstein

11992 - Impact Test of Organic Radical Secondary Battery

Dr. Motoyoshi Ozaki, Japan; Mr. Yusuke Aizawa, Mr. Kensaku Tomura, Dr. Kaichiro Nakano, Dr. Shigeyuki Iwasa

11994 - Experimental Investigation of the Penetration and Perforation of Building Materials by Projectiles

Mr. Andreas Heine, Germany; Mr. Karl E. Weber, Mr. Matthias Wickert

12000 - Optimum Design of Magnesium-Based Multi-Layered Hybrid Armor

Mr. Wonseok Tae, South Korea; Mr. Gunin Kim, Mr. Jonggu Lee, Mr. Maenghyo Cho

12001 - The Effect of Surface Conditions on Dynamic Crack Propagation Through an Interface in Glass

Mr. Hwun Park, USA; Dr. Weinong W. Chen

12010 - Critical Impact Velocity of a Cemented Carbide Projectile Penetrating a Water Target

Mr. Olof Andersson, Sweden; Dr. Patrik Lundberg, Dr. Andreas Helte, Dr. Pernilla Magnusson

12011 - A Modified Johnson-Cook Failure Model for Tungsten Carbide

Dr. John F. Moxnes, Norway; Mr. Jan Arild Teland, Mr. Stian Skriudalen, Mr. Svein Morten Bergsrud

12013 - Fracture Mechanics of Long Rod Projectiles Subjected to Oblique Moving Plates

Dr. Ewa Lidén, Sweden; Dr. Andreas Helte

12016 - Volume Transfer Functions for Aluminium Lined Shaped Charge Penetration into Concrete

Dr. Cornelis Jean Terblanche, South Africa; Dr. Milton Maritz

12028 - Modeling Kinetic Energy Projectile Failure During Strucured Armour Perforation

Mr. Nicolas Eches, France; Mr. Herve Couque

12033 - Deflecting and Rotating Rigid Projectile Hitting Plate Edge

Dr. Meir Mayseless, Israel; Mr. Zvi Cooper, Mr. Yechiel Reifen, Dr. Dan Yaziv

12050 - Damage Mechanisms in Dynamically Loaded AISI 4130 Steel

Dr. Thomas A. Mason, USA; Jessica Stanfield, Dr. Jamie B. Neidert

12051 - Non-Orthogonal Kevlar® Fabric Architectures for Body Armor Applications

Dr. Ronald G. Egres, USA; Dr. Leopoldo A. Carbajal, Clifford. K. Deakyne

12052 - Evaluation of the Response of Friction Stir Processed Panels Under Ballistic Loading

Mr. Timothy Johnson, USA; Mr. Brandon Hinz, Dr. Michael West, Dr. Marius Ellingsen, Dr. Christian Widener, Bharat K. Jasthi, Karim H. Muci-Küchler

12053 - Simulation of Small Ammunitions in Aviation Applications

Mr. Daniel John, Germany; Mr. Robert Bailey, Mr. David Smyth, Mr. Frank Weidermann, Mr. Udo Berthold, Christian Radtke

12086 - Balancing Ballistic and Back-Face Deformation in Helmets: The Role of Alternative Resins, Fibers, and Fiber Architecture in Mass-Efficient Head Protection

Dr. Lionel Vargas-Gonzales, USA; Dr. Shawn M. Walsh, Dr. Brian R. Scott

12087 - Application of a Ductile Damage Model to Ballistic Impact Analyses

Mr. John Ryan, USA; Mr. Shawn Rhodes, Mr. Steven Stawarz

12142 - Consequence of Selecting Deep Drawing as a Performing Technique in the Production of Combat Helmets

Mr. Philip M. Cunniff, USA

12144 - Ballistic Testing of Nanocrystalline Hybrid Plates

Dr. Francisco Galvez, Spain; Jaime Frontán Vicente, Antoine Jérusalem, Yuming Zhang, Ming Dao, Jian Lu

12148 - Computational Hydrocode Study of Target Damage Due to Fragment-Blast Impact

Mr. Thomas J. Hatch-Aguilar, USA; Dr. Fady M. Najjar, Dr. Edwin W. Szymanski

EXPLOSION MECHANICS POSTER SESSION

THURSDAY 1:20 PM - 3:20 PM

11183 - Material Models for Tantalum – A Validation Study for EFP Applications

Dr. Magnus Bergh, Sweden; Dr. Andreas Helte, Jonas Lundgren

11462 - IM Testing and Initiation Trials of the IMX-101 Explosive in the M795 Projectile

Mr. Anthony Di Stasio, USA; Charlie Patel, Ductri Nquyen, Erik Wrobel

11491 - A Probe into the Applicability of Shock Similarity Laws for Underwater Explosion of Aluminiferous Explosive

Mr. Ji-bo Zhao, China; Mr. Duo-wang Tan, Mr. Yuan-ping Zhang

11492 - The Effect of High Impact Environment on the Fire Set of In-line Fuze

Zhu Hong-zhi, China; Yang Yong Hui, Ruan Zhaoyang

11767 - Research on the Deformation Process of a Thin-Walled Metal Tube Subjected to a Pulsed Magnetic Dynamic Load

