

European Working Group
Non-Lethal Weapons

Programme

7th European Symposium on
Non-Lethal Weapons
June 3–5, 2013

Stadthalle Ettlingen, Germany

7th European Symposium on Non-Lethal Weapons



Fraunhofer

ICT

Programme Committee

The European Working Group on Non-Lethal Weapons (EWG-NLW) serves as the Programme Committee:

Helmut Oppenheim
Bundesministerium für Landesverteidigung und Sport
(Ministry of Defence and Sports), Vienna, A

Chris De Cock
Ministry of Defence, Brussels, B

David Humair
armasuisse, Thun, CH

Milan Bezdek
VOP-026 Sternberk, s.p., Vyskov, CZ

Jochen Neutz
Fraunhofer ICT, Pfingztal, D

Ilkka Höysti
Police Technical Centre, Kuusankoski, FIN

Willy Lamal
DGA, Bagneux, F

Paolo Giannetti
Segredifesa, Rome, I

Igor Plaksin
University of Coimbra, Coimbra, P

J.J.M. (Pascal) Paulissen
TNO Defence, Security and Safety, Rijswijk, NL

Victor Selivanov
Baumann University, Moscow, RU

Sofia Hedenstierna
Swedish Defence Research Agency, Tumba, SE

Graham Smith
Home Office Centre for Applied Science and Technology (formerly HOSDB),
St Albans, UK

Chairman of the Symposium

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

7th European Symposium on Non-Lethal Weapons

Some twenty years have already passed since the earliest deployments of Non-Lethal Weapons, and these equipments represent an important tool for most of the military and law enforcement personnel. Yet, despite many significant success stories and results, there are great uncertainties and, generally speaking, concerns among the public opinion, the media, and, as consequence, the policy makers, regarding the effectiveness compared to the risks. Technological developments are often slower than expected and in many cases forecasts and promises are not adequately fulfilled, raising doubts on the next achievements.

The 2013 Symposium will build on previous symposia and follow similar holistic topics. The overarching theme will be to examine how fielded non lethal technologies have performed in real operational environments, such as the ongoing civil unrest in the West and military involvement in parts of Africa and Asia.

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 subject matter experts and operational practitioners. This will identify where gaps in capability still exist to steer future research. In addition the Symposium will examine how progress in emerging technology areas seeks to fill known capability gaps such as effects at range. The Symposium also intends to examine the emergence and use of non lethal weapons in a criminal context, both from offensive and defensive viewpoints.

The Symposium will include topics on current and advanced technologies, operational and tactical aspects, required capabilities, legal and public acceptance, effects on target as well as the evaluation of effects. The listed topics should be considered only as a guide.

Chairman of the Symposium

Massimo Annati

Italian Navy (ret'd), Milano

General Information

REGISTRATION

Please return the enclosed registration form or register online:

www.ict.fraunhofer.de/nlw2013

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

- Registration up to **May 13:**
EURO 970,- (incl. 19 % VAT)
- Registration up to **May 24:**
EURO 1.070,- (incl. 19 % VAT)

Participation cannot be guaranteed for registrations arriving after May 24, 2013.

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 24, 2013**. No-shows will be charged with **EURO 800,-**.

ACCOMMODATION

HORE Hotel Reservation
Bockstalstraße 20
76327 Pfinztal (Kleinsteinbach)
Germany

Phone +49 (0) 7240 / 9445-850
Telefax +49 (0) 7240 / 9445-852
e-mail: HHRUdoHamm@t-online.de

An application form is enclosed.
Online: www.H-H-Reservation.de/NLW2013.html

CONFERENCE OFFICE

Foyer of the Stadthalle Ettlingen.

Monday, June 3, 13.00 h till
Wednesday, June 5, 17.30 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, June 3 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,-).

