8th European Symposium on Non-Lethal Weapons
May 18–20, 2015
Stadthalle Ettlingen, Germany
The European Working Group on Non-Lethal Weapons (EWG-NLW) serves as the Programme Committee:

Massimo Annati  
Italian Navy (ret’d), Milano, I

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Armament and Defence Technology Agency, Vienna, A

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FFI, Kjeller, NO

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University of Coimbra, Coimbra, P

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Swedish Defence Research Agency, Tumba, SE

Graham Smith  
Home Office Centre for Applied Science and Technology, St. Albans, UK

Chairman of the Symposium

Massimo Annati  
Italian Navy (ret’d), Milano, I
After many years of development and operational experience Non-Lethal Weapons have eventually gained a firm place among the tools available to both military and police. These tools allow them to accomplish their tasks and reduce the risks of causing needless and undesired outcomes.

However, despite a number of evident successes, problems are still affecting the fielding of many promising technologies. Public opinion, media and, as a consequence, policy makers and sometimes even the operators themselves, can feel substantial uncertainty about the ratio of effectiveness to risk. Some novel technologies seem also to be inherently linked with a lack of understanding of their effects and safety by the general public and this consequently creates misconceptions and controversy in use.

Lack of acceptance is a critical key factor in the overall process that should lead, within a reasonable timeframe, technologies to go from laboratories to operators in the field. Collection and publication of real world operational data to allow assessment of effectiveness and safety may increase confidence and also support innovation and improvements in current technologies by highlighting any shortcomings and strengths and refining guidance for use.

The 2015 Symposium’s overarching theme will be to examine the obstacles still faced in fielding non lethal technologies: assessment of effectiveness and safety; legal hurdles; public opinion objections; operators’ trust. The Symposium will provide a valuable opportunity to hear from, and discuss the lessons learnt across the many disciplines of this subject from a range of scientists, subject matter experts and operational practitioners. This will identify where gaps still exist to steer future activities.

The Symposium will further include topics on technology development (new technologies, model validation); capability development (effectiveness, safety, standardization); and acceptance.

Chairman of the Symposium
Massimo Annati
Italian Navy (ret’d), Milano
REGISTRATION

Please return the enclosed registration form or register online:
www.ict.fraunhofer.de/nlw2015
Registration fees (incl. proceedings, coffee breaks, lunch), depending on arrival of the registration form at the Fraunhofer ICT:

- Registration up to April 20, 2015: EURO 970,– (incl. 19 % VAT)
- Registration up to May 8, 2015: EURO 1,070,– (incl. 19 % VAT)

Participation cannot be guaranteed for registrations arriving after May 8, 2015.

The fee must be paid upon receipt of the invoice by remittance to the account given on the invoice.

CANCELLATION POLICY

EURO 300,– will be charged for cancellations after May 8, 2015. No-shows will be charged with EURO 800,–.

ACCOMMODATION

HORE Hotel Reservation
Bockstalstraße 20
76327 Pfinztal (Kleinsteinbach)
Germany

Telefax: +49 (0) 7240 / 9445-852
e-mail: HHRUdoHamm@t-online.de

An application form is enclosed. Online: www.H-H-Reservation.de/nlw2015.html

CONFERENCE OFFICE

Foyer of the Stadthalle Ettlingen.

Monday, May 18, 13.00 h till
Wednesday, May 20, 18.00 h

Phone   +49 (0) 72 43 / 101-158
Fax     +49 (0) 72 43 / 101-157

CHECK IN / WELCOME RECEPTION

Please check in at the conference office on Monday, May 18 between 13.00 and 20.00 h.

All participants are cordially invited to the Welcome Reception on the same day, 18.30 h – 21.00 h in the foyer of the Stadthalle Ettlingen.

