



BALLISTICS 2026

35th International Symposium on Ballistics

Cape Town, South Africa, 25-30 October 2026

Cape Town International Convention Centre, Cape Town

1 Lower Long Street, Cape Town 8001

PROVISIONAL PROGRAMME

SOCIAL SESSIONS

Welcome Reception: Monday 26 October 2026: 17:30 onwards

Networking Function: Tuesday 27 October 2026: 18:30 onwards

**Conference Dinner at Gold Restaurant: Wednesday 28 October 2026:
19:30 onwards**

Technical/Programme Tour: Thursday 29 October 2026: 12:30 onwards



Sunday 25 October 2026

- 10:30-13:00 Tutorial Registration
- 13:00-15:00 Tutorials: 2 Streams (A & B) – EB201 and VS201
- 15:00-15:30 Tea & Coffee Break
- 15:30-17:00 Tutorials: 2 Streams (A & B) – EB201 and VS201

Monday 26 October 2026

- 07:30-08:00 Tutorial Registration
- 08:00-10:00 Tutorials: 2 Streams (A & B) – IB101 and EM101
- 10:00-10:30 Tea & Coffee Break
- 10:30-12:00 Tutorials: 2 Streams (A & B) – IB101 and EM101
- 12:00-13:00 Lunch Break
- 13:00-15:00 Tutorials: 2 Streams (A & B) – EB101 and TB101
- 15:00-15:30 Tea & Coffee Break
- 15:30-17:00 Tutorials: 2 Streams (A & B) – EB101 and TB101
- 17:30 onwards Welcome Reception

Tuesday 27 October 2026

- 07:30-08:00 Registration
- 08:00-08:10 Welcome and administrative remarks by co-chairs
- 08:10-08:20 About ISB by IBS President
- 08:20-08:40 Plenary Lecture 1 – DOD
- 08:40-09:15 Plenary Lecture 2 – Dr James D Walker, USA
- 09:15-09:30 Platinum Sponsor Presentation - Frazer-Nash Consultancy
- 09:30-10:00 Tea & Coffee Break
- 10:00-11:30 S1-Terminal Ballistics (A)
- 11:30-13:00 S2-Explosion Mechanics (A) & P1-Terminal Ballistics (B)

- 13:00-14:00 Lunch Break
- 14:00-15:30 S3-Vulnerability and Survivability(A)&P2-Interior Ballistics (B)
- 15:30-15:50 Tea & Coffee Break
- 15:50-17:20 S4-Terminal Ballistics (A) & P3-Explosion Mechanics (B)
- 17:20-18:05 S5- Applications of AI in Ballistics (A)
- 18:30 onwards Networking Function

Wednesday 28 October 2026

- 08:00-08:20 Registration
- 08:20-09:00 Plenary Lecture 3 – Dr Frederik Mostert, RSA
- 09:00-09:20 Diamond Sponsor Presentation - Impetus Afea
- 09:20-09:30 Gold Sponsor Presentation – Flir Systems Trading
- 09:30-10:00 Tea & Coffee Break
- 10:00-11:30 S6-Exterior Ballistics (A) & P4-Vulnerability and Survivability(B)
- 11:30-13:00 S7- Emerging Smart Technologies, Drones & Other Technologies (A) & P5-Terminal Ballistics (B)
- 13:00-14:00 Lunch Break
- 14:00-15:30 S8-Terminal Ballistics (A) & P6- Launch Dynamics (B) & P7- Exterior Ballistics (B)
- 15:30-15:50 Tea & Coffee Break
- 15:50-17:20 S9- Interior Ballistics (A) & P8- Emerging Smart Technologies, Drones & Other Technologies (B) & P9-Interior Ballistics (B) & P10- Applications of AI in Ballistics and Cross-cutting Ballistics
- 17:20-18:05 S10- Applications of AI in Ballistics (A)
- 19:30 onwards Conference Dinner at Gold Restaurant

Thursday 29 October 2026

- 08:00-08:20 Registration
- 08:20-09:50 S11-Interior Ballistics (A)
- 09:50-10:00 Silver Sponsor Presentation - Qfinsoft
- 10:00-10:30 Tea & Coffee Break
- 10:30-12:00 S12- Launch Dynamics (A)
- 12:00-12:30 Light Lunch Break

12:30 onwards Technical/Programme Tour – Collection at CTICC

Friday 30 October 2026

08:00-08:20	Registration
08:20-09:50	Session 13 – Cross-cutting Ballistics (A)
09:50-10:00	Silver Sponsor Presentation - Specialised Imaging
10:00-10:10	Silver Sponsor Presentation - ECM Technologies
10:10-10:20	Silver Sponsor Presentation - NUMERICS GmbH
10:20-10:50	Tea & Coffee Break
10:50-11:40	Presentation Ceremony
11:40-12:00	Invitation to 36th ISB
12:00-13:30	Society Business Meeting
13:30-14:30	Lunch Break
14:30	Symposium Adjourned