18.30 – 21.00

Welcome Reception

(in the Foyer of the Stadthalle Ettlingen)

Tuesday, June 4

08.00

Welcome, Opening and Instructions

W. Eckl
Deputy-Chairman of EWG-NLW
Fraunhofer ICT, Pfingztal, D

08.15 V1

Keynote

FROM NICHE TO NECESSITY: INTEGRATING NLW INTO ESSENTIAL ENABLING CAPABILITIES

T. Tafolla
Joint Non-lethal Weapons Directorate, Quantico, USA

Session 1 HUMAN EFFECTS 1

Session Chair: H. Oppenheim
Bundesministerium für Landesverteidigung und Sport, Wien, A

08.45 V2

NUMERICAL STUDIES OF THE REPULSIVE EFFECT OF LRAD ON GENERAL PUBLIC CROWDS

S. Borge, R. Rahimi, O.H. Arnesen
Norwegian Defence Research Establishment (FFI), Kjeller, N

09.10 V3

ACUTE ELECTROCARDIOGRAPHIC AND HEMODYNAMIC EFFECTS OF CONDUCTIVE ELECTRICAL WEAPON (SPARK) DISCHARGE IN SWINE

P. de Tarso, L. Botteon, J.C.F. Jacob, D.C. Trindade, E.L. Olivares, B.F. Spindola, C.C.P. da Veiga, G.A. da Costa, J. Emidio, S. Bizerra
Federal Rural University (UFRR), Rio de Janeiro, BR

09.35 V4

A COMPLETE INJURY ASSESSMENT OF FN303 AND FN303p IMPACTS

C. Robbeir, N. Nsiampa, A. Papy
Royal Military Academy, Brussels, B
A. Oukara
Polytechnic Military School (EMP), Algier, ALG
B. Baps
FN Herstal, Herstal, B

10.00

Coffee Break

Session 2 HUMAN EFFECTS 2

Session Chair: G. Smith
Home Office Centre for Applied Science and
Technology, St. Albans, UK

**10.30 V5 SERIOUSNESS LEVEL INJURY ASSESSMENT BY A
NLKE PROJECTILE: THE FORCE TEST**

A. Riesemann
DGA, Bourges/Paris, F

**10.55 V6 CONDUCTED ENERGY DEVICES AND THE HEART:
WHERE ARE WE NOW?**

R.D. Sheridan
DSTL, Port Down, Salisbury, UK

**11.20 V7 DISRUPTING VERBAL COMMUNICATION WITH
DIRECTED SOUND**

A. Ashworth, R. Rahimi, O. Arnesen, J. Dykes,
N. Kohn, A. Deneve
Air Force Research Laboratory, Brooks AFB, USA

11.45 Lunch Break**13.00 Poster Session**

Session Chair: M. Symons
Home Office Centre for Applied Science and
Technology, St. Albans, UK

Session 3 EVALUATION 1

Session Chair: W. Lamal
DGA, Bagneux, F

**14.00 V8 COMPARISON OF THORACIC INJURY CRITERIA FOR
NON-LETHAL IMPACTS USING NUMERICAL
SIMULATIONS**

C. Robbeir, N. Nsiampa, A. Papy
Royal Military Academy, Brussels, B
A. Oukara
Polytechnic Military School (EMP), Algier, ALG

**14.25 V9 PROBABILITY OF TASER DISCHARGE IGNITION
OF TATP ON SUICIDE BOMBERS**

J. Turecek
Police Academy of the Czech Republic, Prague, CZ
R. Matyas
University of Pardubice, Pardubice, CZ

- 14.50 V10 ANALYSIS OF PEDESTRIAN MOVEMENTS FOR EVALUATING CROWD BEHAVIOUR**
A. Schreiber, N. Eisenreich
Fraunhofer ICT, Pfingztal, D
- 15.15 V11 NON-LETHALITY IN REALITY – A DEFENCE TECHNOLOGY ASSESSMENT OF ITS POLITICAL AND MILITARY POTENTIAL**
S. Orbons
Ministry of Defence, The Hague, NL
- 15.40 Coffee Break**