Mr. Ming Xia, China; Mr. Zhengxiang Huang, Mr. Xiaohui Gu, Mr. Yezhong Wang, Mr. Xin Jia

11796 - The Analogue Simulation Research About the Cloud Detonation Wave's Propagation Process of FAE Warhead

Mr. Ri-sheng Hou, China; Mr. Shao-bo Cheng, Mr. Hui Xie, Mr. Tie-min Xue

11901 - Correction of Gurney Equation for Asymmetric Sandwich in Relation to Linear EFP

Dr. Zbynek Akstein, Czech Republic; Mr. Ladislav Riha, Assoc.Prof. Stanislav Rolc

11936 - Evaluation of Steel Reinforced Fiber Cases for Army Applications

Dr. Thuvan Piehler, USA; Mr. Richard Benjamin

11938 - Characterization of Explosively Formed Steel Fragments Using High Speed Imaging

Mr. Richard Benjamin, USA; Dr. Thuvan Piehler, Dr. Matthew Biss

11959 - Detailed Investigation into the Scaling of Mine Blast Loading to Armors and Vehicles

Mr. Scott A. Mullin, USA; Erick Sagebiel, James Mathis, Joseph Bradley, Carl Weiss, P.A. Cox

11964 - An Experimental Study on an Enhanced Focused Fragmentation Warhead

Mr. Sun Chuanjie, China; Hu Yanhui, Lu Yonggang, Feng Gaopeng, Yang Qi

11969 - Fragmentation of 155mm Artillery Grenade, Simulations and Experiment

Ms. Anne Kathrine Prytz, Norway; Gard Ødegårdstuen

12003 - Application of a Soil Model in the Numerical Analysis of Landmine Interaction with Protective Structures

Mr. Michael Saleh, Australia; Prof. Lyndon Edwards

12004 - Lethality Assessment of High Explosive (HE) Warhead with Preformed Fragments

Dr. Ganchai Tanapornraweekit, Thailand; Weerachart Kulsirikasem

12006 - Experimental Studies of Scalable Effects Warhead Technologies

Dr. Markus Graswald, Germany; Dr. Werner Arnold

12022 - Non-Initiating Precursor Charge Technology Against ERA

Dr. Andreas Helte, Sweden; Mr. Jonas Lundgren

12023 - Development of a Subsonic Anti-Structure-Penetrator

Mr. Hendrik Lips, Germany; Mr. Rolf Rittel

12060 - Investigation of Acceleration Behavior of Shaped Charge Liners

Mr. Eser Gürel, Turkey; Mr. Burak Tarkan

12085 - Parallel Detonation Shock Dynamics Algorithm for Insensitive Munitions Using ALE3D

Mr. David Pfau, USA; Dr. Fady Najjar, Dr. Jin Yao, Dr. Brian McCandless, Dr. Albert Nichols III

12106 - A Small Scale Unitary Demolition Charge

Mr. Daniel Boeka, USA; Arthur S. Daniels, Neal Ouye, Dan Suarez, Steve Hancock

12150 - Axisymmetic Finite Element Simulation of Shape Charges

Mr. Devon Downes, Canada; Dr. Manouchehr Ensan, Dr. Amal Bouamoul, Dr. Yves Baillargeon