CONFERENCE LANGUAGE

English

PROCEEDINGS

One copy is included in the registration fee. Additional copies cost EURO 70,– (Subscription price during the conference EURO 50,–).
Programme

Monday, May 18

15.45 – 16.00 Welcome

16.00 – 18.00 POSTER PRESENTATION (orally)
Chairman: M. Symons, Home Office CAST, St. Albans, UK

18.30 – 21.00 Welcome Reception
(in the Foyer of the Stadthalle Ettlingen)

Tuesday, May 19

08.30 Welcome and Opening
M. Annati
Chairman of the Symposium

08.45 V1 Keynote Lecture I
J. Shea
NATO, Brussels, B

Session 1 – ACCEPTABILITY I
Session Chair: S. Orbons
Private Expert, The Hague, NL

09.30 V2 MILITARY EMPLOYMENT OF NON-LETHAL WEAPONS: A TECHNOLOGICAL IMMATURE OR POLITICAL DISPENSABILITY
O. Fridman
University of Reading, Reading, UK

09.55 V3 CRIMINAL USE OF NLW AND IMPROVISED NLW
M. Filippi
Milano, I

10.20 V4 THE UTILITY, LIMITATIONS AND DANGERS OF USING „REMOTE CONTROL“ DELIVERY OF LESS-LETHAL WEAPONS IN LAW ENFORCEMENT AND MILITARY OPERATIONS
M. Crowley
Omega Research Foundation, Bradford, UK

10.45 Coffee Break
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<td>11.15</td>
<td>V5</td>
<td>REVIEW ON ICT’S RESEARCH ON SCALABLE NON-LETHAL LAUNCHERS AND PROJECTILES</td>
<td>T. Armbrust, H. Krebs, J. Neutz, P. Scholz, K.-D. Thiel, S. Zettl</td>
<td>Fraunhofer ICT, Pfinztal, D</td>
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<td>11.40</td>
<td>V6</td>
<td>COMPLEX FOR PERSONNEL NEUTRALIZATION WITH MINIMUM DANGER FOR VULNERABLE ORGANS</td>
<td>V. Elfimov, S. Leznin, V. Korenkov</td>
<td>Bauman Moscow State University, Moscow, RUS</td>
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<td>12.05</td>
<td>V7</td>
<td>NANOMOLECULAR CS</td>
<td>B. Brunkow</td>
<td>NEWCO Safety Technologies, Hamburg, D</td>
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<td>13.30</td>
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<td>Poster Session</td>
<td>Session Chair: M. Symons, R. Rahimi, U. Arborelius</td>
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<td>14.30</td>
<td>V8</td>
<td>ASSESSMENT METHODS FOR THE NON-LETHAL PROJECTILE HEAD IMPACT INJURY PREDICTION</td>
<td>A. Oukara, C. Robbe, A. Papy, N. Nsiampa</td>
<td>Royal Military Academy, Brussels, B, University of Liege, Liege, B</td>
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<td>15.20</td>
<td>V10</td>
<td>AN EFFECTS-BASED DESIGN APPROACH TO REQUIREMENTS GENERATION</td>
<td>E. Beier, T. Dayton, M. Jirjis, J. L. Simonds</td>
<td>Air Force Research Laboratory, Ft. Sam Houston, USA</td>
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Tuesday, May 19

Session 4 – UTILITY I
Session Chair: S. Hedenstierna
FOI, Tumba, SE

16.15  V11  UK POLICE CS AND PAVA SPRAYS FROM A TECHNICAL AND OPERATIONAL PERSPECTIVE
S. O’Rourke
Home Office CAST, St. Albans, UK

16.40  V12  AN HOLISTIC EVALUATION OF THE STATE OF THE ART AND FUTURE DEVELOPMENTS ON NON-LETHAL MICROWAVE SYSTEMS
F. Valente, P. Paulissen
TNO Defence, Security and Safety, Rijswijk, NL
J. Neutz, H. Urban
Fraunhofer ICT, Pfinztal, D
A. Roland-Price
RP Star Ltd, Bradford, UK

17.05  V13  NATO NLW CASE STUDY DEVELOPMENT AND ANALYSIS
P. Young
Joint Non-Lethal Weapons Directorate, Quantico, USA
J. Nelson
American Systems Corporation, Chantilly, USA

