

Monday 20/05/19 Afternoon

Time from Time to Activity

Optional Seminar

13 h 00	17 h 30	Optional Seminar (registration required)
13 h 00	14 h 15	Taser and FN 303 : operational aspects from the users point of view <i>P.H., Peloton Anti Banditisme, Special Unit Liege Police, Belgium</i>
14 h 15	14 h 30	Short break
14 h 30	15 h 45	Introduction on Non-Lethal-Weapon and Risk assessment of Kinetic Energy Non-lethal Impacts <i>Cyril Robbe, Royal Military Academy – Department of Weapons Systems and Ballistics, Brussels, Belgium</i>
15 h 45	16 h 15	Live demo in the ABAL ballistic laboratory <i>Cdt Jurgen Grossens, Royal Military Academy – Department of Weapons Systems and Ballistics, Brussels, Belgium</i>
16 h 15	17 h 30	Medical aspects linked to the use of Conducted Energy NLW <i>Eric Lemaire, University Hospital Center of Liège, Belgium</i>

Registration and Welcome drink

18 h 00	20 h 00	Registration, poster installation, oral presentation upload Registration drink
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Tuesday 21/05/19 Morning

Time from Time to Activity

Welcome and Keynote Session

Chair : Alexandre Papy

8 h 15	8 h 30	Opening and Welcome Major General Lutgardis Claes, Commander of the Royal Military Academy
8 h 30	8 h 45	Welcome from the European Working Group Rear Admiral Massimo Annati, Chairman of the European Working Group
8 h 45	9 h 10	Keynote speech Lieutenant General Rudy Debaene, Director General Material Resources and National Armament Director of the Belgian Army

Human rights, legal aspects and interational organizations session

Chair : Sjef Orbons

9 h 10	9 h 40	Non-Lethal Weapons Through the Lens of State Responsibility Paul Behrens, University of Edinburgh. School of Law, University of Edinburgh, Old College, South Bridge, United Kingdom
9 h 40	10 h 10	Developing international Guidance on Less-Lethal Weapons and Related Equipment in Law Enforcement (2019): A step towards transferable standards Christof Heyns, Institute for International and Comparative Law, University of Pretoria, South Africa
10 h 10	10 h 40	Update on Current and Planned NATO NLW Activities John Nelson, American Systems Corporation in support of U.S. Joint Non-Lethal Weapons Directorate, USA

Coffee break

10 h 40	11 h 10	Coffee break
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Conducted Energy Weapons session

Chair : Graham Smith

11 h 10	11 h 40	Benefits vs. Real and Perceived Risks of Handheld Electrical Weapons M.W. Kroll, University of Minnesota, USA
11 h 40	12 h 10	UK management of the in-service technical performance and manufacturers changes to the TASER® X2™ system. Graham Dean , Defence Science and Technology Laboratory (Dstl), UK
12 h 10	12 h 40	The Latest Generation Conducted Electrical Weapon: Evaluation of Safety and Effectiveness Donald Dawes, Lompoc Valley Medical Center, USA

Lunche Break

12 h 40	14 h 10	Lunch
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Tuesday 21/05/19 Afternoon

Time from Time to Activity

Business session

Chair : *Ulf Arborelius*

14 h 10 14 h 40 PSEMC's Non-Lethal Vehicle Stopping Device: ArrestNet™ -
Countering an Increasing Terror Trend: Vehicles as
Weapons at Public Events
Philip John Dandy, Non-Lethal Solutions Limited, Chapel House, UK

14 h 40 15 h 10 Non-Lethal Boat Stopping System
Andrew Howell, BCB International Ltd, Cardiff, UK

Posters in the spotlight - Poster session & coffee break

15 h 10 15 h 25 Posters 1-3

15 h 25 16 h 00 Coffee & poster session

Operations I session

Chair : *Rüdiger Haas*

16 h 00 16 h 30 Developing Use of Force Reporting: A Case Study from England and
Wales.
*A. Dymond, Sociology, Philosophy and Anthropology, Amory
Building, University of Exeter, UK*

16 h 30 17 h 00 A Technology Assessment approach of NLW for police and defence
forces: lessons learned from the Taser X2
trial of the Dutch National Police
Sjef Orbons, OSDAR, Eindhoven, The Netherlands

