Fraunhofer VVS

Future Security
Security Research Conference

FRAUNHOFER GROUP FOR DEFENSE AND SECURITY

6TH FUTURE SECURITY
SECURITY RESEARCH CONFERENCE
BERLIN, SEPTEMBER 5TH – 7TH, 2011

PROGRAM

INTRODUCTION

TOWARDS A SECURE FUTURE

Terrorism, organized crime and sabotage, but also natural disasters and technological accidents can cause serious damage and disruption with long-lasting consequences for economies and the quality of life. To achieve sustainable success in civil security, the development and implementation of step towards a secure future is to bring together with scientists working on leading-egde and innovative concepts, sensors or systems for civil security.

Take this opportunity to experience this strategic partnership at the 6th Security Research Conference in Berlin.

VENUE

Vertretung des Landes Nordrhein-Westfalen
beim Bund
Hiroshimastrasse 12-16
10785 Berlin-Tiergarten, Germany
Phone +49 30 27575 -0

FOREWORD

We heartily welcome all of our national and international presenters and guests to the 6th Future Security Conference in Berlin. The venue for this conference, the wonderful Representation of the federal state of North Rhine-Westphalia, built in 2002, will offer you a suitable place for experiencing the progress in a wide spectrum of security themes and technologies.

In the 6th year of this conference, the number of participants has increased significantly indicating that the visibility and importance of the security theme is still thriving.

We are proud to have given a new appearance to this year's conference to ensure that participants get the best possible overview of all topics. Three keynote speeches by internationally renowned experts will be delivered in the plenary session Furthermore, parallel scientific sessions have had to be established to accommodate the considerable number of 82 oral talks. In a special session, but also during the whole conference, 35 posters will be presented.

Security research covers a wide spectrum of scientific fields. To stimulate deep discussions scientists working in diverse fields should be brought together. For this purpose, we have established six invited sessions. The chairman of each session has encouraged well known scientists working in the same field to present their recent results.

Security research is performed in many countries. So it has been a priority for the organizers to broaden our international scope. We are glad to have attracted scientists from many countries to attend the 6th Future Security – reflecting the global demand for continued security research.

We express our gratitude to the German Federal Ministry of Education and Research (BMBF) for taking over the patronage of this conference. The continuous support of our research work by the Ministry of Defence (BMVg) is gratefully acknowledged, too. I sincerely thank the technical program committee for their valuable recommendations, active assistence and for the huge effort in reviewing all submitted papers. I also would like to thank the organizing committee from the Fraunhofer Group for Defense and Security for their immense work in producing this conference.

I am sure that you will enjoy the conference with many fruitful discussions and that you will find new valuable contacts. And: Please do not miss our conference dinner in the television tower at the Alexanderplatz!

Joachim Ender
Chairman of the Future Security 2011

PROGRAM COMMITTEE

- Prof. Dr. Oliver Ambacher, Fraunhofer IAF
- Prof. Dr. Achim Bachem, Forschungszentrum Jülich GmbH
- Prof. Dr. Bernd Becker, Albert-Ludwigs-Universität Freiburg
- Prof. Dr. Jürgen Beyerer, Fraunhofer IOSB
- Dr. Peter Boßdorf, Report Verlag GmbH
- Dr. Adam S. Cumming, DSTL, UK
- OTL i. G. Armin Dirks, Bundesministerium der Verteidigung
- Dr. Bert Don, TNO Defence, Security and Safety
- Prof. Dr. Claudia Eckert, Fraunhofer SIT
- Prof. Dr. Peter Elsner, Fraunhofer ICT
- Hon. Prof. Dr. Joachim Ender, Fraunhofer FHR
- Dr. Helmut Essen, Fraunhofer FHR
- Dr. Jürgen Geisler, Fraunhofer IOSB
- MinR Dr. Ehrentraud Graw, Wirtschaftsministerium Baden-Württemberg
- Sabine Groth, Ministerium für Innovation, Wissenschaft und Forschung NRW
- Prof. Dr. Randolf Hanke, Fraunhofer IIS
- Karsten Heidrich, Deutsche Bank AG
- Prof. Dr. Albert Heuberger, Fraunhofer IIS
- Dr. Wolfgang Koch, Fraunhofer FKIE
- Dr. Horst Krause, Fraunhofer ICT
- MinR Rainer Krug, Bundesministerium der Verteidigung
- Dr. Tobias Leismann, Fraunhofer VVS
- Monika Lieberam, Bundesanstalt Technisches Hilfswerk (THW)
- Prof. Dr. Peter Martini, Fraunhofer FKIE
- Dr. Stefan Mengel, Bundesministerium für Bildung und Forschung BMBF
- Prof. Markku Mesilaakso, Ph.D., Defence Forces Technical Research Center, Finland
- Dr. Stefan Palzer, VDI Technologiezentrum GmbH
- Dr. Joachim Schulze, Fraunhofer INT
- Dr. Françoise Simonet, CEA Commissariat à l'Energie Atomique
- Prof. Dr. Jürgen Stock, Bundeskriminalamt