17.30  Poster Awards

Wednesday, May 20

8.45  V14  Keynote Lecture II
C. Burrows
Critical Intervention Consultant Services, UK

Session 5 – ACCEPTABILITY II
Session Chair: P. Giannetti
MoD, Rome, I

9.30  V15  LESSONS LEARNED FROM DEPLOYMENT OF CONDUCTED ENERGY WEAPONS
C. Lawrence
Ontario Police College, Aylmer, CAN

9.55  V16  ASSESSING THE UTILITY OF THE TASER FOR LAW ENFORCEMENT IN THE NETHERLANDS
J.B.J. Orbons
Private Expert, The Hague, NL
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<td>10.20</td>
<td>V17</td>
<td>EYESAFETY FEATURES FOR LASER DAZZLER SYSTEMS</td>
<td>M. Lindley, B.E. Meyers, Redmond, USA</td>
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<td>11.15</td>
<td>V18</td>
<td>NOMINAL OCULAR DAZZLE DISTANCE (NODD) - APPLICATION TO LASER DAZZLERS</td>
<td>C.A. Williamson, Dstl Porton Down, Salisbury, UK, L. N. McLin, Air Force Research Laboratory, Ft. Sam Houston, USA</td>
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<td>12.05</td>
<td>V20</td>
<td>THE PHYSIOLOGICAL EFFECTS AND TACTICAL APPLICATION OF MILLIMETRE WAVE NON-LETHAL TECHNOLOGIES</td>
<td>R. D. Sheridan, Dstl Porton Down, Salisbury, UK</td>
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<td>Chairman: M. Annati, Milano, I</td>
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Session 7 – TESTING II
Session Chair: A. Papy
Royal Military Academy, Brussels, B

14.30 V21 EXPERIMENTS AND MATHEMATICAL MODELING FOR EVALUATION OF NON-LETHAL WEAPONS
M. Risling, U. Arborelius
Karolinska Institute, Stockholm, SE
S. Hedenstierna
FOI, Stockholm, SE
J. Antona-Makoshi
Japan Automobile Research Institute, Tsukuba, JAP
J. Davidsson
Chalmers University of Technology, Gothenburg, SE

14.55 V22 NEW FEATURES OF THE TASER X2 AND X26P
G. Dean
Home Office CAST, St. Albans, UK

15.20 Coffee Break

Session 8 – UTILITY II
Session Chair: R. Haas
Armament and Defence Technology Agency, Vienna, A

15.50 V23 TASER AND LESS LETHAL FORCE: THE UK EXPERIENCE
A. Dymond
University of Exeter & Bristol, Exeter, UK

16.15 V24 ASSESSMENT OF LESS-LETHAL METHODS APPLICATION IN A SUICIDE BOMBING EVENT
F. Valente, Y. Khoe, M. van der Horst
TNO Defence, Security and Safety, Rijswijk, NL
N. Hale
CBRNE Ltd, Ashford, UK

16.40 V25 INFLUENCE OF COUNTER-MEASURES ON KINETIC ENERGY NON-LETHAL WEAPONS
A. Papy, C. Robbe, T. Dombard
Royal Military Academy, Brussels, B
A. Oukara
Polytechnic Military School of Algiers, Algiers, ALG
N. Nsiampa
University of Liege, Liege, B

17.05 Closing Remarks
M. Annati
Chairman of the Symposium
Posters will be presented during the whole Symposium. A special Poster Session will take place on Tuesday, May 19, 13.30 – 14.30 h. During this time authors should be present for discussion at their poster boards in the foyer.

