



FRAUNHOFER GROUP FOR DEFENSE AND SECURITY VVS

**9TH FUTURE SECURITY
SECURITY RESEARCH CONFERENCE
BERLIN, SEPTEMBER 16–18, 2014**



PROGRAM

INTRODUCTION

Ensuring the security and liberty of society is a complex endeavor which is in particular reflected in the development of security research. A broad, interdisciplinary and system-oriented approach is increasingly considered to be sensible. Therefore and in view of the various vulnerabilities of highly-complex, inter-connected systems, security research is moving away from the traditional paradigm of prevention and protection. Instead, the concept of resilience has been widely established connecting engineering, natural and social sciences as an integral part of sustainable development.

The **Future Security Conference** offers comprehensive insights into current security research projects and constitutes an indispensable international exchange platform for researchers as well as experts from industry and public authorities. Due to the thematic orientation, the **Future Security Conference** directly relates to both the current German federal research program for civil security and Horizon 2020, the new European research framework program.

VENUE

**Permanent Representation of
North Rhine-Westphalia to
the Federal Republic of Germany**

Hiroshimastrasse 12-16
10785 Berlin-Tiergarten, Germany
Phone +49 30 27575-0



FOREWORD

BY THE CHAIRMAN OF THE
9TH FUTURE SECURITY
CONFERENCE

Welcome to the Future Security Research Conference 2014.

Security research is primarily research for the benefit of society. Security research is dealing with vulnerabilities and risks – man-made terrorist attacks, natural hazards, crime or accidents – to society, especially in urban environment, and its critical infrastructures like transport, energy, food supply, information technologies, etc. Therefore, security research is working on methods or technologies to analyze, minimize or even prevent the risks, to improve the crisis management, and to increase the resilience of infrastructures and society. In doing so, ensuring privacy and freedom is essential.

The institutes of Fraunhofer Group for Defense and Security VVS organize the annual Future Security Conference since 2006, 2014 is the 9th installment. This year, the Future Security Conference is organized by the Fraunhofer Institute for High-Speed Dynamics, Ernst-Mach-Institut, EMI in Freiburg.

The Future Security Research Conference has been established as an important platform

for the exchange and discussion of security's future research needs. Here, scientific researchers meet up with practitioners and suppliers for security issues from public authorities and industry.

Thus, we are proud to welcome renowned experts in the field of security and security research from Europe as well as from the United States as our guests.

Many thanks go to the Permanent Representation of North Rhine-Westphalia in Berlin, which hosts the conference for the third time now. Furthermore, I would like to thank the Program Committee, who peer-reviewed all 134 submitted papers. Thank you to all of you who are attending this conference and contributing to its success.

I am looking forward to a successful and inspiring conference – with new ideas on how to increase society's resilience.

A handwritten signature in black ink that reads "K. Thoma". The signature is written in a cursive, slightly slanted style.

Klaus Thoma
Chairman of the Future Security 2014

PROGRAM COMMITTEE

- Prof. Dr. Oliver Ambacher, Fraunhofer IAF
- Prof. Dr. Bernd Appel, Federal Institute for Risk Assessment BfR, Germany
- Dr. Marcel van Berlo, TNO – innovation for life
- Prof. Dr. Jürgen Beyerer, Fraunhofer IOSB
- Andrea Bräuning, Robert Bosch GmbH
- Albrecht Broemme, Federal Agency for Technical Relief THW, Germany
- Dr. Oliver Melzer, German European Security Association e.V. GESA/Ammer Partners GmbH
- MinR Gerhard Coors, Federal Ministry for Defence BMVg, Germany
- Dr. Aimo Bülte, Airbus Defence and Space
- Laurent Dubost, Thales
- Prof. Dr. Peter Elsner, Fraunhofer ICT
- Prof. Dr. Joachim Ender, Fraunhofer FHR
- Dr. E. Anders Eriksson, FOI – Swedish Defence Research Agency
- Prof. Dr. Steve Flynn, Northeastern University NEU, Boston, United States of America
- Achim Friedl, Federal Ministry of the Interior BMI, Germany
- Antonio Maria Gonzalez Gorostiza, Indra
- Prof. Dr. Hans-Joachim Grallert, Fraunhofer HHI
- Prof. Dr. Albert Heuberger, Fraunhofer IIS
- Dr. Ivo Häring, Fraunhofer EMI
- Andreas Könen, Federal Office for Information Security BSI, Germany
- Dr. Horst Krause, Fraunhofer ICT
- Prof. Dr. Dr. Michael Lauster, Fraunhofer INT
- Dr. Tobias Leismann, Fraunhofer EMI
- Tijen-Khoen Liem, European Commission – DG ENTR
- Peter Löffler, Siemens Building Technologies
- Prof. Dr. Yiannos Manoli, Albert-Ludwigs-Universität Freiburg
- Prof. Dr. Peter Martini, Fraunhofer FKIE
- Sadhbh McCarthy, Centre for Irish and European Security CIES

- Dr. Karsten Michael, Federal Office of Civil Protection and Disaster Assistance BBK, Germany
- Prof. Dr. Markus Nöldgen, Cologne University of Applied Science
- Prof. Dr. Ralf Poscher, Albert-Ludwigs-Universität Freiburg
- Dr. Luigi Rebuffi, European Organisation for Security EOS
- Prof. Dr. Leonhard Michael Reindl, Albert-Ludwigs-Universität Freiburg
- Dr. Hermann Ries, Smiths Detection
- Dr. Sandra Scheermesser, Ministry for Innovation, Science and Research of North Rhine-Westphalia, MIWF, Germany
- Gunther Schwarz, BDSV e.V./Cassidian
- Brigitte Serreault, Airbus Defence and Space
- Dr. Francoise Simonet, Commissariat à l'Énergie Atomique CEA
- Prof. Dr. Klaus Thoma, Fraunhofer EMI/VVS
- Prof. Dr. Markus Ullmann, Federal Office for Information Security BSI, Germany
- Juliane Ulbricht, Federation of German Security & Defence Industries BDSV e.V.
- MinR Norbert Weber, Federal Ministry of Defence BMVg, Germany
- Prof. Dr. Marion Weissenberger-Eibl, Fraunhofer ISI
- Dr. Karin Wey, VDI Technologiezentrum GmbH
- Prof. Dr. Enrico Zio, Politecnico di Milano, Italy