- Christoph Stroschein, German European Security Association e.V.
- Prof. Dr. Maurus Tacke, Fraunhofer IOSB
- Prof. Dr. Klaus Thoma, Fraunhofer EMI
- Dr. Jens Tölle, Fraunhofer FKIE
- Prof. Markus Ullmann, Bundesamt für Sicherheit in der Informationstechnik
- LBDir Norbert Weber, Bundesministerium der Verteidigung
- Prof. Dr. Uwe Wiemken, Fraunhofer INT

TIMETABLE

MONDAY 5TH SEPTEMBER			
Time	**Atrium**	**Europasaal**	**Saal Rheinland**
11:00-11:20		**Welcome and Opening**	
11:20-13:00		**Plenary Session**	
13:00-14:00	*Lunch Break*		
14:00-15:40		**A.1** **Sensor Technology for Security**	**B.1** **Crisis Managment I**
15:40-16:10	*Coffee Break*		
16:10-17:30		**A.2** **Supply Chain Security (invited)**	**B.2** **Crisis Managment II**
17:30-21:00	**Poster Session and Welcome Reception**		

TUESDAY 6TH SEPTEMBER			
Time	**Atrium**	**Europasaal**	**Saal Rheinland**
09:00-10:20		**A.3** **Detection of Hazardous Material**	**B.3** **Video Surveillance (invited)**
10:20-10:50	*Coffee Break*		
10:50-12:30		**A.4** **Maritime Security**	**B.4** **Social Dimension of Security**
12:30-13:50	*Lunch Break*		

TUESDAY 6TH SEPTEMBER

Time	Atrium	Europasaal	Saal Rheinland
13:50-15:30		**A.5** **Radar Sensors for Security Awareness**	**B.5** **Anomaly Detection and Risk Analysis**
15:30-16:00	*Coffee Break*		
16:00-17:40		**A.6** **Terahertz Security Applications (invited)**	**B.6** **Critical Infrastructure**
18:00	**Transfer to Television Tower**		
19:00	**Conference Dinner in the Restaurant of the Television Tower**		

WEDNESDAY 7TH SEPTEMBER

Time	Atrium	Europasaal	Saal Rheinland
09:00-10:00		**A.7** **Response to CBRNE threats**	**B.7** **Border Security (invited)**
10:00-10:30	*Coffee Break*		
10:30-12:10		**A.8** **Food Chain and Transport Security**	**B.8** **Cyber Defense and Information Security**
12:10-13:10	*Lunch Break*		
13:10-14:50		**A.9** **Multiple Sensor Checkpoint Control (invited)**	**B.9** **Surveillance and Identification of People (invited)**
14:50-15:00		**Closing Ceremony**	
		Saal Westfalen	
13:10-16:10		**Workshop on EU Research and Innovation for Air Traffic Security**	

MONDAY
5TH SEPTEMBER

11:00 11:20 WELCOME AND OPENING

Hon. Prof. Dr. Joachim Ender
Conference Chairman
Director of Fraunhofer Institute for High Frequency Physics and Radar Techniques FHR, Wachtberg, Germany

Joachim Ender studied Mathematics and Physics in Münster, Germany. In 1975, he joined the Research Establishment for Applied Science (FGAN). He received the Dr.-degree at the Ruhr-University Bochum in electrical engineering, in 2002 the award "Honorary Professor". In 2003 Joachim Ender became director of the FGAN-FHR, since 2009 Fraunhofer FHR. Joachim Ender is expert in radar imaging research, especially in Three-dimensional SAR, multi-channel SAR for ground moving target detection and bistatic SAR processing.

Dr. Wolf Junker
Federal Ministry of Education and Research, Germany

Wolf Junker became Head of Division "Security Research" in November 2010. Earlier, from 1991 to 2010, he held various positions within the BMBF, including Head of Division "Basic Policy Issues: Sustainability and Environment" (2007-2010). Mr. Junker has a Master's Degree in Law and holds a Doctor of Law in atomic energy law.