TUTORIAL SESSIONS

Tutorial Session 1: Sunday 25 October 2026: 13:00–17:00

Stream A: EB201

13:00-17:00 Exterior Ballistics Beyond Classical Models: Scientific Machine Learning and PINNs by **Dr Rajesh Gopalapillai**, *IIT, India*

Stream B: VS201

13:00-17:00 Small Arms Forensic Ballistics Engineering by **Mr Lamagna David**, *American Forensic, USA*

Tutorial Session 2: Monday 26 October 2026: 08:00–12:00

Stream A: IB101

08:00-12:00 Introductory Interior Ballistics by **Dr Sucheendran Mahesh**, *IIT Hyderabad, India*

Stream B: EM101

08:00-12:00 Introductory Explosion Mechanics by **Dr Mostert Frederik**, *Explophys, South Africa*

Tutorial Session 3: Monday 26 October 2026: 13:00–17:00

Stream A: EB101

13:00-17:00 Introductory Exterior Ballistics by **Dr de Briey, Veronique**, *RMA, Belgium*

Stream B: TB101

13:00-17:00 Introductory Terminal Ballistics by **Dr. Charles Vasconcelos**, *CIABA, Brazilian Navy*

PLENARY SESSIONS – HALL 1.40

Plenary Session 1: Tuesday 27 October 2026: 08:20–08:40

08:20-08:40 Department of Defence – South Africa

Plenary Session 2: Tuesday 27 October 2026: 08:40–09:15

08:40-09:15 Impacting an Asteroid: The DART and Hera Missions. Dr James D. Walker, United States of America.

Plenary Session 3: Wednesday 28 October 2026: 08:20–09:00

08:20-09:00 An Overview of Historical Developments in Ballistics Technology in South Africa. Dr Frederik Mostert, SOUTH AFRICA.

ORAL SESSIONS – HALL 1.40

Tuesday 27 October 2026

Session 1: 10:00–11:30

Stream A: Terminal Ballistics

- 10:00–10:15** Influence of conditioning of the tip of shaped charge jets on the effectiveness of nonexplosive reactive armour
A. Klavzar — *French-German Research Institute, ISL, France*
- 10:15–10:30** Fragmentation of a M42 shaped charge and its jet penetration into concrete
L. Koene — *Knowledge Centre Weapon Systems and Munitions (KCW&M), MoD, Netherlands*
- 10:30–10:45** Methodology for Developing of a 50th-Percentile European Male Thoracoabdominal Model for Ballistic Impact Assessment
L. Milakovic — *Royal Military Academy (Brussels), Belgium*
- 10:45–11:00** Partitioning of shallow buried near-field blast
D. Reinecke — *Council for Scientific and Industrial Research (CSIR) South, South Africa*
- 11:00–11:15** A hybrid SPH-FEA numerical framework for predicting the response of reinforced concrete slabs under contact detonation
M. Cheng — *Natural Resources Canada (NRCan), Canada*
- 11:15–11:30** Calibration and Reporting of 20% Ballistic Gelatine for Terminal-Ballistics Experimentation: A Methodological Framework
W. Bezuidenhout — *Unisa, South Africa*

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Session 2: 11:30–13:00

Stream A: Explosion Mechanics

- 11:30–11:45** Experimental and numerical analysis of an add-on module enabling the change of warhead operation mode from shaped charge
R. Warchol — *Military Institute of Armament Technology, Poland*
- 11:45–12:00** Performance of shaped charges made using different HE manufacturing methods
A. Helte — *FOI, Swedish Defence Research Agency, Sweden*
- 12:00–12:15** Effect of explosive configuration on residual capacity of concrete columns under close-in explosion
R. K. Mishara — *Indian Institute of Technology Madras, India*
- 12:15–12:30** Effect of Processing and Shock on HE Grain Integrity
T. Hartmann — *Numerics GmbH, Germany*
- 12:30–12:45** State of The Art in Dynamic Test of Fragmentating Warheads in Area
A. Wasilewski — *Military Institute of Armament Technology, Poland*
- 12:45–13:00** Numerical Investigation of Cylindrical Shaped Charge Jet Formation
G. Liu — *Missouri S&T Mining and Explosive Engineering, United States*