TIMETABLE

TUESDAY, SEPTEMBER 16, 2014

Time \ Room	Europasaal	Saal Düsseldorf	Saal Rheinland
10:00 – 10:45	<p>Welcome and Opening Klaus Thoma, Fraunhofer EMI/VVS; Beate Wieland, Ministry for Innovation, Science and Research North Rhine-Westphalia, MIWF; Thomas Rachel, Federal Ministry of Education and Research, BMBF</p>		
10:45 – 11:15	<p>Keynote I Resilience – Success Through Partnerships Richard A. Serino, Deputy Administrator FEMA (ret.)</p>		
11:15 – 12:30	<p>Panel I Industry Perspective on Security Research Michael Lauster, Fraunhofer INT G. Schlechtriem, Bosch; R. Reinema, Siemens AG; P. Francis, Airbus D&S Cyber Company; H. Geiser, Securiton; K. Thoma, Fraunhofer EMI/VVS; I. Haisma, The Hague Security Delta</p>		
12:30 – 14:00	Networking Lunch		
14:00 – 15:30	Urban Security	Food Chain Security	Video Surveillance, Sensors and Data Analysis
15:30 – 16:15	Poster Session 1		
16:15 – 17:45	Urban Infrastructures	Human and Systems Modeling, Analysis and Integration	Surveillance, Sensors, Data Fusion and Analysis
18:00 – 21:00	Welcome Reception		

9TH FUTURE SECURITY
 SECURITY RESEARCH CONFERENCE
 BERLIN, SEPTEMBER 16-18, 2014

WEDNESDAY, SEPTEMBER 17, 2014

Time	Room	Europasaal	Saal Düsseldorf	Saal Rheinland
09:00 – 09:30		Keynote II Critical Infrastructure Resilience: A 21st Century Imperative Caitlin A. Durkovich, U.S. Department of Homeland Security		
09:30 – 11:00		Panel II U.S. Perspectives on Resilience Lauren Alexander Augustine, The National Research Council R. A. Serino, FEMA (ret.); C. A. Durkovich, U.S. Department of Homeland Security; E. Eide, The National Academies		
11:00 – 11:15		Coffee Break		
11:15 – 12:45		Resilience	Detection Technologies 1	Public Transport Security (RIKOV)
12:45 – 13:45		Networking Lunch		
13:45 – 15:30		Crisis Management 1	Detection Technologies 2	Global Transport Security
15:30 – 16:00		Poster Session 2		
16:00 – 17:30		Crisis Management 2	Directed Energy Research	IT Security Monitoring
17:30 – 18:30		Free Time		
18:30 – 23:00		Conference Dinner at Technical Museum		

TIMETABLE

THURSDAY, SEPTEMBER 18, 2014

Time	Room	Europasaal	Saal Rheinland
08:30 – 10:00		<p align="center">Panel III From Research to Products: The 5 Demonstration Programs of FP7 Tijen-Khoen Liem, European Commission – DG ENTR M. Martínez-García, Spanish NCP</p> <p align="center">PERSEUS – A. Gonzalez Gorostiza, INDRA EDEN – C. Goodchild, BAE Systems CORE – G. Zomer, TNO SECUR-ED – I. Perreal, Thales DRIVER – M. Missoweit, Fraunhofer INT</p>	
10:00 – 10:45		<p align="center">Coffee Break and Best Poster Award</p>	
10:45 – 12:45		Future Research Needs	IT Security
12:45 – 13:30		<p align="center">Lunch</p>	
13:30 – 14:30		<p align="center">Panel IV Future Security & Defence Research in Europe Tijen-Khoen Liem, European Commission – DG ENTR G. W. Adamowitsch, Federation of German Security & Defence Industries; T.-K. Liem, European Commission – DG ENTR; H. Linnenkamp, German Institute for International and Security Affairs; H. Mey, Airbus Defence and Space; S. Kainz-Huber, European Commission</p>	
14:30 – 15:00		<p align="center">Closing Remarks Klaus Thoma, Fraunhofer EMI/VVS</p>	
15:00		<p align="center">End of Conference</p>	

9TH FUTURE SECURITY
SECURITY RESEARCH CONFERENCE
BERLIN, SEPTEMBER 16-18, 2014



TUESDAY, SEPTEMBER 16, 2014

10:00 – EUROPASAAL

10:45 WELCOME AND OPENING



Prof. Dr. Klaus Thoma

Chairman of the Group Fraunhofer VVS/Director Fraunhofer EMI

Klaus Thoma was born in Munich in 1949.

He got his degree and Ph.D. in Physics from the Technical University of Munich.

His professional career started in aerospace industry, where he worked in leading positions at MBB (Messerschmitt-Bölkow-Blohm, now Airbus). For 10 years he led a small engineering company as CEO and co-owner, working under contracts from the German MOD and car industry. In 1994 he became professor at the Universität der Bundeswehr in Munich. Since 1996 he holds the position of a director at the Fraunhofer society, where he heads the Ernst-Mach-Institut. Since 2002 he is the chairman of the Fraunhofer Group for Defense and Security and member of the presidential board of the Fraunhofer Society. In 2007 he received the "Bundesverdienstkreuz". Since 2010 he is an elected member of the German National Academy of Engineering. He works in several boards as a consultant for German ministries. Defense and security research, materials science and numerical modelling are areas of his expertise.



Dr. Beate Wieland

Director General „Research and Technology“, Ministry of Innovation, Science and Research of the State of North Rhine-Westphalia

Beate Wieland, born in 1959, studied Social Sciences at Mannheim University and received her Ph.D. in 1991. Her professional experience originates from different positions in the Management of Higher Education and Research Organizations (e.g. Centre for European Economic Research/ Mannheim, Kiel University, Paderborn University).

In 2005 she joined the Ministry of Intergenerational Affairs, Family, Women and Integration of the State of North Rhine-Westphalia as Director General “Generations and Family”. Previously, she headed the Directorate General “Task Management, Portfolio Coordination, Internal Management and Services” at the Ministry of Traffic, Energy and Structural Development of the State of North Rhine-Westphalia.

Since 2007 Beate Wieland has been Director General “Research and Technology” at Ministry of Innovation, Science and Research of the State of North Rhine-Westphalia.



Thomas Rachel (MdB)
**Parliamentary State Secretary at the Federal Ministry of
Education and Research, BMBF**

Thomas Rachel was born in Düren (North Rhine-Westphalia) in 1962, is Protestant, married and has one daughter.

