

European Working Group
Non-Lethal Weapons

Programme

9th European Symposium on
Non-Lethal Weapons
May 08–10, 2017

Stadthalle Ettlingen, Germany

9th European Symposium on Non-Lethal Weapons



Fraunhofer

ICT

Programme Committee and National Points of Contact

The chairman and the national Points of Contact of the European Group on Non-Lethal Weapons (NLW) serve as the Programme Committee:

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Chairman

Massimo Annati

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9th European Symposium on Non-Lethal Weapons

Non-Lethal Weapons are becoming more and more established within military and police operations reducing the risk of unnecessary fatalities and undesirable outcomes.

The bi-annual NLW Symposium which was first held in 2000 is a welcome opportunity to take stock of significant technical developments in the NLW community and draw conclusions from operational uses. The Symposium is an ideal forum to develop requirements and discuss ideas to advance NLW technology and encourage its safe and effective use by the military and police.

The 2017 Symposium will provide a valuable opportunity to hear from and discuss the many aspects of this subject with scientists, operational practitioners and subject matter experts. The topics of the Symposium will cover the following areas of interest:

- Acceptability and lessons learned
- Technical advances and new methodologies
- Testing/assessment/modelling of systems to determine effectiveness and safety
- Operational utility and training
- Human effects

The above topics are only a guide and the organisers are willing to consider papers on all aspects of this wide subject.

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

General Information

REGISTRATION

Online:

www.ict.fraunhofer.de/nlw2017
(or return the enclosed registration form)

Registration fees (incl. proceedings, coffee breaks, lunch), depending on arrival of the registration at the ICT:

- Registration up to
March 30, 2017: € 990,-
(incl. 19% VAT)
- Registration up to
April 24, 2017: € 1.200,-
(incl. 19% VAT)

Participation cannot be guaranteed for registrations arriving after April 24, 2017.

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

CANCELLATION POLICY

€ 400.- will be charged for cancellations after
April 25, 2017. No-shows will be charged the whole fee.

ACCOMMODATION

<http://hessen.nethotels.com/ICT/English/HotelSearch.htm>

CONFERENCE OFFICE

Foyer of the Stadthalle Ettlingen
(Friedrichstraße, 76275 Ettlingen)
Monday, May 8, 15.00 h till
Wednesday, May 10, 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 8 between 15.00 and 20.00 h.

All participants are cordially invited to the **Welcome Reception** on the same day, **18.00 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 **€ 70,-** (Subscription price during the conference **€ 50,-**).

Programme

Monday, May 8

18.00 – 21.00

Welcome Reception

Tuesday, May 9

08.00 – 08.45

Registration

08.45 – 09.00

Welcome and Opening

M. Annati

Chairman of the Symposium

09.00 – 09.30

V1

KEYNOTE

L. D’Orsi

Deputy Assistant Commissioner

Metropolitan Police, UK

Session 1 – Human Effects I

Session Chair: U. Sundberg

FOI, Tumba, SE

09.30 – 09.55

V2

**THE SHOCK OF THE NEW: THE COM-
PARATIVE SAFETY AND EFFECTIVE-
NESS OF THE TASER X26 AND TASER
INTERNATIONAL’S NEW GENERATION
„SMART WEAPONS“**

R.D. Sheridan

Defence Science and Technology

Laboratory, Porton Down, UK

09.55 – 10.20

V3

**COMPARISON OF CONDUCTED
ELECTRICAL WEAPON SAFETY AND
EFFECTIVENESS: OLD VS. NEW
TECHNOLOGY**

J.D. Ho, J.R. Miner

University of Minnesota Hennepin

County Medical Center, USA

D.M. Dawes

Lompoc Valley Medical Center, USA

S.N. Kunz

University Salzburg, A

10.20 – 10.45

Coffee Break

Session 2 – Testing

Session Chair: A. Papy

Royal Military Academy, Brussels, B

10.45 – 11.10	V4	STUN GUN D.P. Dawson Carleton University, Ottawa, CAN
11.10 – 11.35	V5	CAST INVESTIGATIONS ON REPLACEMENT OF TASER X26 G. Dean Home Office CAST, St. Albans, UK
11.35 – 12.00	V6	A SUITABILITY STUDY OF USING KINETIC ENERGY NON-LETHAL WEAPON TO NEUTRALIZE LOW SMALL UNMANNED AERIAL VEHICLES C. Robbe, A. Papy, N. Borrey Royal Military Academy, Brussels, B
12.00 – 13.00		Lunch Break
13.00 – 14.00		Poster Presentation (orally) Chairman: R. Newman, G. Smith
14.00 – 14.30		Poster Session (Foyer)