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Session 3: 14:00–15:30

Stream A: Vulnerability and Survivability – Prof T Pandelani

- 14:00–14:15** Experimental Investigation of Shock Wave Behaviour in a Soft Tissue Model Using a Free Field Shock Wave Generator
S. Grobert — *Bundeswehr Office for Defence Planning, Germany*
- 14:15–14:30** Head surrogate use and development for Kinetic Energy Non-Lethal Weapon injury assessment
C. Robbe — *Royal Military Academy, Belgium*
- 14:30–14:45** Blast impulse reduction using mitigating media
G. Gettle — *Fireproof Solutions, Inc, United States*
- 14:45–15:00** System Integration and Dynamic Performance Evaluation of a Single Stage Gas Cannon-Barrel Assembly
P. Maleka — *Arm Scor, South Africa*
- 15:00–15:15** Investigations regarding the design of an abdominal impacts assessment tool for KENLW
A. Andrei — *Royal Military Academy, Bruxelles, Belgium*
- 15:15–15:30** Damage threshold of the aircraft's all-movable horizontal tail under the attack of a discrete rod warhead
Y. Li — *Northwestern Polytechnical University, China*

Session 4: 15:50–17:20

Stream A: Terminal Ballistics

- 15:50–16:05** Triggering radial back face fracture of additively manufactured ceramic tiles
R. De Coster — *Royal Military Academy, Belgium*
- 16:05–16:20** Hybrid technique for manufacturing of layered titanium-based structures and preliminary impact tests of produced specimen
B. Fikus — *Department of Artillery and Ballistics, Military University, Poland*
- 16:20–16:35** Analysis of shaped charge jets penetration capabilities in water medium
P. Zochowski — *Military Institute of Armament Technology, Poland*
- 16:35–16:50** Analysis on the applicability of the crack tip integral J for high strain rate events in IMPETUS Afea based on lab scale
J. Breiner — *Politehnica Bucharest, Belgium*
- 16:50–17:05** Advancing Military Helmet Padding Systems for Traumatic Brain Injury Mitigation Through Innovative Materials Design
D. Portillo — *Southwest Research Institute, United States*
- 17:05–17:20** Comprehensive 6-DOF Modeling and Reduced-Order Analysis of Spinning Projectiles: Application to 7.62 mm External Ballist
Á. García — *Embry-Riddle Aeronautical University, United States*

Session 5: 17:20–18:05

Stream A: Applications of AI in Ballistics

- 17:20–17:35** Neural Simulation Framework for Tracking and Anticipating Aerial Threats
J. Catselblanco — *Embry-Riddle Aeronautical University, United States*
- 17:35–17:50** Determination of Ballistic Limit Curves Using Physics-Informed Oversampling Machine Learning Algorithms
T. Fras — *French-German Research Institute, France*
- 17:50–18:05** The Sovereign Kill-Web: Managing Distributed AI-Ballistic Integration in Contested Environments
M.J Thaba — *Council for Scientific and Industrial Research (CSIR), South Africa*

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Wednesday 28 October 2026

Session 6: 10:00–11:30

Stream A: Exterior Ballistics

- 10:00–10:15** Approximation of Tabular Firing Tables Data and Their Compression
V. Cech — *Retired, Czech Republic*
- 10:15–10:30** Coupled Effects of Strong Wind and Heavy Rain on Aerodynamic Performance for a Subsonic Flight Vehicle
S. Chang — *Nanjing University of Science and Technology, China*
- 10:30–10:45** Trajectory prediction of flexible projectiles accounting for inertia variations
D. Norena — *KNDS Ammo France, France*
- 10:45–11:00** Comparison of Forced- and Free-Oscillation CFD Methods for Calculating Pitch Damping Coefficients of Finned Projectiles
E. Botha — *ENGYS LTD, South Africa*
- 11:00–11:15** Numerical Aerodynamic Analysis of a C-UAS Rocket
M. Di Matteo — *Weapon Systems and Ballistics, Royal Military Academy, Belgium*
- 11:15–11:30** Aerodynamic transition driven optimization study on acceleration transfer interface of a kinetic energy projectile
G. Rajesh — *Indian Institute of Technology Madras, India*
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Session 7: 11:30–13:00

Stream A: Emerging Smart Technologies, Drones & Other Technologies

- 11:30–11:45** Design and development methodology of an additively manufactured microjet engine and test stand
Nalendran Singh — *Armescor, South Africa*
- 11:45–12:00** Smart Armour: Momentum-Based Threat Classification and Real-Time Damage Detection
A. Miranda-Vicario — *Royal Military Academy, Belgium*
- 12:00–12:15** Methodology for the Assessment of Unguided Kinetic Effectors as Counter UAS solution
C. Ameloot — *Royal Military Academy, Belgium*
- 12:15–12:30** Modeling the influence of uncertainties in kinetic unguided C-sUAS systems using stochastic dynamics
T. Caelen — *Royal Military Academy, Belgium*
- 12:30–12:45** Theoretical analysis and experimental study of multi-physics coupling ablation model in high-speed sliding electrical
H. Zhang — *Nanjing University of Science and Technology, China*