Political Work

- since 2012 Chairman of the CDU's Düren district branch
- since 2011 Chairman of the CDU Aachen district association
- since Nov 2005 Parliamentary State Secretary at the Federal Ministry of Education and Research
- since 2003 Federal Chairman of the CDU/CSU Protestant Working Group
- 1998–2005 Spokesman on Education and Research Policy of the CDU/CSU Parliamentary Group
- since 1994 Member of the German Bundestag, Düren constituency Education and Career
- 1992–2004 Member of staff at the Steel Trade Association, Düsseldorf
- 1992 Magister Artium (M.A.) in Political Science, History and Public Law at Rheinische Friedrich-Wilhelms-Universität Bonn

9TH FUTURE SECURITY
SECURITY RESEARCH CONFERENCE
BERLIN, SEPTEMBER 16-18, 2014



10:45 – **EUROPASAAL**
11:15 **KEYNOTE I**
RESILIENCE – SUCCESS THROUGH
PARTNERSHIPS



Richard A. Serino
Deputy Administrator FEMA (ret.)

The Honorable Richard Serino has spent more than forty years in public service. During this time he provided extensive leadership on emergency management, emergency medical and homeland security at local, state, federal and international levels. Currently, he is a Distinguished Visiting Fellow at Harvard – School of Public Health, National Preparedness Leadership Initiative.

Mr. Serino was appointed by President Obama and confirmed by the Senate as the Federal Emergency Management Agency's 8th Deputy Administrator in October 2009 and served until 2014. Prior to this, he spent 36 years at Boston EMS and served as the Assistant Director of the Boston Public Health Commission.

He responded to over 60 national disasters while at FEMA and during Super Storm Sandy, he was the lead federal area commander for New York and New Jersey. Mr. Serino briefed the President of the United States on a number of disasters and traveled with Vice President Biden to a number of affected communities to survey the destruction.

11:15 – **EUROPASAAL**
12:30 **PANEL I**
INDUSTRY PERSPECTIVE ON
SECURITY RESEARCH

Moderator: Michael Lauster, Fraunhofer INT

Gregor Schlechtriem

Director Sales and Execution, Bosch Security Systems

Rolf Reinema

Head of IT-Security Cooperate Technology, Siemens AG

Paddy Francis

CTO, Airbus D&S Cyber Company

Horst Geiser

Director, Securiton

Klaus Thoma

Chairman, Fraunhofer VVS

Ida Haisma

The Hague Security Delta

14:00 – **EUROPASAAL**

15:30 **URBAN SECURITY**

Session chairs: Andrea Bräuning (Robert Bosch GmbH, Germany)/
Alexander Stolz (Fraunhofer EMI, Germany)

The Drive for Holistic Urban Resilience

Stephen M. Purcell (Future Analytics Consulting, Ireland), et al.

**Quantifying Urban Risk and Vulnerability – A Toolsuite
of New Methods for Planners**

Werner Riedel (Fraunhofer EMI, Germany)

A Web Application for Urban Security Enhancement

Ivo Häring (Fraunhofer EMI, Germany), et al.

**Physical Protection of Critical Infrastructure in
Urban Environment**

Maik Fröchtenicht (Wehrtechnische Dienststelle für Schutz- und
Sondertechnik, Germany)

14:00 – SAAL DÜSSELDORF
15:30 FOOD CHAIN SECURITY

Session chairs: Bernd Appel (Federal Institute for Risk Assessment, Germany)/Bärbel Niederwöhrmeier (Bundeswehr Research Institute for Protective Technologies and NBC-Protection, Germany)

Food Crisis Scenario Simulations Improving Food Safety and Security

Alexander Falenski (Federal Institute for Risk Assessment, Germany), et al.

Resilience of the German Food Chain

Jan Seitz (University of Applied Sciences Wildau, Germany), et al.

Disruptions of Food Supply Chains: A Spatial Vulnerability Assessment Approach for Disaster Management

Thomas Münzberg (Karlsruhe Institute of Technology (KIT), Germany), et al.

Checklist for the Identification of Vulnerabilities for the Intentional Contamination of the Food Chain

Anja Buschulte (Federal Institute for Risk Assessment, Germany), et al.

14:00 – SAAL RHEINLAND
**15:30 VIDEO SURVEILLANCE, SENSORS
AND DATA ANALYSIS**

Session chairs: Peter Löffler (Siemens Building Technologies, Germany)/
Jürgen Beyerer (Fraunhofer IOSB, Germany)

**Air-Bound Measurements of Radioactive Material with Swarm-
behaved UAVs – the ANCHORS Project**

Sebastian Chmel (Fraunhofer INT, Germany), et al.

**A Roadmap for Developing Acceptable Surveillance-Based
Security Measures**

Sara Degli Esposti (The Open University, United Kingdom)

**An Advanced Airborne Hyperspectral Remote Sensing System
for Infrastructure Monitoring and Disaster Control**

Wilfried Wetjen (OHB-System AG, Germany), et al.

Privacy-Aware Smart Video Surveillance Revisited

Yvonne Fischer (Fraunhofer IOSB, Germany), et al.

15:30 – ATRIUM

16:15 POSTER SESSION 1

16:15 – EUROPASAAL

17:45 URBAN INFRASTRUCTURES

Session chairs: Markus Nöldgen (Cologne University of Applied Sciences, Germany)/Tobias Leismann (Fraunhofer EMI, Germany)

A Holistic Protection Portfolio for Urban Infrastructure

Christoph Roller (Fraunhofer EMI, Germany), et al.

Modeling and Simulation of a Resilient Dynamic Protection System to Protect Critical Infrastructures

Rüdiger Klein (Fraunhofer IAIS, Germany), et al.

STEUERUNG: Advanced Information Security for Critical Infrastructures

Christian Horn (Technische Universität Berlin, Germany), et al.

Integration of Resilience Engineering in the Transdisciplinary Building Design Process

Markus Nöldgen (Cologne University of Applied Sciences – CUAS, Germany), et al.

16:15 – SAAL DÜSSELDORF
**17:45 HUMAN AND SYSTEMS MODELING,
ANALYSIS AND INTEGRATION**

Session chairs: Christopher Schlick (Fraunhofer FKIE, Germany)/
Frank Flemisch (Fraunhofer FKIE, Germany)

**An Innovative Approach for Tool-Based Field Exercise-Support to
Gain Improved Preparedness in Emergency Response**

Holger Bracker (Airbus Defence and Space, Germany), et al.

**From Human Factors to HSI and Beyond: Design of Operational
Centers and Control Rooms**

Adelbert Bronkhorst (TNO, The Netherlands)

**Architecture for and Evaluation of Situational Analysis
in the Real World**

David Münch (Fraunhofer IOSB, Germany), et al.