Session 4 EVALUATION 2
Session Chair: M. Klaus
WTD 52, Schneitzreuth, D

- 16.10 V12 ASSESSMENT METHODOLOGY OF COUNTER-PERSONNEL HIGH POWER ELECTRO MAGNETIC MILLIMETRE WAVE EFFECTS**
M. van der Horst, P. Paulissen, F. Valente, P. Zwamborn
TNO Defence, Security and Safety, Rijswijk, NL
- 16.35 V13 DECISION CRITERIA ON NLW USE IN POLICE CROWD CONTROL OPERATIONS**
V.V. Savostyanov, V.V. Selivanov, D.P. Levin
Bauman Moscow State Technical University, Moscow, RU
- 17.00 V14 ALGORITHMIC APPROACH TO ASSESSING (NON-)ATTRIBUTABILITY OF FATALITIES TO CED DEPLOYMENT**
A. W. Fox, J.J. Payne-James
Barts & The London School of Medicine & Dentistry,
London, UK
- 17.25 V15 HAZARD ANALYSIS DIRECTED ENERGY SIMULATION (HADES) ROLE IN THE DEVELOPMENT OF HIGH ENERGY LASERS AND HIGH POWER MICROWAVE WEAPON CONCEPTS**
R.A. Vickery III
Air Force Research Laboratory, Brooks AFB, USA
- 17.50 End of day 2**

08.00 **WELCOME**
M. Annati
Chairman EWG NLW
Milano, I

08.15 **V16** **Key Note II**
**SCIENCE AND TECHNOLOGY SUPPLY AND DEMAND,
A MILITARY PERSPECTIVE**
G. Fungo
NATO ACT, Norfolk, USA

Session 5 **CAPABILITIES**
Session Chair: S. Hedenstierna
FOI, Tumba, SE

08.45 **V17** **TOWARDS A STANDARDIZATION IN THE**
ASSESSMENT OF NON-LETHAL WEAPONS EFFECTS
WITHIN NATO
A. Papy, C. Robbeir, N. Nsiampa
Royal Military Academy, Brussels, B

09.10 **V18** **GENESIS ILLUMINATION STUNRAY APPROACH:**
WARNING, DETERRING AND DISABLING WITH THE
LIGHT
C. Carroll
Genesis Illumination, Charlottesville, Virginia, USA
E. Lundquist
USN (Ret.), Springfield, Virginia, USA

09.35 **V19** **NATO NLW CONCEPT DEVELOPMENT AND DEFENCE**
AGAINST TERRORISM ACTIVITIES
P. Young
Joint Non-lethal Weapons Directorate, Quantico, USA
J. Nelson
American Systems Corporation, Washington, USA

10.00 **Coffee Break**

Session 6 **Operational Experience**
Session Chair: P. Paulissen
TNO Defence, Security and Safety, Rijswijk, NL

10.30 **V20** **NON-LETHAL CAPABILITIES FOR OPERATIONS –**
LESSONS LEARNED FROM KOSOVO
E. Weissenböck
Ministry of Defence, Vienna, A

- 10.55 V21 OPERATIONAL EXPERIENCES OF SPECIAL FORCES OF BELGIUM**
A. Papy
Royal Military Academy, Brussels, B
- 11.20 V22 AN EXAMINATION OF THE USE OF TASER AND THE ATTENUATING ENERGY PROJECTILE IN THE UK**
G. Smith, A. Mellows
Home Office Centre for Applied Science and Technology,
St. Albans, UK
- 11.45 V23 PROTECTING LIFE AND PREVENTING TRAGEDY: THE INTEGRATION OF LESS LETHAL TECHNOLOGIES AND POLICING CAPABILITY WITHIN A JOINT GOVERNMENT AND LAW ENFORCEMENT FRAMEWORK: THE UK EXPERIENCE**
C. Burrows
Critical Intervention Consultancy Services, Greyabbey, UK
- 12.10 V24 EFFECTS OF INCAPACITANT SPRAY DEPLOYED IN THE RESTRAINT AND ARREST OF DETAINEES IN THE METROPOLITAN POLICE SERVICE AREA, LONDON, UK: A PROSPECTIVE STUDY**
J.J. Payne-James
Barts & The London School of Medicine & Dentistry,
London, UK
G. Smith, S. O'Rourke
Home Office Centre for Applied Science and Technology,
St. Albans, UK
M. M. Stark
Clinic of Forensic Medicine Unit, Sydney, AUS
N. Sutcliffe
Metropolitan Police Service, London, UK
- 12.35 Lunch Break**