12:45–13:00 Ballistic Theory Curriculum in The United States: An Academic Review
W. Maniscalco — *Missouri University of Science and Technology, United States*

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Session 8: 14:00–15:30

Stream A: Terminal Ballistics

- 14:00–14:15** Design of Multi-Layer Soft Catch Systems for Ballistic Impact
A. Carpenter — *Southwest Research Institute, United States*
- 14:15–14:30** Ballistic protection enhancement of Aluminum Alloys using a single-step dynamic plastic deformation process
J. Mespoulet — *EURENCO Engineering, France*
- 14:30–14:45** Experimental Setup Optimization for Wound Ballistics Using High-Speed Cameras
J. Fernandes — *Royal Military Academy, Belgium*
- 14:45–15:00** Integration of 3D Printed Auxetic Pads for Enhanced Comfort and Protection in Ballistic Vests
A. Azevedo — *Royal Military Academy, Belgium*
- 15:00–15:15** Equivalent Steel Thickness Approach for Modeling UHMWPE Soft Armor: An Experimental and Numerical Study
M.F. F. Melgosa — *Royal Military Academy, Belgium*
- 15:15–15:30** Modeling and simulation of hypervelocity impact of polymethyl methacrylate
J. Clayton — *DEVCOM US Army Research Laboratory, United States*

Session 9: 15:50–17:20

Stream A: Interior Ballistics

- 15:50–16:05** Thermogravimetric Screening of Nanometal-Doped ABS/Graphene Composites Toward Optimized Hybrid Rocket Fuel Grains
G. Ndlovu — *Flamengro, a division of Armscor SOC, South Africa*
- 16:05–16:20** Long range 155mm artillery propelling charge development with a new high-energy low-vulnerability propellant composition
N. Teyssier — *EURENCO, FRANCE*
- 16:20–16:35** Material state and rifling effects on pressure-velocity response of FDM copper composite .38 special projectiles
A. Lyons — *Missouri University of Science and Technology, United States*
- 16:35–16:50** Novel method of characterising secondary flash when shooting infantry weapons
M. Racette — *General Dynamics, Canada*
- 16:50–17:05** Numerical study of internal ballistics of 132 mm AGARD gun for various grain geometries
M. Sucheendran — *Indian Institute of Technology Hyderabad, India*
- 17:05–17:20** Optimized Interior Ballistics via Level-Set Combustion Modeling of Complex-Shaped Propellant Grains
R Woelbing — *French-German Research Institute of Saint-Louis, ISL, France*

Session 10: 17:20–18:05

Stream A: Applications of AI in Ballistics

- 17:20–17:35** Non-Destructive Evaluation of ballistic body armour plates using AI-enabled rapid radiography
E. Lewis — *QinetiQ, United Kingdom*
- 17:35–17:50** Remote Multi-Sensor Fusion for Explosive Materials Detection: Integrating Chemical Gas Detection with Data-Driven Prediction
D. Modungwa — *Council of Scientific and Industrial Research (CSIR), South Africa*
- 17:50–18:05** Causal-adaptive physics-informed neural networks for multi-phase exterior ballistic prediction of guided projectiles
Z. Zhang — *Nanjing University of Science and Technology, China*

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Thursday 29 October 2026

Session 11: 08:20–09:50

Stream A: Interior Ballistics

- 08:20–08:35** Beyond C.I.P. Pmax: Evaluating pressure-time integration as a better predictor of projectile velocity
D. Gravis — *C.I.P. - ABAL (Royal Military Academy), Belgium*
- 08:35–08:50** Simulation of Ignition Transients and Grain Regression in Solid Rocket Motors Using an Immersed Boundary CFD Method
R. Heise — *Rheinmetall Denel Munitions, South Africa*
- 08:50–09:05** Performance Testing of Metallized Acrylonitrile Butadiene Styrene (ABS) Hybrid Rocket Fuel Grains
Devlin Govender — *Armescor, South Africa*
- 09:05–09:20** Determination of thermal parameters of solid propellants for Cook-Off Simulations using small sample quantities
Christian Teicht — *Fraunhofer ICT, Germany*
- 09:20–09:35** Refinement of Interior Ballistics Modeling Parameters Through Implementation of Novel Optimization Software
W. Schwartz — *Northrop Grumman, United States*
- 09:35–09:50** Application of an Implemented 3D XDG Simulation Approach for Ignition and Combustion of Propellant Grain Systems
D. Tomaszewski — *Fraunhofer Institute for Chemical Technology, Germany*
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Session 12: 10:30–12:00