**Ergonomics and Human Systems Integration for a Dynamic
Balance of Security with Other System Qualities: Sketch of the
Challenge and Solution Space**

Frank Flemisch (Fraunhofer FKIE, Germany), et al.

16:15 – SAAL RHEINLAND
**17:45 SURVEILLANCE, SENSORS,
DATA FUSION AND ANALYSIS**

Session chairs: Aimo Bülte (Airbus Defence and Space, Germany)/
Oliver Ambacher (Fraunhofer IAF, Germany)

Sensors for UXO Detection in the Sediment

David Rose (WTD 71, Germany), et al.

**Dynamic and Automatic Configuration of Distributed Hetero-
geneous Surveillance Systems**

Igor Tchouchenkov, Florian Segor (Fraunhofer IOSB, Germany), et al.

**Exact Methods for Distributed Data Fusion – A Practitioner’s
Perspective**

Wolfgang Koch (Fraunhofer FKIE, Germany)

**EMPHASIS – Challenges in Data Management and Data Fusion
for Locating Illegal Bomb Factories**

Antoine van der Heijden (TNO, The Netherlands), et al.

18:00 – ATRIUM
21:00 WELCOME RECEPTION

WEDNESDAY, SEPTEMBER 17, 2014

09:00 – EUROPASAAL

09:30 KEYNOTE II

CRITICAL INFRASTRUCTURE RESILIENCE: A 21ST CENTURY IMPERATIVE



Caitlin A. Durkovich

Assistant Secretary for Infrastructure Protection

National Protection and Programs Directorate

U.S. Department of Homeland Security

Caitlin A. Durkovich is the Assistant Secretary for Infrastructure Protection at the U.S. Department of Homeland Security, where she leads efforts to advance the security and resilience of critical infrastructure across the nation. Appointed to her position in May 2012 by President Obama, Ms. Durkovich brings more than 17 years of homeland security-related expertise covering a wide range of activities including continuity of operations and business continuity, cybersecurity, pandemic planning, security and policy standards development, strategic management, leadership, institutional transformation, and communications.

09:30 – EUROPASAAL

11:00 PANEL II

U.S. PERSPECTIVES ON RESILIENCE

Moderator: Lauren Alexander Augustine,
Director, Program on Risk, Resilience, and Extreme Events, and
Associate Executive Director, Division on Earth and Life Studies
The National Research Council

Richard A. Serino

Deputy Administrator, FEMA (ret.)

Caitlin A. Durkovich

Assistant Secretary, U.S. Department of Homeland Security – DHS

Lauren Alexander Augustine

Director, Program on Risk, Resilience, and Extreme Events, and
Associate Executive Director, Division on Earth and Life Studies,
The National Research Council

Elizabeth Eide

Co-Director, Extreme Events Program, The National Academies

11:15 – **EUROPASAAL**
12:45 **RESILIENCE**

Session chair: Klaus Thoma (Fraunhofer EMI, Germany)

How to Implement Resilience – Some Recommendations

Benjamin Scharte (Fraunhofer EMI, Germany), et al.

**The COBACORE Project – a Community-Based Approach to
Disaster Recovery**

Martijn Neef (TNO, The Netherlands)

Resilience – Doing Well Despite of Adversity

Christine (Tine) Adler, MAS (Ludwig-Maximilians-Universität München (LMU), Germany)

**Assessing Societal Impacts of Security Research: Tools and
Methodologies for European Security Research**

Matthias Mueth (Hamburg-Consult, Germany)

11:15 – SAAL DÜSSELDORF
12:45 DETECTION TECHNOLOGIES 1

Session chairs: Hermann Ries (Smiths Detection, Germany)/
Horst Krause (Fraunhofer ICT, Germany)

**3D-Forensics – Mobile High-Resolution 3D-Scanner and
3D Data Analysis for Forensic Evidence**

Stephen Crabbe (Crabbe Consulting Ltd, Germany), et al.

**Progress Towards Detection of Explosive Vapors by
Mass Spectrometry**

Gonzalo Fernandez de la Mora (SEDET, Spain)

**Few-View X-Ray 3D Tomography for Security Applications with
the Example of Sea Freight Containers**

Victoria Heusinger (Fraunhofer EMI, Germany), et al.

Trace Detection of Explosive Substances in Hyperspectral Imagery

Jan Jarvis (Fraunhofer IAF, Germany), et al.

11:15 – SAAL RHEINLAND

12:45 PUBLIC TRANSPORT SECURITY (RIKOV)

Session chair: Stefan Pickl (Universität der Bundeswehr München, Germany)

Assessing the Vulnerability of Dynamical Systems in Public Transportation

Silja Meyer-Nieberg (Universität der Bundeswehr München, Germany), et al.

Optimizing Security vis-à-vis Terrorist Attacks: an Application for Public Rail Transport Systems

Marcus Wiens (Karlsruhe Institute of Technology (KIT), Germany), et al.

A Decision Support Approach: Evaluating the Effectiveness of Security Measures by Scenario-Based Multi-Criteria Analysis

Wolfgang Raskob (Karlsruhe Institute of Technology (KIT), Germany), et al.

Vulnerability Analysis of Critical Infrastructure such as Public Transportation for Terrorist Attacks

Florian Brauner (Cologne University of Applied Sciences, Germany)

13:45 – EUROPASAAL

15:30 CRISIS MANAGEMENT 1

Session chairs: Leonhard Reindl (Albert-Ludwigs-University Freiburg, Germany)/Marcel van Berlo (TNO, The Netherlands)

**Crisis and Disaster Management as a Network-Activity –
Do we have to Extend the Term “vernetzte Sicherheit” in
German Speaking Countries?**

Christian Flachberger (Frequentis AG, Austria), et al.

**Crisis Management in the U.S.: Examples of Policies, Practices,
and the Role of Disaster Resilience**

Elizabeth Eide (The National Academies, USA)

**More Safety for Football Events: Improving the Communication of
Stakeholders and the Dialogue with Fans**

Jürgen Moßgraber (Fraunhofer IOSB, Germany)/
Thomas Kubera (German Police University)

**Interoperability as a Daily Challenge: Enhancing Operational Data
Exchange between Rescue Organisations**

Stefano Marsella/Marcello Marzoli (Ministry of Internal Affairs – National
Fire Corps, Italy), et al.