Session 7 ACCEPTANCE ISSUES

Session Chair: P. Gianetti
Segredifesa, Rome, I

- 13.30 V25 MEDICAL-ECONOMIC WELFARE EFFECTS FROM SUBSTITUTING POLICE FORCES' TRADITIONAL BALLISTIC WEAPONRY WITH NON-LETHAL ALTERNATIVES: A COMPARATIVE ANALYSIS**
N. Grove, O. Peschel, C. Kaiser, S. Kunz
Bauhaus University, Weimar, D

13.55 V26 EXPLORING THE USE OF "NON-LETHAL" CHEMICAL AGENTS IN CURRENT AND FUTURE LAW ENFORCEMENT AND MILITARY OPERATIONS
M. Dando, M. Crowley
University of Bradford, Bradford, UK

14.20 Coffee Break

Session 8 TECHNOLOGY

Session Chair: V. Selivanov
Bauman University, Moscow, RU

14.50 V27 TOWARDS UNDERSTANDING POPULATION BEHAVIOUR OF CONDUCTED ENERGY WEAPONS
A. Adler, D. Dawson, O. Marsh
Carleton University, Carleton, CAN
B. Grychtol
German Cancer Research Institute, Heidelberg, D

15.15 V28 CONDUCTED ELECTRICAL WEAPON EFFECTIVENESS AND INCAPACITATION: OLD VS. NEW TECHNOLOGY
J. D. Ho, J. Miner
Hennepin County Medical Center / University of Minnesota, Minneapolis, USA
D. M. Dawes
Lompoc Valley Medical Center and the Santa Barbara Police Department, Santa Barbara, USA
S. N. Kunz, J. D. Sweeney
Ludwig-Maximilians-University, München, D

15.40 V29 A REFERENCE MEASUREMENT SYSTEM FOR ELECTROSHOCK WEAPONS
N.G. Paulter, Jr., D.R. Larson
National Institute of Standards and Technology, Gaithersburg, USA

16.05 V30 SYSTEMS OF FORCE PROTECTION BASED ON NON-LETHAL WEAPONS
M. V. Silnikov, V. I. Lazorkin, A. I. Mikhaylin
Special Materials Corp., St. Petersburg, RU

16.30 V31 INHIBITION OF MOTOR REACTIONS BY DISTRACTING STIMULI: A LAB SETUP IMITATING FLASH-BANG EFFECTS
W. Wolf, J. Höcherl
Universität der Bundeswehr, München, D

16.55 Chairman's Closing Remarks

Poster Programme

Posters will be presented during the whole Symposium. A special Poster Session will take place on Tuesday, June 4, 13.00 – 14.00 h. During this time authors should be present for discussion at their poster boards in the foyer.