P26  **LESS LETHAL IMPULSE NOISE AND OPTICAL EFFECTS: DGA LAND SYSTEMS INJURY RISK ASSESSMENT**  
A. Riesemann, E. Debord, J.-F. Jacquet, L. Pichonnat  
DGA Techniques Terrestres, Bourges, F

P27  **SAFETY TEST OF THE ELECTROSHOCK DEVICES: MODIFICATION OF THE BIOLOGICAL EFFECT OF ALCOHOL AND ADRENALINE**  
O. Grigoriev, A. Koklin, V. Stepanov  
Federal Medical-Biological Agency of Russia, Moscow, RUS

P28  **INHIBITORS FOR NON-LETHAL ANTI-MATERIAL APPLICATIONS**  
T. Armbrust, L. Rozincsak, M. Klemenz, M. Hummel, J. Bernewitz, J. Neutz  
Fraunhofer ICT, Pfinztal, D

P29  **RESULTS FOR MINIATURIZED DIRECTED ACOUSTIC ARRAYS**  
T. Armbrust, H. Krebs, J. Neutz, E. Walschburger, N. Eisenreich  
Fraunhofer ICT, Pfinztal, D

P30  **SAFE NEUTRALIZATION OF IEDs WITH APPLICATION OF PORTABLE SHIVA-LIKE SUPER-SONIC ABRASIVE WATER-JET GUNS**  
I. Plaksin, L. Rodrigues, R. Mendes, S. Plaksin  
University of Coimbra, Coimbra, PT

P31  **CHALLENGES IN INTEGRATING EVIDENCE GATHERING TECHNOLOGY INTO A CONFLICT MANAGEMENT TECHNOLOGY**  
M. Henry, G. Buckler, R. Davies  
Cerberus Black Ltd., Haywards Heath, UK

P32  **DISTANCE ACTIVE LESS-LETHAL WEAPONS**  
C. Wolfschmitt  
Diehl BGT Defence, Röthenbach, D

P33  **ELECTRICAL TESTING OF TASER X2 AND TASER X26P CONDUCTED ENERGY WEAPONS**  
J. Bray  
Royal Military College of Canada, Kingston, CAN

P34  **DO CONDUCTED ELECTRICAL WEAPON PROBES CARRY DANGEROUS BACTERIA?**  
J. Ho, V. Johnson, J. Karambay, C. Kniffin, R. Nelson, J. Miner  
Hennepin County Medical Centre, Minneapolis, USA  
D. Dawes  
Santa Barbara Police Department, Santa Barbara, USA

P35  **METHODOLOGY OF NON-LETHAL WEAPONS GRAPH-ANALYTICAL ASSESSMENT**  
V. Selivanov, D. Levin  
Bauman Moscow State University, Moscow, RUS
P36 CONCEPTUAL STRUCTURE AND ARCHITECTURE OF NON-LETHAL WEAPONS DATABASE
V. Selivanov, D. Levin
Bauman Moscow State University, Moscow, RUS

P37 CAMERA FOR LASER EYE DAZZLE ASSESSMENT (CLEDA)
C.A. Williamson
Dstl Porton Down, Salisbury, UK

P38 GUIDELINES TO DEVELOP KINETIC ENERGY NON-LETHAL PROJECTILES
C. Robbe, A. Papy, L. Fizaine
Royal Military Academy, Brussels, B
A. Oukara
Polytechnic Military School of Algiers, Algiers, ALG
N. Nsiampa
University of Liege, Liege, B

P39 THE EXPERIMENTAL METHOD FOR EVALUATING THE EFFECTIVENESS OF THE POLICE ACOUSTIC GENERATOR
O. Grigoriev, A. Datsenko, A. Sazhin
Federal Medical-Biological Agency of Russia, Moscow, RUS

P40 ELECTRICAL SAFETY EVALUATION OF THE NEXT GENERATION CONDUCTED ELECTRICAL WEAPONS
M. Jirjis, E. Beier, T. Dayton, J. L. Simonds
Air Force Research Laboratory, Ft. Sam Houston, USA

P41 ACOUSTIC NON-LETHAL WEAPONS’ ANTIDOTES MODELS
F. G. Nikolaevich, E. V. Ivanovna, B. V. Stanislavovich, S. V. Vadamovich
Bauman Moscow State University, Moscow, RUS

P42 OPTICAL CHARACTERISATION OF FLASH-BANGS
G. Kalinka, T. Piller, A. Dötsch, A. Sarras, K. Groschupf
Armament and Defence Technology Agency, Vienna, A