13:45 – SAAL DÜSSELDORF

15:30 DETECTION TECHNOLOGIES 2

Session chairs: Achim Friedl (Federal Ministry of the Interior, Germany)/
Silke Römer (Fraunhofer INT, Germany)

Ethical Concerns Regarding Advanced Screening Systems

Marc Andree Weber (Freiburg University, Germany)

**An Active Personal Screening Method at 360 GHz, Based on
an FMCW-MIMO Approach – a TeraSCREEN Subsystem**

Sandra Nowok (Fraunhofer FHR, Germany), et al.

Automatic Standoff Detection of Threats in Crowded Areas

Andrey Kuznetsov (APSTEC Systems, Estonia)

**Stand-off Detection of Chemical and Biological Substances using
Laser Induced Fluorescence (LIF) Technique**

Thomas Fischbach (German Aerospace Center (DLR), Germany), et al.

**Recent Improvements within the Testing and Certification
Process of Explosive Detection Systems as Basis of a Harmonized
European Test Regime**

Dirk Roeseling (Fraunhofer ICT, Germany), et al.

13:45 – SAAL RHEINLAND

15:30 GLOBAL TRANSPORT SECURITY

Session chair: Ivo Häring (Fraunhofer EMI, Germany)

Big Data in Aviation Supply Chain Security

Carsten Böhle (University of Münster, Germany), et al.

Vessel Route Prediction for Maritime Surveillance

Giulia Battistello (Fraunhofer FKIE, Germany), et al.

A Guide to Preparing and Executing an Effective Port Security Exercise

Anastasia Wagner (Fraunhofer FKIE, Germany)

Results of European Research Projects Increasing Public Security

Thomas Streil (SARAD GmbH, Germany), et al.

Training in Maritime Security – a Game Based Learning Approach

Rainer Müller (Institute of Shipping Economics and Logistics, Germany), et al.

15:30 – ATRIUM

16:00 POSTER SESSION 2

16:00 – EUROPASAAL

17:30 CRISIS MANAGEMENT 2

Session chair: Michael Lauster (Fraunhofer INT, Germany)

**Development of a Microscopic Pedestrian Evacuation Simulation
Taking into Account Behaviour and Perception Aspects**

Georg Mayer (PTV Group, Germany), et al.

**A Holistic, Scenario-Independent, Situation-Awareness and
Guidance System for Sustaining the Active Evacuation Route for
Large Crowds**

Pedro Garibi Pérez (Indra, Spain)

**Toolbox Concept for Improvement of European Preparedness and
Resilience against CBRN Attacks**

Svenja Stöven (Umeå University, Sweden) et al.

**System Requirements for DESTRIERO: A Decision Support Tool for
Reconstruction and Recovery in Case of Complex Crises Situations**

Krzysztof Samp (ITTI, Poland)

16:00 – SAAL DÜSSELDORF

17:30 DIRECTED ENERGY RESEARCH

Session chair: Michael Suhrke (Fraunhofer INT, Germany)

Autonomous Software HPEM-Attack Detector Considering the Internal Resources of a COTS Computer

Chaouki Kasmi (French Network and Information Security Agency – ANSSI, France), et al.

Vulnerability of Personal Radiation Meters to Intentional Electromagnetic Interference (IEMI)

Thorsten Pusch (Fraunhofer INT, Germany), et al.

Investigation of the Impact of Various IEMI Sources to Electronic Passport Readers

Alexander Preinerstorfer (AIT Austrian Institute of Technology, Austria), et al.

Neutralization of Explosive Devices with High Power Lasers

Jens Osterholz (Fraunhofer EMI, Germany), et al.

16:00 – SAAL RHEINLAND

17:30 IT SECURITY MONITORING

Session chairs: Antonio Gonzalez Gorostiza (INDRA)/
Michael Meier (Fraunhofer FKIE/ University Bonn, Germany)

Policy Driven Pseudonymization

Arnold Sykosch (Fraunhofer FKIE, Germany), et al.

Use of Generic Security Event Data for Specific Threat Monitoring

Till Elsner (University Bonn, Germany), et al.

Collaborative Security Monitoring based on the MonIKA Framework for Privacy-Preserving Information Sharing

Nils Motsch/Helmut Kaufmann (Airbus Defence and Space, Germany),
et al.

Utilization of Traceroutes to Improve Cooperative Detection of Internet Routing Anomalies

Matthias Wübbeling (Fraunhofer FKIE, Germany), et al.

9TH FUTURE SECURITY
SECURITY RESEARCH CONFERENCE
BERLIN, SEPTEMBER 16-18, 2014



CONFERENCE DINNER

WEDNESDAY, SEPTEMBER 17, 2014

18:30 – CONFERENCE DINNER 23:00 AT TECHNICAL MUSEUM

“The dream of flying”:

Not to be missed at “Future Security 2014” is an evening of fine dining, live entertainment and networking at the Conference Dinner.

This exceptional evening is included in your registration fee, and will be a highlight of the conference:

- First, we invite you to experience “live” 200 years of German aviation history in the aviation section of the museum.
- After enjoying a small aperitif and fingerfood under the wings of aircrafts, the table will be set for an exquisite three-course menu upstairs in a representative room with a spectacular view over the city of Berlin.
- The evening will be accompanied with a dinner speech of Henning Beck: “Neuro-Security – How to Protect Data in Biological Systems” providing first-rate entertainment with his famously unconventional and humorous style.

If you wish to participate in this unique event, please remember to include it in your registration process. Vegetarian participants will also be well catered. Please advise us of any special dietary requirements.

DINNER LOCATION

Deutsches Technikmuseum

Trebbiner Straße 9
10963 Berlin, Germany
Phone +49 30 902540

A detailed location plan can be found in your conference folder.

9TH FUTURE SECURITY
SECURITY RESEARCH CONFERENCE
BERLIN, SEPTEMBER 16-18, 2014



THURSDAY, SEPTEMBER 18, 2014

08:30 – EUROPASAAL

10:00 PANEL III

FROM RESEARCH TO PRODUCTS: THE 5 DEMONSTRATION PROGRAMS OF FP7

Moderator: Tijen-Khoen Liem, European Commission – DG ENTR

Introduction: Tijen-Khoen Liem

**Short statement: The need for large R&D Demonstration
programs from the eye of a Member State:
Marina Martínez-García (Spanish NCP)**

PERSEUS – Antonio Gonzalez Gorostiza (INDRA)

EDEN – Clive Goodchild (BAE Systems)

CORE – Gerwin Zomer (TNO)

SECUR-ED – Ives Perreal (Thales communications & security SA)

DRIVER – Merle Missoweit (Fraunhofer INT)

10:00 – EUROPASAAL

10:45 BEST POSTER AWARD

10:45 – EUROPASAAL

12:45 FUTURE RESEARCH NEEDS

Session chairs: Gerhard Coors (Federal Ministry of Defence, Germany)/
Antje Bierwisch (Fraunhofer ISI, Germany)

**Comparative Analysis of Methods for Strategic Security
Research Planning**

Joachim Burbiel (Fraunhofer INT, Germany) et al.