- P32 THE NON-LETHAL WEAPONS' REVOLUTION IN MILITARY AFFAIRS: THE NEEDS, THE OBSTACLES AND THE WAYS OF FUTURE DEVELOPMENT**
O. Fridman
University of Reading, UK
- P33 THE FUTURE OF GLOBAL NON-LETHAL WARFARE**
A.S. Ezer
Security Devices International Inc., Washington, USA
- P34 RELIABILITY, AVAILABILITY, MAINTAINABILITY AND SAFETY (RAMS) APPROACH IN THE CASE OF THE RISK EVALUATION FOR THE LESS LETHAL WEAPON**
A. Riesemann
DGA, Bourges/Paris, F
- P35 THE DEVELOPMENT OF A LESS LETHAL TECHNOLOGY APPROVAL PROCESS FOR CANADIAN LAW ENFORCEMENT**
D. Wood, L. Goodman
Defence Research and Development Canada, Ottawa, CAN
- P36 THE BRAZILIAN OBSERVATORY OF THE LEGITIMATE USE OF FORCE**
U.R. Andrade, L.A. Campos, M. Barros
The Observatory of the Legitimate Use of the Force, Rio de Janeiro, BR
- P37 CAN NON-LETHAL TECHNOLOGY COMPLETELY REPLACE LETHAL WEAPONS?**
A. Greig
University of Sydney; Centre for Peace and Conflict Studies, Sydney, AUS
- P38 NON-LETHAL WEAPON ROLE AND PLACE IN COMPLEX SECURITY SYSTEMS**
V.V. Selivanov, D.P. Levin
Bauman Moscow State Technical University, Moscow, RU
- P39 THE USE OF HUMAN EFFECT MODELS IN REQUIREMENTS GENERATION**
T. Dayton, E. Beier, J. Simonds
Air Force Research Laboratory, Brooks City-Base, USA
- P40 ASSESSMENT OF KINETIC ENERGY NON-LETHAL PROJECTILES IMPACTS USING A VALIDATED FINITE ELEMENT HEAD MODEL**
A. Oukara
Polytechnic Military School (EMP), ALG
N. Nsiampa, C. Robbeir, A. Papy
Royal Military Academy, University of Liege, B
- P41 THE STUDY OF FIRE AND EXPLOSION AUTOTRACKS WITH COMBUSTIBLE LIQUIDS IN THE URBAN ARRAY**
A.V. Tyutyayev
Samara State University, Samara, RU

Poster Programme

- P42 A STANDARDIZED ASSESSMENT METHODOLOGY FOR AREA OF EFFECT NONLETHAL WEAPONS**
E. Beier, T. Dayton, C. Chamberlain, J. Simonds
Air Force Research Laboratory, Brooks AFB, USA
- P43 EVALUATION OF KINETIC ENERGY NON-LETHAL WEAPONS IN BULGARIA – PROBLEMS, DECISIONS AND FUTURE INTENTIONS**
B. Genov
Defence Institute, Sofia, BG
- P44 AN ASSESSMENT OF THE X2 TASER AGAINST THE UK OPERATIONAL REQUIREMENT**
G. Smith, C. Tichler, G. Dean
Home Office Centre for Applied Science and Technology, St. Albans, UK
- P45 TECHNICAL EQUIPMENT FOR MEASURING THE AMMUNITION IMPACT EFFECTS ON HUMANS**
A. Knoernschild
WTD 52, Schneizlreuth, D
- P46 QUANTATIVE ASSESSMENT OF KINETIC LESS-LETHAL PROJECTILES**
L. Koene
Netherlands Defence Academy, Den Helder, NL
A. Papy
Royal Military Academy; Brussels, B
- P47 A METHODOLOGY TO LINK MODEL PREDICTED INJURY TO HEALTH CARE CAPABILITY FOR NON-LETHAL WEAPONS**
J. Simonds, A. Ashworth, T. Dayton, E. Beier
Air Force Research Laboratory, Brooks AFB, USA
- P48 BIOCHEMICAL ASSESSMENT IN SWINE SUBMITTED TO CONDUCTIVE ELECTRICAL WEAPON (SPARK)**
P. de Tarso L. Botteon, J.C.F. Jacob, B.F. Spindola, C. Chaves Pessoa da Veiga, G. de Araujo da Costa, J. Emidio, S. Bizerra
Federal Rural University (UFRR), Rio de Janeiro, BR
- P49 DETERMINATION OF THE MECHANICAL PROPERTIES OF BONES AT HIGH LOADING RATES**
S. Doerfel
Ludwigs-Maximilians-Universität, Munich, D
J. Höcherl, G. Löwisch
Universität der Bundeswehr, Munich, D
S. Peldschus
Universität Furtwangen, Furtwangen, D
- P50 BIOLOGICALLY ACTIVE CLATHRATES AMILOIODIN AND AMILOPEKTOIODIN UNDER EXPOSURE TO LOW-FREQUENCY ACOUSTIC FIELD**
G.N. Fadeev, V.S. Boldyrev, V.I. Ermolaeva
Bauman Moscow State Technical University, Moscow, RU