MinR Rainer Krug

Federal Ministry of Defence, Germany

MinR Rainer Krug is the Head of Branch "Research and Technology – Strategy and Planning, International Cooperation" of the FMOD Armaments Directorate since 2008. In 1974, he entered the German Armed Forces, studied Electrical Engineering at the Armed Forces University Munich from 1975 to 1978 and served afterwards in different positions in the German Army. In 1986 Rainer Krug entered the Civil Service of the German Armed Forces. In July 2004, he was appointed to FMOD to form the new Branch "Armament related Aspects of German Armed Forces Transformation (NEC, CD&E)".

Sabine Groth

Ministry for Innovation, Science, Research of the Federal State North Rhine-Westphalia, Düsseldorf, Germany

Sabine Groth was appointed Head of Unit "Legal and Contractual Affairs, Public Procurement and Security Research in 2007. Before, she worked for the European Commission as Principal Legal Expert, in charge of security research, GMES, space research and policy. Prior to this she served as Deputy Head of the Brussels Office of the German Aerospace Centre DLR, after years of experience as Head of Unit for R&D contracts.

MONDAY
5TH SEPTEMBER

11:20 PLENARY SESSION
13:00

11:20 FUTURE SECURITY RESEARCH IN THE EU –
11:45 CHALLENGES AND OPPORTUNITIES

Risks are constant and constantly changing. Therefore stable security requires continuous security research. Its strategic efficiency results from a winning margin in knowledge, capabilities and methods that ought to be as future-oriented as possible to counter known and expectable risks. Having realised this the EU with its Seventh Framework Programme had foreseen 1.4 billion EUR for civil security research. For the upcoming FP8 there is a majority in the European Parliament calling for an essential expansion of those funds. This way security research should even better serve the future security demands of the European citizen.

Dr. Christian Ehler

Member of the European Parliament, Brussels, Belgium

Dr. Christian Ehler is a Member of the European Parliament since 2004. Since November 2006 he has been deputy chairman of the German CDU/CSU Group in the EP. In his office as MEP he is a member of the Committee on Industry, Research and Energy, the Subcommittee on Security and Defence and a substitute member of the Committee on Foreign Affairs. Additionally, since 2009, he has been the chairman of the Delegation for the relations with the Korean Peninsula. Mr Ehler served as the parliamentary observer of the European Security Research and Innovation Forum (ESRIF). Moreover Mr Ehler has founded the German European Security Association (GESA).

11:45 12:10 SCIENCE FOR SECURITY POLICIES – EXAMPLES AND CHALLENGES

In our modern society, science is not completely decoupled from European Policies: Many important European policy decisions need to be based on solid technical or scientific results. The presentation shows how scientific work has contributed to security relevant policies in the past and suggests areas for future contributions.

Dr. Stephan Lechner
Joint Research Centre – Director of the Institute for the Protection and Security of the Citizen, European Commission, Ispra, Italy

Dr. Stephan Lechner is Director of the Institute for the Protection and Security of the Citizen at the European Commission's Joint Research Centre since 2007, giving scientific advice to European policy makers. Before this appointment he spent 18 years in different industry positions on security. His background is network security; he holds a cryptography PhD and is an active Certified Information System Security Professional (CISSP).

MONDAY
5TH SEPTEMBER

12:10 12:35 IBM'S CYBER SECURITY PERSPECTIVE

As we move towards a Smarter Planet, one which is increasingly instrumented, interconnected and intelligent new threats and challenges from a security perspective arise. Increasingly systems and infrastructure we rely on every day are interconnected in this way. We are faced with many new threats which could damage this infrastructure, especially in terms of our critical infrastructure. Cyber security attacks are increasing and just as with other topical areas such as cloud there is confusion and debate about what Cyber actually is, we will share IBM's thinking and perspective on Cyber Security and successful approaches organisations can take.

Martin Borrett

Director of the IBM Institute for Advanced Security Europe, Hursley, Great Britain

Martin Borrett is the Director of the IBM Institute of Advanced Security Europe. He advises at the most senior level in clients on policy, business, technical and architectural issues associated with security. Martin leads IBM's Security Blueprint work and is co-author of the IBM Redbooks „Introducing the IBM Security Framework and IBM Security Blueprint to Realize Business-Driven Security" and „Understanding SOA Security". He is Chairman of the European IBM Security User Group community and Chairman of the IBM UKI Technical Consulting Group. He is a member of the IBM Academy of Technology, a Fellow of the BCS, and a Chartered Engineer (CEng) and member of the IET.