**Working with Security Systems-of-Systems: Experience from FP7
and Thoughts for Horizon 2020**

E. Anders Eriksson (FOI, Sweden), et al.

ESENET: An Outlook for the Future of Emergency Services in Europe

Uberto Delprato (IES Solutions, Italy), et al.

**The Evolving Concept of Security: a Critical Evaluation Across
Four Dimensions**

Milos Jovanovic (Fraunhofer INT, Germany), et al.

**Future Technology Landscapes: Insights, Analysis and Implications
for Defence**

Giacomo Persi Paoli (RAND Europe, United Kingdom)

Future Threat Scenarios for Identifying Societal Security Needs

Timo Leimbach (Fraunhofer ISI, Germany)

10:45 – SAAL RHEINLAND
12:45 IT SECURITY

Session chairs: Andreas Könen (Federal Office for Information Security, Germany)/Peter Martini (Fraunhofer FKIE, Germany)

DNS Security: Past, Present and Future

Amir Herzberg (Bar-Ilan University, Israel),
Haya Shulman (Technische Universität Darmstadt, Germany)

Safety and IT-Security: Transfer of Methods, Knowledge and Lessons-Learned?

Thomas Alexander (Fraunhofer FKIE, Germany), et al.

An Approach for Systematically Analyzing and Identifying Security Requirements for the Converged Web-Mobile Applications

Devotha Nyambo (Nelson Mandela African Institution of Science and Technology, Tanzania), et al.

Protecting Critical Infrastructure: A Comprehensive Approach for Energy Transport

Rene Golembewski (Ilmenau University of Technology, Germany)

An Intelligent and Adaptive Live Simulator: A New Concept for Cybersecurity Training

Jorge Lopez Hernandez-Ardieta (Indra, Spain), et al.

On the Implications, the Identification and the Mitigation of Covert Physical Channels

Michael Hanspach (Fraunhofer FKIE, Germany)

13:30 – EUROPASAAL

14:30 PANEL IV

**FUTURE SECURITY & DEFENCE
RESEARCH IN EUROPE**

Moderator: Tijen-Khoen Liem, European Commission – DG ENTR

Georg Wilhelm Adamowitsch

Managing Director, Federation of German Security & Defence Industries

Tijen-Khoen Liem

European Commission – DG ENTR

Hilmar Linnenkamp

International Security Adviser, German Institute for International and Security Affairs

Holger Mey

Head of Advanced Concepts, Airbus Defence and Space

Sylvia Kainz-Huber

European Commission, G/5 Defence, Aeronautic and Maritime Industries

14:30 – EUROPASAAL

15:00 CLOSING REMARKS

Klaus Thoma (Fraunhofer VVS/EMI)