- P51 TRENDS IN LESS-LETHAL USE OF FORCE TECHNIQUES BY POLICE SERVICES WITHIN ENGLAND AND WALES: 2007-2011**
E. Rivers
Ealing Hospital, London, UK
J.J. Payne-James, P.G. Green, A. Johnston
Barts & the London School of Medicine & Dentistry, London, UK
- P52 THE USE OF LESS LETHAL AND RESTRAINT EQUIPMENT: AN ANALYSIS OF MONITORING BODIES REPORTS**
J. Farha, A. Dymond
Omega Research Foundation, Manchester, UK
- P53 INTRODUCTION AND EXPERIENCE OF INTRODUCING LESS-LETHAL WEAPONS IN THE UK**
G. Smith
ACPO, UK
- P54 NONLETHAL HIGH POWER LASER FOR THREAT DETERRENCE**
S. Buchter, A. Murbach
Lasersec Systems, Jorvas, FIN
- P55 THE DROPLETS EVOLUTION IN SPRAY FORMED BY IMPULSE ATOMIZER USING A GAS-GENERATING PYROTECHNIC CHARGE**
A.N. Ishmatov, B.I. Vorozhtsov
Institute for Problems of Chemical and Energetic Technologies IPCET SB RAS, Biysk, RU
- P56 EFFECT OF PROJECTILE HARDNESS ON 12-GAUGE NON-LETHAL ROUND**
M.V. Novello, C.P. Ribeiro, J.L. Jacone, A.P. Souza, P.L. Schneider, R.A. Mendes
Condor Non-Lethal Technology, Rio de Janeiro, BR
- P57 WIRELESS 40x46 MM ELECTRONIC PROJECTILE**
P.L. Aquino, D.O. Lima
Federal Center of Technological Education Celso,Suckow da Fonseca, BR
E.A. Crespo, C.P. Ribeiro, P.L. Schneider
Condor Non-Lethal Technology, Rio de Janeiro, BR
- P58 A-WaSP: AN ASSERTIVE WARNING TO REDUCE THE NEED OF FORCE**
M. Henry
Cerberus Black Ltd, West Sussex, UK
- P59 PORTABLE DIRECTED ENERGY DEVICES**
J. Cecconi
USA
- P60 SAFE NEUTRALIZATION OF IEDS WITH APPLICATION OF DUAL PORTABLE SUPER-SONIC ABRASIVE WATER-JET DESTRUCTORS**
I. Plaksin, L. Rodrigues, R. Mendes
University of Coimbra, Coimbra, P
- P61 INHIBITORS FOR NON-LETHAL ANTI-MATERIAL APPLICATIONS**
J. Bernewitz, J. Neutz, M. Hummel, A. König, P. Schwegler
Fraunhofer ICT, Pfinztal, D

Poster Programme

- P62 DIRECTED ACOUSTICS FOR UNDERWATER NON-LETHAL WEAPONS**
T. Armbrust, A. Koleczko, E. Walschburger, N. Eisenreich
Fraunhofer ICT, Pfinztal, D
- P63 EVOLUTION OF PEPPER SPRAY (AEROSOL) GENERATED BY SPECIAL ENERGETIC SYSTEM**
G. Sakovich, B. Vorozhtsov, O. Kudryashova, A. Vorozhtsov, S. Titov, N. Korovina, A. Antonnikova
Institute for Problems of Chemical and Energetic Technologies IPCET SB RAS, Biysk, RU
- P64 THE UK OPERATIONAL REQUIREMENT FOR LLW – A FRAMEWORK APPROACH**
G. Smith
Home Office Centre for Applied Science and Technology, St. Albans, UK
- P65 ELECTRIC SHOCK DEVICES AND DRUNKEN PERSONS: MODIFICATION OF STANDARD SAFETY TESTING PROCEDURES**
O.A. Grigoriev, A.E. Koklin, E.E. Lomonosova, V.A. Alekseeva
Federal Medical Biophysical Center FMBA, Moscow, RU
- P66 PERSONAL PROTECTIVE EQUIPMENT FOR OPERATORS OF NON-LETHAL ACOUSTIC SYSTEMS: CRITERIA OF EFFECTIVENESS AND TEST METHODS**
V.S. Stepanov, S.P. Dragan, A.V. Sazhin, O.A. Grigoriev
Federal Medical Biophysical Center FMBA, Moscow, RU
- P67 SAVING RESISTANCE SKILLS OF POLICE DOGS UNDER THE EFFECT OF NON-LETHAL WEAPONS**
E.E. Lomonosova, V.A. Reshotko, O.A. Grigoriev
Federal Medical Biophysical Center FMBA, Moscow, RU
- P68 THE OPTOKINETIC STIMULATION OF THE VESTIBULAR SYSTEM AS A MULTISENSORIC NLW METHOD**
M. Benedix, E. David, A. Fretz
ZEPU GmbH, Witten, D
J. Burke
Sinnovation, Dortmund, D