17 h 00 17 h 30 The United Kingdom operational experience of the TASER® X2™
*R.D. Sheridan, Defence Science and Technology Laboratory (Dstl),
Salisbury, UK*

17 h 30 18 h 00 Police use of non-lethal weapons: analysis of real cases
*A. Papy, Royal Military Academy, Department of Weapon Systems
and Ballistics, Eric Lemaire, University Hospital Center of Liège,
Belgium*

Welcome Reception

18 h 00 20 h 00 Welcome reception

Wednesday 22/05/19 Morning

Time from	Time to	Activity
8 h 30	8 h 35	Administrative remarks (organizers)
Operations II session		<i>Chair : Rebekah Newmann</i>
8 h 35	9 h 05	Rubber batons and ricochets: a case report Cédric Sautier, French Gendarmerie Forensic Sciences Institute, France
9 h 05	9 h 35	The Attenuating Energy Projectile: an update on effectiveness and safety from operational data. G Smith, Defence Science and Technology Laboratory, St Albans UK
9 h 35	10 h 05	A prospective Police Technology Assessment study of the use of non-penetrating projectiles for public order maintenance O.M.J. Adang, Academy of the Netherlands and University of Groningen (the Netherlands)
Posters in the spotlight - Poster session & coffee break		
10 h 05	10 h 20	Posters 4-6
10 h 20	10 h 55	Coffee & poster session
Modelling I session		<i>Chair : Sofia Hedensternia</i>
10 h 55	11 h 25	Numerical recreation of field cases on a biofidelic human FE model involving deformable less-lethal projectiles model involving deformable less-lethal projectiles A. Bracq, Laboratory LAMIH UMR CNRS 8201, University of Valenciennes, France
11 h 25	11 h 55	A Simple Model for Estimating Probability of Blunt Impact Skull Fractures Y. Macheret, Institute for Defense Analyses, Alexandria, USA
Lunch break		
11 h 55	13 h 25	Lunch

Wednesday 22/05/19 Afternoon

Time from Time to Activity

Modelling I session (follow on)

Chair : Sofia Hedensternia

13 h 25 13 h 55 The validation of a finite element head model for the non-lethal impacts

A. Oukara, Ecole Militaire Polytechnique, Algiers, Algeria

13 h 55 14 h 25 Impact of soft projectiles on rigid targets: modelling and impact pressure measurement attempt

Michel Arrigoni, ENSTA Bretagne, France

Posters in the spotlight - Poster session & coffee break

14 h 25 14 h 35 Posters 7-8

14 h 35 15 h 10 Coffee & poster session

Human Effects

Chair : Alexandre Papy

15 h 10 15 h 40 Estimation of Laser Dazzle Effects on Shooting Performance

M. Vandewal, Royal Military Academy, CISS Department, Brussels, Belgium,

15 h 40 16 h 10 The usability of the FN 303 in operational conditions: Nonlethal, less-lethal, or somewhat too lethal after all?

J. Taverniers , The Human Factors Lab, Tervuren, Belgium.

16 h 10 16 h 40 Trauma evaluation after using double tap marking FX[®]-cartridge for Force-on-Force military training.

JC. de Schoutheete, Queen Astrid Military Hospital, Brussels, Belgium

Thursday 23/05/19 Morning

Time from	Time to	Activity
8 h 30	8 h 35	Administrative remarks (organizers)
Innovation and design session		<i>Chair : Florian Audigier</i>
8 h 35	9 h 05	Toward Bullet Simulating Non-Lethal Projectiles <i>Cyril Robbe, Royal Military Academy – Department of Weapons Systems and Ballistics, Brussels, Belgium</i>
9 h 05	9 h 35	On the mechanical and chemical characterizations of foams used for non-lethal projectiles <i>A. Boudiaf, Ecole Militaire Polytechnique, Algiers, Algeria</i>
9 h 35	10 h 05	Error budget of non-lethal projectiles using stochastic simulations <i>I.Ndindabahizi, Royal Military Academy – Department of Weapons Systems and Ballistics, Brussels, Belgium</i>
Posters in the spotlight - Poster session & coffee break		
10 h 05	10 h 20	Posters 9-10
10 h 20	10 h 55	Coffee & poster session
Technical evaluation		<i>Chair : Graham Smith</i>
10 h 55	11 h 25	Optimizing a skin penetration model to assess kinetic energy non-lethal weapons <i>Fayçal CHIDIAC, French Gendarmerie Forensic Sciences Institute, Cergy-Pontoise, France</i>
11 h 25	11 h 55	In-situ Prediction of the Acoustic Impact of Stun Grenades <i>C. Amon, JOANNEUM RESEARCH Forschungsgesellschaft mbH – DIGITAL, Graz, Austria</i>
Lunch Break		
11 h 55	13 h 10	Lunch