P43 MATCHING OPERATIONAL REQUIREMENTS WITH NON-LETHAL CAPABILITIES
T. Dayton, M. Jirjis, E. Beier, J. L. Simonds
Air Force Research Laboratory, Ft. Sam Houston, USA

P44 RE-PURPOSING EXISTING AND FAMILIAR TECHNOLOGIES: A SUCCESS STORY
C. Lawrence
Ontario Police College, Aylmer, CAN

P45 EXPLORING THE USE OF RIOT CONTROL AGENTS AND MALODORANTS IN CURRENT AND FUTURE LAW ENFORCEMENT OPERATIONS
M. Crowley, N. Corney
Omega Research Foundation, Bradford, UK
P46 THE GUIDELINES OF METHODS FOR THE SAFETY TESTS OF THE POLICE SPECIAL DEVICES
O. Grigoriev, V. Stepanov, A. Sazhin, V. Alekseeva
Federal Medical-Biological Agency of Russia, Moscow, RUS

P47 DOWN THE SLIPPERY SLOPE? A STUDY OF CONTEMPORARY DUAL-USE CHEMICAL AND LIFE-SCIENCE RESEARCH POTENTIALLY APPLICABLE TO INCAPACITATING CHEMICAL AGENT WEAPONS
M. Dando, M. Crowley
University of Bradford, Bradford, UK

P48 THE INTERNATIONAL MANUFACTURE, TRADE AND USE OF BODY WORN ELECTRIC SHOCK EQUIPMENT
K. Wraith, A. Dymond
The Omega Research Foundation, Manchester, UK

P49 ETHICAL IMPACT RISK ASSESSMENT FOR NON-LETHAL WEAPONS
I. Stanciugelu, N. Hale, D. Usher, S. Swain, D. Kelly
CBRNE Ltd, Ashford, UK
L. Royakkers
Technical University Eindhoven, Eindhoven, NL
8th European Symposium on Non-Lethal Weapons, 18.–20.5.2015

Bitte reservieren Sie Hotel / Please reserve Hotel

Ankunft / Time of Arrival: 
Abreise / Time of Departure: 

Anzahl der Zimmer / No. of Rooms:
EZ (Einzelzimmer) / SGL (single room)
DZ (Doppelzimmer) / DBL (double room)

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Alle Zimmer mit Bad/Dusche/WC, inkl. Frühstück. / All rooms with bath/shower/WC, incl. breakfast.

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A 2 **** ErbprinzClassic
EZ/SGL 130,-- EUR DZ/DBL 200,-- EUR km 0,5

B *** Stadthotel Engel
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C *** Watthalden
EZ/SGL 112,-- EUR DZ/DBL 132,-- EUR km 0,5

D ** Ibis Styl
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E * Sonne
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Registration form

8th European Symposium on Non-Lethal Weapons
Stadthalle Ettlingen, Germany
Online registration: www.ict.fraunhofer.de/nlw2015

May 18 – 20, 2015

Last name
First name
Title / Position

Company
Postal address

Date, Signature

Fax +49 (0) 721 / 4640-120

The registration fee will be paid upon receipt of the invoice.

It is agreed that pictures taken during this event may be published.

Participation (please tick)

☐ Welcome Reception
  May 18, 18.30 – 21.00 h

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Ettlingen is located in the vicinity of Karlsruhe, approx. 120 km south of Frankfurt / Frankfurt International Airport just beside the Autobahn A5.

Other airports are Strasbourg, France (approx. 100 km) and Stuttgart (approx. 90 km).

From the airport it is possible to travel by train (approx. 1 hour) to Karlsruhe Hauptbahnhof (Main Station), then take the “Stadtbahn” (tram) S1 or S11, direction Ettlingen or Ittersbach. Exit the tram at the stop “Ettlingen Stadt” (Stadtbahnhof Ettlingen) (journey time approx. 15 min). After a short walk (approx. 10 min) you reach the “Stadthalle Ettlingen” (see map).
Points of Contact

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RAdm Massimo Annati
E-mail m.annati@marina.difesa.it

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