Stream A: Launch Dynamics

- 10:30–10:45** Dynamic numerical simulation of the ramming and engraving phase in large-calibre artillery systems
L. Fritz — *Armescor, South Africa*
- 10:45–11:00** FEA Method for Preload Application in Projectiles During Gun Launch
M. Tesla — *US Army, United States*
- 11:00–11:15** Assessment of Medium and Large Caliber Ammunition Gun-Launch Survivability Utilizing Johnson Cook Modeling Techniques and Split-Hopkinson Pressure Bar Material Data Collection Methods
E. Benkufsky — *Northrop Grumman, United States*
- 11:15–11:30** Optimisation of slipping band design for a guided projectile
I. Delagrangé — *KNDS Ammo France, France*
- 11:30–11:45** A Modified Bingham Model for Magnetorheological Dampers for Recoil Control of Artillery Guns
M. Asif — *Indian Institute of Technology Madras, India*

11:45–12:00 A Closed-Form Approximation of Lift-Induced Trajectory Deviations for Spin-Stabilized Projectiles

Á. García — *Embry-Riddle Aeronautical University, United States*

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Friday 30 October 2026

Session 13: 08:20–09:50

Stream A: Cross-cutting Ballistics

08:20–08:35 Hypersonic and supersonic metal rod impact and fragmentation modeling in Rapid City Planner

S. Ryan — *Martec Limited, Canada*

08:35–08:50 Development of a Low-Cost Reusable Portable Colorimetric Detection Kit for Rapid Field Screening of Explosive Residues

L. Ndhlozi — *Council for Scientific and Industrial Research (CSIR), South Africa*

08:50–09:05 Progress involves experimentation an approach to optimizing Leonardo radio frequency fuzes against drones

L. Pinelli — *Leonardo S.P.A., La Spezia*

09:05–09:20 Real-time Trajectory Planning for Hypersonic Gliding Guided Projectiles Integrating Physics Constraints and Transformer

S. Wang — *National Key Laboratory of Transient Physics, China*

09:20–09:35 Aerodynamic Shape Optimization of a Mortar projectile using STAR-CCM+

Y. Dangor — *Rheinmetall Denel Munition, South Africa*

09:35–09:50 A CNN-LSTM-AM Approach to Decoding Complex Raman Spectra in the Characterisation of HMEs

N. Thunyiswa — *Council of Scientific and Industrial Research (CSIR), South Africa*

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POSTER SESSIONS – EXHIBITION HALL

Session 2: 11:30–13:00

Stream B: Terminal Ballistics Poster Session (P1)

Effects of Entrance-Plate Material and Thickness on the Fragmentation and Energy Release of HfZrTiTa_{0.2}Al_{0.8} High-Entropy Alloy Energetic structural material under Ballistic Impact

Liu Rui — *Beijing Institute of Technology, China*

Defeating Modern ERA: Design and Analysis of a Non-initiating Tandem Warhead

K. S. Yoon — *Agency for Defense Development, Republic of Korea*

Numerical Situation on MEFP of Double-Layer Liner Integrated Charge Structure

Hang Yang — *Beijing Institute of Technology, China*

Numerical and Experimental Analysis of a Dual-Functional Penetrator

Chi Young RYU — *Agency for Defense Development (ADD), Republic of KOREA*

Influence of Aerodynamic Shock Structure and Hollow-Point Geometry on Penetration of 9 mm Hollow-Point Projectiles

Rachel Bauer, Tate Friedrich, and Catherine Johnson — *Missouri University of Science and Technology, United States*

Study on the Lethal Effects of the Action Sequence of Fragments and Shock Waves on Human Head Targets Wearing Ballistic

Yaoke Wen — *Nanjing University of Science and Technology, CHINA*

Terminal ballistics tests of concrete and estimation of influence of fiber reinforcement on structure performance

Bartosz Fikus — *Department of Artillery and Ballistics, Military University, Poland*

Characterisation of Homemade Explosives using Raman Spectroscopy, Trace X kit and DTA: Synthesis, Identification

Pholisa Ngcebesha — *Council for Scientific and Industrial Research, South Africa*

Penetration of a large-mass tungsten alloy kinetic energy penetrator into an ultra-high strength steel cylinder.