Thursday 23/05/19 Afternoon

Time from Time to Activity

Technical evaluation (follow on)

Chair : *Graham Smith*

13 h 10	13 h 40	The United Kingdom Evaluation of an Overt GPS Tracking System – StarChase™ <i>R Newman, Home Office Security, Science and Innovation, Defence Science and Technology Laboratory (Dstl), Horsham, UK</i>
13 h 40	14 h 10	An Experimental versus Numerical method to assess head injuries of Non-lethal projectile impacts <i>C. Deck, Strasbourg University, UNISTRA-CNRS, ICube UMR 7357, Strasbourg, France</i>

Coffee Break

14 h 10	14 h 30	Coffee break
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Modelling II session

Chair : *Sjef Orbons*

14 h 30	15 h 00	Laser dazzling of CMOS imaging sensors <i>C. N. Santos, CISS Department, Royal Military Academy, Brussels, Belgium</i>
15 h 00	15 h 30	Active Denial Technology Computational Human Effects End-to-End Hypermodel For Effectiveness <i>Shelley Cazares, Institute for Defense Analyses, USA</i>
15 h 30	16 h 00	Biological risks of acute and chronic 94 GHz exposures <i>F. Del Vecchio, Institut de Recherches Biomédicales du Service de Santé des Armées, Brétigny sur Orge, France</i>
16 h 00	16 h 30	U.S. AFRL Program for Behavioral Effects of Non-Lethal Weapons <i>A. Ashworth, United State Air Force Research Laboratory, Fort Sam Houston, San Antonio, Texas, USA</i>

Best presentation and poster awards

16 h 30	16 h 45	Best presentation / best poster awards
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Closing

16 h 45	17 h 00	Closing <i>Rear Admiral Massimo Annati, Chairman of the European Working Group</i>
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Posters

- 1 A global survey of less lethal weapons manufacture and use – human rights and trade control implications.
Neil Corney, Omega Research Foundation, Manchester, UK
- 2 Contemporary development, trade and use of “remote control” riot control agent delivery mechanisms: challenges for effective State regulation
Michael Crowley, Omega Research Foundation, Manchester, UK
- 3 Effects associated with the pulsed current of electroshock devices
Tatiana Fomina, SRC-FMBC, 123182, Zhivopisnaya 46, Moscow, Russia
- 4 Methodology for the creation of an anthropometric 3D finite-element model of the human head for blunt impacts simulation
Nestor Nsiampa, Royal Military Academy – Department of Weapons Systems and Ballistics, Brussels, Belgium
- 5 Improved simulation of a human thorax subjected to ballistic impact
Lionel Gilson, Royal Military Academy – Department of Construction, Brussels, Belgium
- 6 Aerodynamical CFD Study of a non-lethal 12-gauge fin-stabilized projectile
Véronique de Briey, Royal Military Academy – Department of Weapons Systems and Ballistics, Brussels, Belgium
- 7 U.S. AFRL Program for Computational Behavioral Modeling
A. Ashworth, United State Air Force Research Laboratory, Fort Sam Houston, San Antonio, Texas, USA
- 8 In-band laser damage to an uncooled thermal infrared imager.
Gareth Lewis, CISS Department, Royal Military Academy, Brussels, Belgium
- 9 Evaluation of Natural Capsaicin pepper spray by GC-FID-MS, NMR and HPLC: an alternative to the use of Oleoresin Capsicum.
Nilton Olivera Junior, Condor Non-Lethal Technology, Rio de Janeiro, Brazil
- 10 Thoracic wall behavior, pulmonary injuries, physiological impairments and numerical approach after thoracic blunt trauma in pigs
Nicolas Prat, Institut de Recherches Biomédicales du Service de Santé des Armées, Brétigny sur Orge, France