Session 3 – Operational I

Session Chair: R. Newman

Home Office CAST, St. Albans, UK

14.30 – 14.55	V7	THE USE OF VIRTUAL REALITY SIMULATORS TO ENHANCE LAW ENFORCEMENT TRAINING S.L. Hayes, P.E. Lobur US Customs and Border Protection, Harpers Ferry, USA
14.55 – 15.20	V8	THE UTILITY OF THE TASER FOR LAW ENFORCEMENT IN THE NETHERLANDS: A PROSPECTIVE POLICE TECHNOLOGY ASSESSMENT STUDY S. Orbons, O. Adang Netherlands Police Academy, Eindhoven, NL

15.20 – 15.45	V9	POLICE USE OF NON-LETHAL WEAPONS: OPERATIONAL, MEDICAL AND BALLISTIC ANALYSIS OF SOME REAL CASES E. Lemaire Universite de Liege, B A. Papy, C. Robbe Royal Military Academy, Brussels, B D.B., P.H. Peloton Anti Banditisme, Special Unit Liege Police, B
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15.45 – 16.15	Coffee Break
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Session 4 – International Projects
Session Chair: I. Wieser
Armament and Defence Technology
Agency, Vienna, A

16.15 – 16.40	V10	GENERAL PRESENTATION ON SUBCOP A. Pettersson FOI, Grindsjön, SE
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16.40 – 17.05	V11	OVERVIEW OF NATO NON-LETHAL WEAPONS ACTIVITIES J. Nelson American Systems Corp., Dumfries, USA
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17.05 – 17.30	V12	EXAMINATION OF RANGE DELIVERY OF NON-LETHAL CAPABILITIES: FIRST RESULTS G. Hubricht Rheinmetall Waffen Munition GmbH, Unterlöß, D
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Wednesday, May 10

Session 5 – Operational II

Session Chair: S. Orbons
Netherlands Police Academy,
Eindhoven, NL

09.00 – 09.25	V13	THE ATTENUATING ENERGY PROJECTILE: AN ANALYSIS OF OPERATIONAL FIRINGS G. Smith, C. Malbon Home Office CAST, St. Albans, UK
09.25 – 09.50	V14	THE USE OF NLW IN MARITIME OPERATIONS: LESSONS LEARNED FROM THE NATO NON-LETHAL TECHNOLOGY EXERCISES A. Papy, C. Robbe Royal Military Academy, Brussels, B
09.50 – 10.15	V15	THE USE OF NLW IN LAND OPERATIONS: LESSONS LEARNED FROM THE NATO NON-LETHAL TECHNOLOGY EXERCISES A. Papy, C. Robbe Royal Military Academy, Brussels, B
10.15 – 10.45		Coffee Break
10.45 – 12.00		Open Discussion Chairman: M. Annati Milano, I
12.00 – 13.00		Lunch Break

Session 6 – Innovation & Design

Session Chair: J. Neutz
Fraunhofer ICT, Pfinztal, D

13.00 – 13.25	V16	AN EFFECTS-BASED DESIGN APPROACH TO NLW REQUIREMENTS GENERATION J.L. Fleming USAF AFRL, Fort Sam Houston, USA
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13.25 – 13.50	V17	CONCEPT OF NON-LETHAL AMMUNITION WITH „ACTIVE SHELL“ V.V. Elfimov, V.V. Korenkov, D.P. Levin, V.V. Selivanov Bauman Moscow State Technical University, Moscow, RUS
13.50 – 14.15	V18	FRESH IDEAS OF PSM SYSTEMS FOR NLW V. Savostyanov Independent Researcher, Moscow, RUS V. Selivanov, D. Levin Bauman Moscow State Technical University, Moscow, RUS
14.15 – 14.45		Coffee Break

Session 7 – Human Effects II

Session Chair: G. Smith

Home Office CAST, St. Albans, UK

14.45 – 15.10	V19	PROBABILITY OF CAUSING A FALL BY IMPACT G. Cooke US Army ARDEC, Picatinny Arsenal, USA A. Ritter Stevens Institute of Technology, Hoboken, USA
15.10 – 15.35	V20	ASSESSING RISK OF SIGNIFICANT INJURY FROM MULTIPLE STIMULI ENGAGEMENTS E.B. Beier USAF AFRL, Fort Sam Houston, USA
15.35 – 16.00	V21	CHARACTERIZING CARDIAC QT INTERVAL AFTER ELECTRICAL MUSCULAR INCAPACITATION J.A. Gibbons, B.B. Lupfer, A. Ashworth USAF AFRL, Fort Sam Houston, USA A.J. Mojica KBRwyle Inc., USA M.E. Peele US Army MEDCOM, USA D.F. Varner Thermo Fisher Scientific, USA
16.00 – 16.15		Closing Remarks M. Annati Chairman of the Symposium

Poster Programme

Posters will be presented during the whole Symposium. A special oral Poster Presentation will take place on Tuesday, May 9, 13.00 – 14.00 h, followed by a Poster Session, 14.00 – 14.30 h, at the Poster Boards in the Foyer. During this time authors should present their work with one slide in the auditorium (maximum speaking time 5 min) and afterwards be present at their Poster.