Zhengjie Zhou — *Nanjing University of Science and Technology, China*

Research on the non-ideal penetration effect of shaped charge jets into large interlayer structures

Qiangqiang Xiao — *Nanjing University of Science and Technology, China*

Mechanical Response and Effect of Layering of AA2024T3 under FSP impact

Tom Gerlache — *Royal Military Academy, Belgium*

Study on the Critical Criteria for Ignition and Detonation of Cased Melt-Cast TNT

Wang Feiyang — *Nanjing University of Science and Technology, China*

Prediction of stress concentration factor during the launch process of electron beam controlled projectile

zhaodong chu — *Beijing Institute of Technology, China*

Validation of FEA Method for Preload Application in Projectiles During Gun Launch

Miroslav Tesla — *US Army, United States of America*

Certain design considerations for sabots in sub-caliber projectiles

Rajesh G — *Indian Institute of Technology Madras, India*

Session 3: 14:00–15:30

Stream B: Interior Ballistics Poster Session (P2)

Muzzle Velocity Prediction for 2SLG Launcher: Neural Network, Physics-Based, and CEL Model Comparison

Jianming Yuan — *Nanyang Technological University, Singapore*

Comparing two dimensional internal ballistics modelling with experimental results for a 40 mm round with a long primer

Iain Robertson — *Frazer-Nash Consultancy, United Kingdom*

Structure design, thermal stability, and toughening behavior of ladder-like nitrocellulose for gun propellants

Zhenggang Xiao — *Nanjing University of Science and Technology, China*

Pressure-Impulse Response of Copper Crusher Gauges: A Comparative Study with Conformal Piezoelectric Ballistic Sensors

Phillip Mulligan — *Missouri University of Science and Technology, United States*

Investigation on Evaluation Method of Gun Propellant Gelatinization Process Based on Rheological Properties

Chengkai Pu — *Nanjing University of Science and Technology, China*

Study of sliver burning effects for multi perforated propellant grains

Yalamanchili Swapna — *Indian Institute of Technology Hyderabad, India*

A Geometry-Coupled Burnback Model for Predicting Internal Ballistics and Thrust in Hybrid Rocket Fuel Grains

Gail Ndlovu — *Flamengro, a division of Armscor SOC, South Africa*

A Study on Two-Phase Flow Characteristics of Interior Ballistics for Modular Charge Launch Systems

An Chen — *Nanjing University of Science and Technology, China*

Recoil Test Stand Design and Evaluation

Lindokuhle Songxi — *Armscor (Flamengro), South Africa*

Modeling, Experimental Validation, and Numerical Simulation of JA2 Double-Base Propellant Combustion in Closed Vessel

A. Z. Ibrahim — *Military Technical College, Egypt*

The Effect of Pre-Loading Propellant Climatic Conditioning on 9mm and 5.56mm Ammunition Internal Ballistics and Performance

Issa Rawashdeh — *Jordan Design & Development Bureau (JODDB), Jordan*

Investigation of Vortex-Induced Drainage Process within Spiral Grooves under Transient Gas Jets

HaoYu Guo — *Nanjing University of Science and Technology, China*

Atomistic Investigation of Near-Surface Carburization in an Fe Substrate under High-Temperature and High-Pressure Propellant Gas Conditions

Yike Yu — *University of Science and Technology, China*

Surface Treatment of Gun Propellants: Comparative Ballistic and Thermal Performance Evaluation

Birsen Hosafci — *Machinery and Chemical Industry Inc., Türkiye*

Session 4: 15:50–17:20

Stream B: Explosion Mechanics Poster Session (P3)

Characterization of Prefabricated Fragment Spatial Distribution Based on Skewed-normal Probability Density Functions

Rui Hao — *Nanjing University of Science and Technology, China*

The (x-t) diagram representation of shaped charge break-up time: Modelling validation and numerical simulation analysis

EL MAI Skander — *CEA, France*

Optimization research on underwater penetration structure of rod jet based on eccentric sub hemisphere

Haojie Wei — *Nanjing University of Science and Technology, China*

Jet formation and penetration performance of additively manufactured copper-polymer composite shaped charge liners

Avery Lyons — *Missouri University of Science and Technology, United States*

Modified Gurney velocity for taking into account a variable gas density and the plastic work consumed to deform the shell

Rotariu Adrian — *Military Technical Academy, Romania*

Influence of Wave Shaper Structure on Detonation Wave and Formation of Dual-Mode Shaped Charge

Yaobin Lu — *Beijing Institute of Technology, CHINA*

General Generation Algorithm of Hexahedral Mesh for Preformed Fragment Warheads

Feiyao Tang — *Beijing Institute of Technology, China*

Study on the Impact Detonation of Cylindrical Shell Charges with Different Curvature Radii Caused by Fragments

Zhiyang Ye — *Nanjing University of Science & Technology, China*

Particulate Jet Penetration into Hard Targets: A Theoretical and Experimental Study

Qi-feng Zhu — *The 705th research institute of China state shipbuilding Corporation Group Co., Ltd, China*

Axial Distribution Model of Initial Velocity of Different Types of Preformed Fragment Warheads