Ettlingen City Plan

How to find the venue

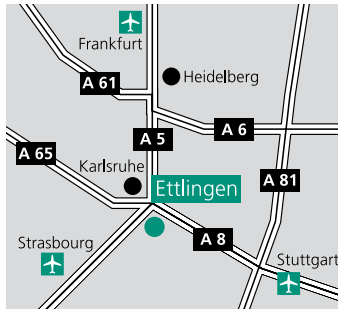
Karlsruhe, A5, Frankfurt Durlach. B 3



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).



Zimmerreservierung / Accommodation

7th European Symposium on Non-Lethal Weapons, 03.-05.06.2013

Name / name _____
Vorname / First name _____

Straße / Street _____ Nr. / no. _____

PLZ / zip code _____ Ort / address _____

Land / country _____

Telefax / fax _____

Telefon / phone _____

E-Mail: _____

Datum / date _____ Unterschrift / signature _____

Ankunft | Arrival Abreise | Departure Ankunftszeit | Arrival time

Anzahl der Zimmer EZ (Einzelzimmer) DZ (Doppelzimmer)
Number of rooms SGL (single room) DBL (double room)

Bitte reservieren Sie Hotel | Please reserve Hotel: Entfernung | Distance

A**** Radisson Blu ^{standard}	EZ/SGL	131,--	EUR	DZ/DBL	150,--	EUR	km 2,0
B1**** Erbprinz ^{Comfort}	EZ/SGL	140,--	EUR	DZ/DBL	190,--	EUR	km 0,5
B2**** Erbprinz ^{Classic}	EZ/SGL	125,--	EUR	DZ/DBL	175,--	EUR	km 0,5
C*** Stadthotel Engel	EZ/SGL	105,--	EUR	DZ/DBL	140,--	EUR	km 0,5
D*** Walthalden	EZ/SGL	110,--	EUR	DZ/DBL	130,--	EUR	km 0,5
E** Sonne	EZ/SGL	60,--	EUR	DZ/DBL	82,--	EUR	km 0,5

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

Falls die gewünschte Hotelkategorie nicht mehr verfügbar ist, reservieren Sie bitte die Kategorie:
If accommodation is not available in the desired category, please reserve category:

Kreditkarte **Kreditkartennummer zur Garantie** **Gültigkeit**
Creditcard *Credit Card No* *valid until*

Registration form

7th European Symposium on Non-Lethal Weapons
Stadthalle Ettlingen, Germany
Online registration: www.ict.fraunhofer.de/hlw2013

June 3 – 5, 2013

.....
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

June 3, 18.30 – 21.00 h

.....
E-mail

.....
Phone no.

.....
Fax no.

.....
VAT-No. (European countries only)

.....
Date, Signature

Fax +49 (0) 721 / 4640-120

Points of Contact

Chairman

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

Conference and exhibition management

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E-mail conference@ict.fraunhofer.de

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76318 Pfinztal (Berghausen)
Germany

www.ict.fraunhofer.de
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Wehrtechnische Dienststelle für
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Fraunhofer

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