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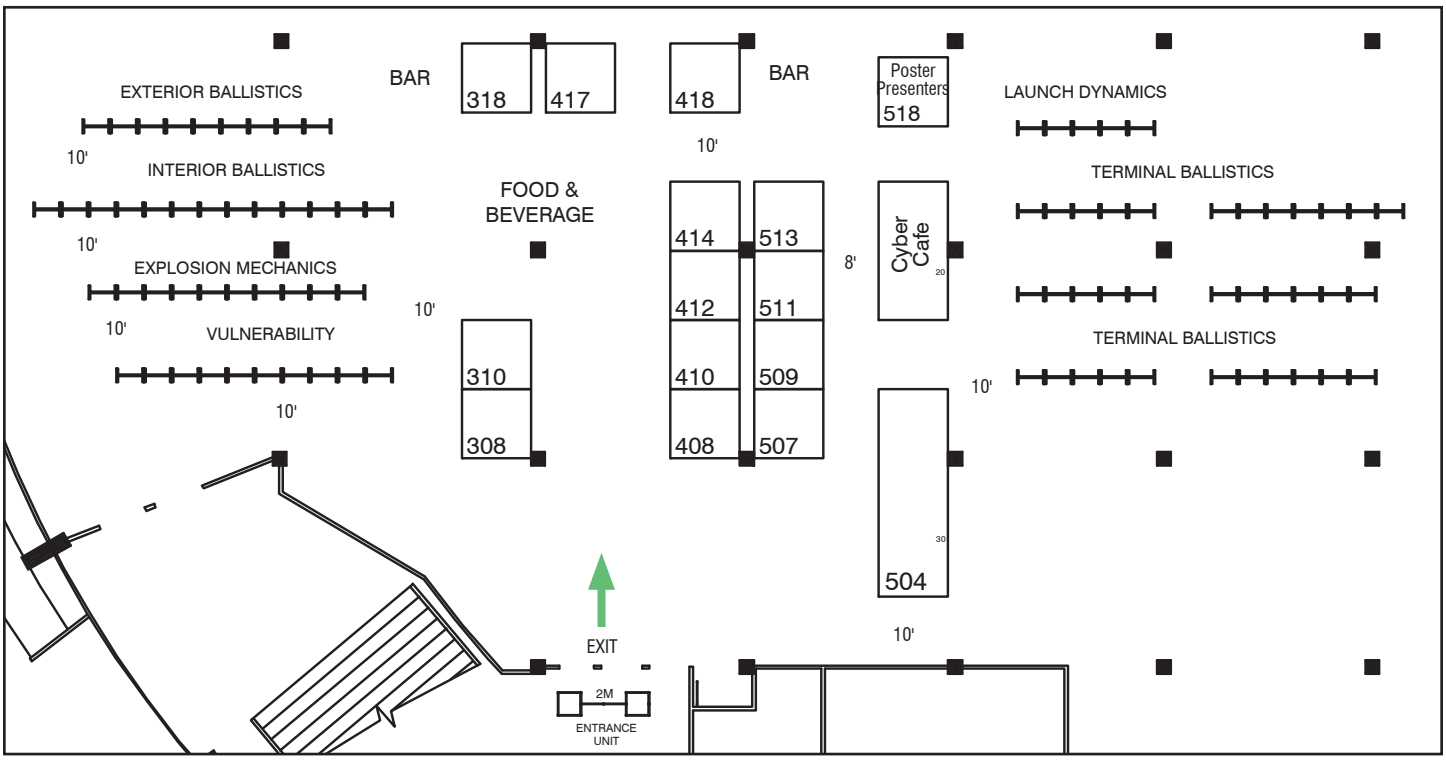

AWARD INFORMATION

THE ROSALIND AND PEI CHI CHOU AWARD FOR YOUNG AUTHORS

The young author of the paper must be 35 years of age or younger at the time of the symposium. The paper may have multiple authors, however, the young author must have made a major contribution to the paper. The young author must be registered at the symposium and must give the oral presentation or the poster presentation to be eligible for the Award.

THE LOUIS & EDITH ZERNOW AWARD

This award is given by Louis and Edith Zernow to the author of the paper with the most significant contribution to the advancement of "fundamental understanding" in the fields of ballistic science.

All papers, both oral and poster, will be considered eligible and reviewed for this award. No application is required. The selection is based solely on technical content of the published paper.

THE NEILL GRIFFITHS MEMORIAL AWARD

The Griffiths Award is presented to the author(s) of the paper judged to have made the most significant contribution to shaped charge technology at the International Symposium on Ballistics.

All papers, both oral and poster, will be considered eligible and reviewed for this award. No application is required. The selection is based solely on technical content of the published paper.

THE SOUTH AFRICAN BALLISTICS ORGANISATION (SABO) AWARD

The SABO Award is presented to the author(s) of the best poster as displayed and presented to appointed adjudicators. The presence of the author at the poster during the session is of paramount importance.

The objective of this award is to inspire poster presenters to present their work in creative, legible and professional fashion thus enhancing the poster sessions as a quality medium for the exchange of information during the symposium.

A maximum of three posters from each poster session will be nominated for the award by the poster chairmen. All nominations will be evaluated on equal footing by the adjudication committee for visual quality, creative skill and layout, and a winner will be selected from the nominations.

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The company's Land Systems division provides a comprehensive suite of survivability solutions to protect the Warfighter in any environment, including ground vehicle and aircraft armor, RPG defeat solutions, blast mitigating seating solutions, precision air drop systems, integrated Warfighter systems, egress lighting and gunfire detection technology to name a few.

QNA is the world's largest add-on armor manufacturer for fixed wing aircraft. The company has delivered armor upgrades on every C-5 and C-17 in the US fleet, and the majority of C-130 aircraft in the US fleet and those of 16 other countries. QNA's LAST® Armor vehicle protection products and flexible ballistic spall liners protect Warfighters in a broad range of ground vehicles.

The Q-Net™ lightweight RPG protection system is best in class for protecting vehicles against the prolific RPG threat. Q-Net is sixty percent lighter than conventional RPG defeat systems, and offers 360 degree protection and multi-hit capability. This combat-proven solution is deployed on more than 8,000 vehicles and has the highest defeat rate of any passive solution.

QinetiQ North America is currently supplying Individual Gunshot Detection Systems (IGDS) to the US Army. These low profile, shoulder worn acoustic targeting systems (SWATS™) detect incoming small arms fire and report the threat's range and bearing in both audible and visual formats in less than one second. The US Army and US Marine Corps have selected SWATS as their technology solution of choice for individual gunfire detection systems.

QinetiQ North America delivers world-class technology, responsive services and innovative solutions for global markets, focusing on government and commercial customers. Its engineers, scientists and other professionals deliver high quality products and services that leverage detailed mission knowledge and proven, reliable tools and methodologies to meet the rapidly changing demands of national defense, homeland security and information assurance customers.

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