Xin Zhou — *Beijing Institute of Technology, CHINA*

Emulating shape-charge jet using plate-impact experiments

Bourboulou Marie — *CEA, France*

Numerical Simulation on Formation Characteristics of Composite Jet from Bi-layer Shaped Charge Liners

Shouren Wang — *State Key Laboratory of Explosion Science and Safety Protection, China*

Performance Characterization of an Explosive Bridgewire Detonator Using Electrical and Optical Measurements

Florin-Marian DÎRLOMAN — *Military Technical Academy - RO, Romania*

Emerging Heavy-Metal-Free Primary Initiators: Optimizing Safety, Performance, and Sustainability - A Review

Leon Ndhlozi — *Council for Scientific and Industrial Research (CSIR), South Africa*

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Wednesday 28 October 2026

Session 6: 10:00–11:30

Stream B: Vulnerability and Survivability Poster Session (P4)

Study on the Equivalent Thickness Relationship between T300 CFRP Laminates and 2A12 Aluminum Plates under Fragment Penetration

Ji Fu — *Nanjing University of Science and Technology (NUST), China*

A Damage Assessment Method for Building Structures Based on a Multi-level Correlation Model

YuanChentao — *Nanjing University of Science and Technology (NUST), China*

Analysis of the fragility of automobile generator under the action of fragments

MU Haoxuan — *Nanjing University of Science and Technology (NUST), China*

Numerical and Experimental Analysis of Blast Pressure Response Using a Blast Test Device

Thanyani Pandelani — *University of South Africa, College of Science, Engineering and Technology, South Africa*

Study on Establishment Method of Damage Criteria for Vehicle Engines Under Fragment Impact

Hongzhan Fa — *Nanjing University of Science and Technology (NUST), China*

Effectiveness of High-Energy Lasers Against Commercial Drones Carrying IEDs

Berat Alp Erbil — *Kuzgun Tech, Turkey*

Design Methodology of a Split-Hopkinson Pressure Bar System

Phethang Maleka — *Armescor, South Africa*

Element for increasing ERA sandwich effectiveness - part II.

Zbynek Akstein — *Explosia a.s., VUPCH, Czech Republic*

Improving the Multi-hit Capacity of Ceramic Armor

William Petzoldt — *Missouri University of Science & Technology, United States*

Implementation of STANREC 4744 evaluation methods for assessing the FN303 non-lethal weapon system

Anca Andrei — *Royal Military Academy, Belgium*

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Session 7: 11:30-13:00

Stream B: Terminal Ballistics Poster Session (P5)

Experimental study of metal combustion under varying strain rates

Marina Seidl — *French-German Research Institute of Saint-Louis, Germany*

Finite container effects on confined and constant parameter slice models for hydrodynamic ram induced cavities

Yangziyi Ji — *Nanjing Institute of Technology, China*

Performance of a Theoretical Tungsten-Cored Rifle Round Compared to Legacy Rifle Rounds via Finite Element Analysis

John Hawkins — *DEVCOM Armament Center, United States*

Comparison of the terminal ballistics efficiency of high hardness steels and titanium based alloys

Bartosz Fikus — *Department of Artillery and Ballistics, Military University, Poland*

Physics-informed neural networks for high-velocity penetration in multi-layer composite

Sobhan Pattajoshi — *Indian Institute of Technology Roorkee, India*

Damage Effects of Ni-Al Reactive Jets Against Typical Underwater Targets

Tianchu Wang — *Beijing Institute of Technology, China*

The Assessment of Modelling Tools to Rapidly Predict the Terminal Effects of Explosively Formed Penetrators

Sam Yeap — *Frazer-Nash Consultancy, United Kingdom*

Study on Residual Velocity Characteristics of Tungsten Alloy Spherical Fragments Penetrating Metal Targets

Yi Chen — *Nanjing University of Science and Technology, China*

Experimental Validation and Calibration of the HJC Material Model for High-Velocity Concrete Penetration Analysis

ERAY KILIC — *Aselsan Inc., Turkiye*

Design and Analysis of a Fragmentation Warhead against Hard Targets

H. J. Kwon — *Agency for Defense Development(ADD), Republic of Korea*

Close-range post-ricochet behaviour and stability of small-calibre projectiles

L. Koene — *Knowledge Centre Weapon Systems and Munitions (KCW&M), The Netherlands*

Validation of a finite element head model under high ballistic events

Nestor Nsiampa — *Royal Military Academy, Belgium*

Impact into limestone and aluminum: modeling, two-thirds power strain rate effect and size scaling, and friction

James Walker — *Southwest Research Institute, United States of America*

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Session 8: 14:00–15:30

Stream B: Launch Dynamics Poster Session (P6) and Stream B: Exterior Ballistics Poster Session (P7)