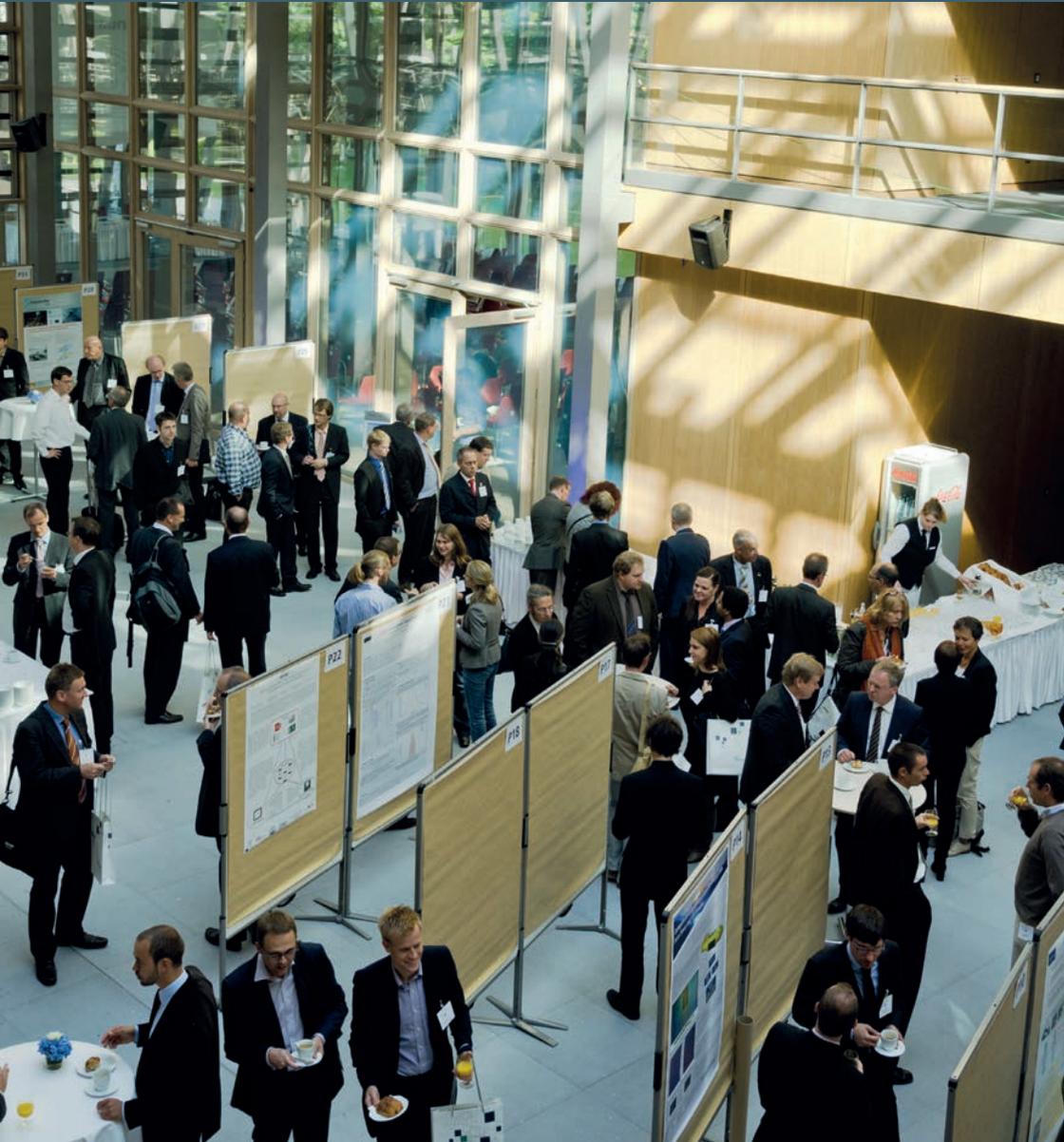
POSTERS

- P 1** **Food Products Confiscated from Traveller's Baggage as a Source for Zoonotic and Third Generation Cephalosporin Resistant Pathogens**
Anne Mayer-Scholl (Federal Institute for Risk Assessment, Germany)
- P 2** **EU-Research-Project „RECONASS“**
THW, Germany
- P 3** **The SEAK Project: Decision Support for Managing Disruptions in Food Supply Chains**
Andreas Motzke/Wolfgang Raskob (Karlsruhe Institute of Technology (KIT), Germany), et al.
- P 4** **All-Hazard Guide for Transport Infrastructure**
Samuel Rothenpieler (Federal Highway Research Institute, Germany)
- P 5** **Risk Prediction Under Uncertainty**
Matthias Eckardt (Federal Institute for Risk Assessment, Berlin, Germany), et al.
- P 6** **Mobile High-Energy X-Ray Inspection of Cargo Containers with Complex Scenarios: Results of the SEFLOG Project**
Sanjeevareddy Kolkoori (Federal Institute for Materials Research and Testing, Germany), et al.
- P 7** **Reduction of Inspection Time with 3-dimensional X-ray Tomography of Sea Freight Containers by Utilization of Compressed Sensing Reconstruction Methods**
Frank Sukowski (Fraunhofer IIS, Germany), et al.

- P 8 Empirical Risk Analysis of Humanitarian Demining for Characterization of Hazard Sources**
Johannes Schäfer (Fraunhofer EMI, Germany), et al.
- P 9 High-Frequency Electromagnetic Simulation of Wind Turbines in Realistic Scenarios and Approximation Techniques for Reducing the Complexity of Computations**
Frank Weinmann (Fraunhofer FHR, Germany)
- P 10 Smart SIGINT Solutions Using Intelligent Fusion**
Ulla Uebler (MEDAV GmbH, Germany), et al.
- P 11 Application Specific Method for Human Factor Analysis**
Christian Merfort (University of Siegen, Germany), et al.
- P 12 SPICED – Securing the Spices and Herbs Commodity Chains in Europe Against Deliberate, Accidental or Natural Biological and Chemical Contamination**
Annelise Mader (Federal Institute for Risk Assessment, Germany), et al.
- P 13 Enhancing Urban Security Policy Design – The Need for an Evidence-based Approach**
Martijn Neef (TNO, The Netherlands), et al.
- P 14 Multi-Criteria Evaluation for Automated Border Control**
Gunther Grasmann (Fraunhofer IOSB, Germany)

- P 15** **Stand-off Bio Detection – State-of-the-Art Survey and Conclusions**
Silke Römer (Fraunhofer INT, Germany), et al.
- P 16** **Synthesis and Test of Suitable Adsorbers for Selectively Trapping and Detecting Explosives and Improvised Explosives Precursors from Air**
Gudrun Bunte (Fraunhofer ICT, Germany), et al.
- P 17** **C-IED: Comprehensive Concepts for Dual-Use Security Applications**
Bernd Michael Fischer (French-German Research Institute of Saint-Louis, France)
- P 18** **The MonIKA Service Framework for Privacy Preserving Information Sharing**
Mirko Haustein/Helmut Kaufmann (Airbus Defence and Space, Germany), et al.
- P 19** **ARATech2013 – SEVESO III Web Application Based on European Methodology**
Lubomir Kelnar (ISATECH, Ltd., Czech Republic), et al.
- P 20** **Introducing CAM – Constant Action Movie**
Thomas Stephan/Mathias Richter (Karlsruhe Institute of Technology (KIT), Germany), et al.
- P 21** **Innovative Ways to Procure Maritime Border Security Systems in Europe**
Linette de Swart (Ecorys Nederland, The Netherlands)
- P 22** **Artificial Gut Feeling®: Improving Urban Security by Following Human Instinct**
Joanna Pliner (ISCA, Israel), et al.

9TH FUTURE SECURITY
SECURITY RESEARCH CONFERENCE
BERLIN, SEPTEMBER 16-18, 2014



- P 23** **Operation Specific Tailoring of Scenario Data for Underwater Thread Analysis**
Julian Klinner (WTD 71 – Forschungsbereich für Wasserschall und Geophysik (FWG), Germany), et al.
- P 24** **Risk Potential of Pulsed Electromagnetic Radiation from a Remote Piloted Aerial System**
Alexander Preinerstorfer (AIT Austrian Institute of Technology, Austria), et al.
- P 25** **EU Information Sharing Platforms: Cybercrime Meets Data Protection**
Karine e Silva (KU Leuven, Belgium)
- P 26** **Trustworthiness Metrics for Socio-Technical Software**
Holger Koennecke/Sachar Paulus (University of Applied Science, Germany), et al.
- P 27** **Detection of Explosives: Evaluation of Laser Based Detection Schemes and Novel Race Detection Approaches**
Bernd Michael Fischer (French-German Research Institute of Saint-Louis, France)
- P 28** **Mosaic-Chart Based Visualization in Building Automation Systems**
Steffen Wendzel (Fraunhofer FKIE, Germany), et al.
- P 29** **Interoperability of PPDR Communication Systems Based on Solutions Proposed by 7th Framework Programme Projects**
Henryk Gierszal (Adam Mickiewicz University, Poland), et al.

- P 30** **A Distributed System for Secure, Modular Computer Vision**
Martin Boyer (AIT – Austrian Institute of Technology, Austria), et al.
- P 31** **A Novel Design of Content Based Multimedia Security**
Jinse Shin (University of Siegen, Germany), et al.
- P 32** **Smart Sensors for Security Applications**
Frank Kuhn (HSG-IMIT, Hahn-Schickard-Gesellschaft – Institute for Micro-
and Information Technology, Germany)
- P 33** **Increasing Resilience to Crisis and Disasters: Crisis Management in
Critical Infrastructures like Public Transport Operations**
Matthias Mueth (Hamburg-Consult, Germany)
- P 34** **Energy Supply Interruption as a Factor of Energy Security**
Valery Lesnykh (High School of Economics, Russia), et al.