- P22** **MICROWAVE PULSED POWER SENSOR AND DETECTION SYSTEM**
P. Fiala, P. Drexler, M. Steinbauer
Brno University of Technology, Brno, CZ
- P23** **EMG SYSTEM PACIFICATION CROWD**
P. Fiala, M. Hanzelka, M. Cap
Brno University of Technology, Brno, CZ
- P24** **INHIBITORS FOR NON-LETHAL ANTI-MATERIAL APPLICATIONS**
J. Bernewitz, T. Armbrust, M. Hummel,
M. Klemen, E. Walschburger
Fraunhofer ICT, Pfingst, D
- P25** **UNIVERSITY EDUCATIONAL PROGRAM „NON-LETHAL WEAPONS“ FOR MECHANICAL ENGINEERS**
V.V. Selivanov, D.P. Levin
Bauman Moscow State Technical University,
Moscow, RUS
- P26** **A LASER-BASED LESS-THAN-LETHAL WEAPON FOR INDIVIDUAL DIS-ORIENTATION/ DISSUATION**
J. Tyrer
Laser Optical Engineering Ltd., Derbyshire, UK
- P27** **RF SAFE-STOP: AN ELECTROMAGNETIC NLW**
M.J. Duffield, S. Guy, M. Hicks, A.M. Wood
e2v technologies ltd, Chelmsford, UK
- P28** **IMPACT OF SPARK ELECTRICITY CONDUCTIVE GUN USE ON CARDIOVASCULAR PARAMETERS OF HEALTHY VOLUNTEERS**
C. Scherr, R. Leborato Guerra, A.C. Campos de Carvalho, L.H. Loyola,
L. Juacaba Belem
Fundacao Pro-Coracao FUNDACOR,
Rio de Janeiro, BR

- P29** **MILITARY EMPLOYMENT OF NON-LETHAL WEAPONS AND CIVILIAN CASUALTIES DURING MILITARY OPERATIONS: A CONCEPTUAL GAP**
O. Fridman
King's College, London, UK
- P30** **SUBCOP – PROTECTION AGAINST SUICIDE BOMBER ATTACKS**
J. Bernewitz, T. Armbrust, M. Hummel,
M. Klemenz, J. Neutz, R. Roussel Garcia
Fraunhofer ICT, Pfingsttal, D
- P31** **PEPPERBALL .68 VARIABLE SPEED SYSTEM (VKS) NON-LETHAL PNEUMATIC LAUNCHER**
J. Fleitz
PepperBall® United Technical Systems LLC,
Lake Forest, USA
- P32** **USE OF A SPECIALISED RULE SYSTEM, INCLUDING A NLWS SET, IN TTXS**
M. Filippi, M. Lanfranco, R. Carruba
Milano, I
- P33** **EDA – FACILITATOR IN DEVELOPING NON-LETHAL CAPABILITIES (NLC) AND THEIR EMPLOYMENT IN CSDP MILITARY OPERATIONS**
C. Ciocirlan
European Defence Agency (EDA), Brussels, B
- P34** **AN IN VITRO APPROACH TO EVALUATING OPIOID RECEPTOR SUBTYPE SPECIFICITY**
M. Feasel
United States Army ECBC,
Aberdeen Proving Ground, USA

**Fraunhofer-Institut für
Chemische Technologie ICT
P. O. Box 12 40
76138 Pfinztal
GERMANY**

**MUST BE PUT
INSIDE ENVELOPE**

Registration form

9th European Symposium on Non-Lethal Weapons May 08 – 10, 2017
Stadthalle Ettlingen, Germany
Online registration: www.ict.fraunhofer.de/nlw2017

.....
Last name

.....
Company

.....
First name

.....
Postal address

.....
Title / Position

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 08, 18.00 – 21.00 h

.....
Date, Signature

.....
E-mail

.....
Phone no.

.....
Fax no.

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VAT-No. (European countries only)

Fax +49 (0) 721 / 4640-120

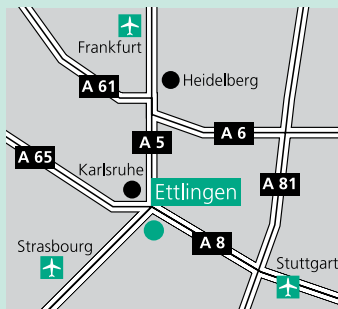
Ettlingen City Plan I How to find the venue

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).



Karlsruhe, A5, Frankfurt Durlach, B3



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