Launch (P6)

Flow visualization through a large caliber single baffle muzzle brake

M R Sreelal — *Indian Institute of Technology Madras, India*

A Method for Estimating Projectile Travel to Spin Up

Donald Carlucci — *DEVCOM Armaments Center, United States*

Exterior Ballistics Poster Session (P7)

An ENKF-ENKS-Based Method for Wind Estimation Using Ballistic Flight Data of Projectiles
Zhongyuan Wang — *Nanjing University of Science and Technology, China*

Wind tunnel scale effects on armor-piercing cone-stabilized discarding sabot projectiles
Miguel Angel Escudero Munoz — *Royal Military Academy, Belgium*

Estimating Probability of Hit from Dispersion Data: A Robust Method for Dealing with Outliers and Non-Normality
Kenneth Hohnecker — *US Army, DEVCOM AC, United States*

CFD Analysis of the Mutual Aerodynamic Influence of Multi-Tube Rail-Launched Projectiles
Véronique de Briey — *Royal Military Academy - Belgian Defence, Belgium*

Comparative Aerodynamic Characterisation of High Speed Armour Piercing Projectile Configurations
Fernando Faria — *Royal Military Academy, Belgium*

Machine Learning based Gain Scheduling for Control of Guided Artillery Projectiles
Anandaraj Amalraj — *ARMAMENT RESEARCH AND DEVELOPMENT ESTABLISHMENT (ARDE), INDIA*

A Novel Methodology for the Assessment of Guided Ammunition Ricochet
Alice Aleppi — *Leonardo S.P.A., Italy*

Review of In-Range Measurement Techniques for Projectile Aerodynamic Coefficients
Quentin Raemdonck — *Royal Military Academy, Belgium*

Aerodynamic Heating Studies for Long Range Guided Rocket
Sunil Hiwale — *Armament Research and Development Establishment (ARDE), DRDO, India*

Ogive Nose Separation Studies for Guided Artillery Rocket
Sunil Hiwale — *Armament Research and Development Establishment (ARDE), DRDO, India*

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Wednesday 28 October 2026

Session 9: 15:50–17:20

Stream B: Emerging Smart Technologies, Drones & Other Technologies Poster Session (P8) and Interior Ballistics Poster Session (P9) and Applications of AI in Ballistics and Cross-Cutting Ballistics Poster Session (P10)

Emerging Smart Technologies (P8)

Characterization of an Equivalent Plate to Model Small Unmanned Aircraft Frames in Fragment Impact Testing
C. Ameloot — *Royal Military Academy, Belgium*

Concept and ballistic tests of a fuse with self-destruct mechanism for RPG-76 Komar grenade launcher ammunition
Rafa Bazela — *Military Institute of Armament Technology, Poland*

Interior (P9)

Miniaturized electrothermal driven two-stage light gas gun for mm-sized hypervelocity projectiles

Willard Casey Uhlig — *DEVCOM-Army Research Laboratory, United States*

Study of integrated polyurethane-based flexible composite phase-change materials for reducing high energy gun propellant

Yongqiang Wang — *Xi'an North Huian Chemical Industries CO.,LTD, China*

CFD-Based Comparison of Early-Stage Internal Ballistic Simulations and Lumped Parameter Models

Afroditi Chalkopoulou — *Royal Military Academy of Brussels, Belgium*

Influence of Rolling Cycles on Rheological Properties of Double-Base Sheet Propellants

Teng Ren — *Nanjing University of Science and Technology, China*

Evaluation of Accuracy and Geometric Optimisation in the Design of Triple Base Propellant Grains for 155 mm Systems

Abbey Maheso — *Rheinmetall Denel Munition, South Africa*

Effect of velocity on the engraving behavior of a cased telescoped ammunition with a multi-layer metallic structure

RenJiu-Chang — *Nanjing University of Science and Technology, China*

Analysis of methanol/bioslurry fuel and combustion characteristics

Prisha Brijraj — *National Cheng Kung University (NCKU), Taiwan*

Harnessing Nature's Patterns: Computational Exploration of Xanthine-Inspired Motifs for Insensitive Energetic Materials

Lamla Thungatha — *CSIR, South Africa*

Study on unsteady combustion characteristics of HAN-based liquid-propellant droplet

Xiaochun XUE — *Nanjing University of Science and Technology, China*

Study on Thickness Shrinkage Model during the Casting and Drying of Nitrocellulose Films

Jiayi Du — *Nanjing University of Science and Technology, China*

AI (P10)

Gun Barrel Vibration, Analys Using AI. and Effect on Accuracy

Jon J. Yagla — *GunDynamics, Thermodynamics, and Ballistics LLC, United States*

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