FRAUNHOFER VVS

This conference series is hosted by the Fraunhofer Group for Defense and Security VVS.

Member institutes are the Fraunhofer Institutes for

- High-Speed Dynamics, Ernst-Mach-Institut, EMI
- Applied Solid State Physics IAF
- Chemical Technology ICT
- Technological Trend Analysis INT
- High Frequency Physics and Radar Techniques FHR
- Communication, Information Processing and Ergonomics FKIE
- Optronics, System Technologies and Image Exploitation IOSB

- Integrated Circuits IIS (Guest member)
- Telecommunications, Heinrich-Hertz-Institut, HHI (Guest member)
- Systems and Innovation Research ISI (Guest member)

CHAIRMAN OF THE GROUP

Prof. Dr. rer. nat. Klaus Thoma

Fraunhofer Institute for High-Speed Dynamics, Ernst-Mach-Institut, EMI
Eckerstraße 4
79104 Freiburg, Germany
Phone +49 761 2714-351
klaus.thoma@emi.fraunhofer.de

DEPUTY CHAIRMAN OF THE GROUP

Prof. Dr.-Ing. Jürgen Beyerer

Fraunhofer Institute for Optronics, System Technologies and Image Exploitation IOSB
Fraunhoferstraße 1
76131 Karlsruhe, Germany
Phone +49 721 6091-210
juergen.beyerer@iosb.fraunhofer.de

CENTRAL OFFICE

Daniel Hiller

Fraunhofer Institute for High-Speed Dynamics, Ernst-Mach-Institut, EMI
Eckerstraße 4
79104 Freiburg, Germany
Phone +49 761 2714-488
daniel.hiller@emi.fraunhofer.de

VENUE

Vertretung des Landes
Nordrhein-Westfalen
beim Bund

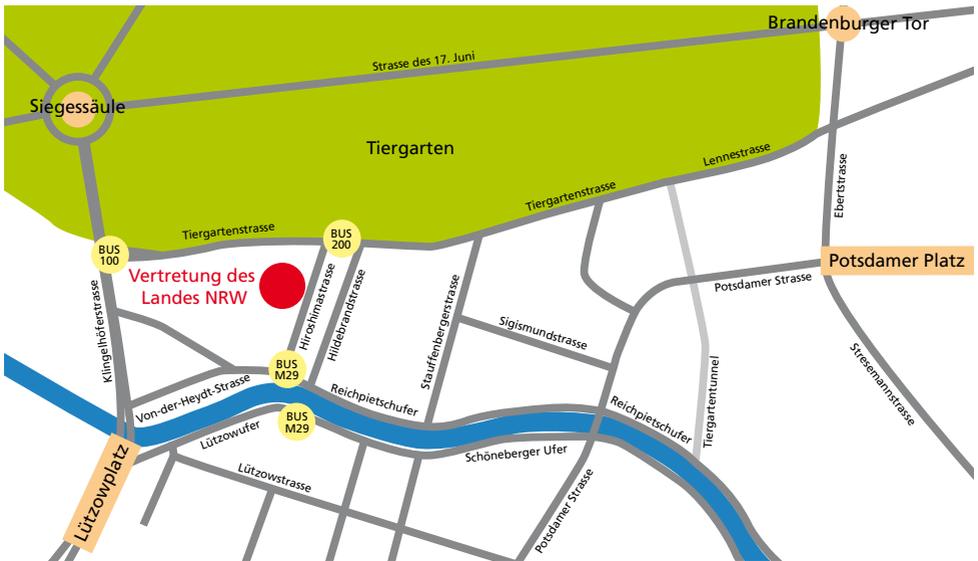


Permanent Representation of North Rhine-Westphalia to the Federal Republic of Germany

Hiroshimastrasse 12-16

10785 Berlin-Tiergarten, Germany

Phone +49 30 27575-0



Bus routes nearby:

- Bus stop "Tiergartenstraße":
Bus 200
- Bus stop "Hiroshimasteg":
Bus M29, N29
- Bus stop "Nordische Botschaften/Adenauer-Stiftung":
Bus 100, 187, 106, N26

9TH FUTURE SECURITY
SECURITY RESEARCH CONFERENCE
BERLIN, SEPTEMBER 16-18, 2014



GENERAL INFORMATION

REGISTRATION AND OPENING HOURS

The registration desk is open and entry to the conference venue is possible during the following times:

Tuesday, September 16, 2014:	9:00 – 21:00
Wednesday, September 17, 2014:	8:00 – 17:30
Thursday, September 18, 2014:	8:00 – 15:00

CONFERENCE FEES

Regular	700,00 €
Speaker	550,00 €
Students (Copy of Student ID required)	200,00 €
Ministries	200,00 €

These fees include coffee breaks and lunch buffets, the welcome reception on September 16, 2014 and the conference dinner on September 17, 2014.

CONFERENCE PROCEEDINGS

The conference proceedings will be printed and published by Fraunhofer Verlag under ISBN 978-3-8396-0778-7.

ORGANIZATION

Conference Chairman

Prof. Dr. rer. nat. Klaus Thoma
Fraunhofer EMI

Program Chairs

Dr. Tobias Leismann
Dr. Ivo Häring
Fraunhofer EMI

Program Management

Dr. Stephanie Günther
Fraunhofer EMI
Phone +49 761 2714-490
stephanie.guenther@emi.fraunhofer.de

Conference Management

Birgit Bindnagel
Fraunhofer EMI
Phone +49 761 2714-366
birgit.bindnagel@emi.fraunhofer.de

PHOTOS

Front page: MEV Verlag GmbH
Page 9, 13 and 49: © Vertretung des Landes Nordrhein-Westfalen beim Bund, Berlin
Page 33: © SDTB/Picture: Abteilung Öffentlichkeitsarbeit
Page 35: © SDTB/Picture: S. Krick
Page 43: Picture: Andrea Grützner



Bundesministerium
für Bildung
und Forschung



Bundesministerium
der Verteidigung

*This conference series is hosted by the Fraunhofer Group
for Defense and Security VVS under the patronage of the
German Federal Ministry of Education and Research (BMBF)
and the German Federal Ministry of Defence (BMVg).*

WWW.EN.FUTURE-SECURITY2014.DE