12:35 13:00 SECURITY RESEARCH FROM THE BKA POINT OF VIEW – DEVELOPMENTS AND PROSPECTS

Security against crime is a central theme of discussion within society. The discourse with regard to changes in the risk, threat and security situation in view of new transnational forms of crime ultimately results in questions relating to the further development of the national and international security architecture. Where the police are concerned, this implies in particular the continuous development of their network with public sector partners, but especially also with their partners from the private sector. This core concept revolves around warding off danger and prosecuting crime. National and European security research and its protagonists are an important part of this network and provide central information, methodologies and tools for the performance of police tasks.

Prof. Dr. Jürgen Stock
Vice-president of the Federal Criminal Police Office (BKA), Berlin, Germany

From 1978 to 1987, Prof. Stock was a police officer and law student at the same time. After finishing his law studies in 1990, he was a research assistant at the University of Giessen at the Chair of Criminology. In 1996 Mr. Stock became Deputy Head of Section at the Bundeskriminalamt (BKA). Two years later, Prof. Stock was appointed as Professor and founding rector of the Police College for Higher Professional Training in Saxony-Anhalt. In 2000 Prof. Stock became Head of the Institute of Law Enforcement Studies and Training at the BKA. Prof. Stock was appointed to his current position in 2004.

14:00 A.1
15:40 SENSOR TECHNOLOGY FOR SECURITY

Chairs: Christian Evers (Rohde & Schwarz GmbH & Co. KG, Germany), Oliver Ambacher (Fraunhofer IAF & IMTEK, University Freiburg, Germany)

Scanning for Hazardous Objects on the Seafloor – State of the Art Technologies

Wolfgang Jans (Forschungsanstalt der Bundeswehr fuer Wasserschall und Geophysik, Germany); Holger Schmaljohann (WTD 71, Germany); Florian Langner (Freie Universität Berlin, Germany); Christian Knauer (Universität Bayreuth, Germany); Wolfgang Middelmann (Fraunhofer IOSB, Ettlingen, Germany)

Detection of High Power Microwaves

Christian Adami, Christian Braun, Peter Clemens, Hans-Ulrich Schmidt, Michael Suhrke, Hans-Joachim Tänzer (Fraunhofer INT, Germany); Yolanda Rieter-Barrell (TNO, The Netherlands)

Clinotrons – High Power Sources for Terahertz Sensors

Dmytro Vavriv, Vadym Volkov, Anton Somov (Institute of Radio Astronomy of the National Academy of Sciences of Ukraine, Ukraine); Klaus Schuenemann (Technical University Hamburg-Harburg, Germany)

Scanning Polarimetric Imaging Radiometer: Microwave Imaging System and Image Merging with Infrared and Optical Data

Marco Canavero, Axel Murk (University of Bern & Institute for Applied Physics, Switzerland)

Standoff Detection of „Suicide Bombers" in Mass Transit Environment

Stanislav Vorobyev, Igor Gorshkov, Andrey Kuznetsov (APSTEC Ltd., Russia); Valery Averianov (Researcher, Russia)

14:00 – 15:40 B.1 CRISIS MANAGMENT I

Chair: Christopher Schlick (Fraunhofer FKIE, Germany)

Automated Planning in Evolving Contexts: an Emergency Planning Model with Traffic Prediction and Control

Florence Aligne, Pierre Savéant (Thales Research and Technology, France)

Highly Efficient Event and Action Processing for Emergency Management in Large Infrastructures

Rüdiger Klein (Fraunhofer IAIS, Germany)

Coordinating Ambulance Operations

Thomas Remmersmann, Kellyn Rein, Ulrich Schade (Fraunhofer FKIE, Germany)

PROSIMOS a Tool for Identifying Business Cases in the Implementation of a Priority Communications Systems for First Responders in Public Mobile Networks

Javier Herrera Lotero (Tecnalia-Sistemas de Innovación, Spain)

An Integrated and Integrating Airport Security Management Concept

Torben Hecker, Nunzio Lombardo, Holger Pansch (EBS European Business School gGmbH, Germany)

16:10 – 17:30 A.2 SUPPLY CHAIN SECURITY (INVITED)

Chairs: Peter Klaus (University of Erlangen-Nürnberg, Germany), Alexander Pflaum (Fraunhofer SCS, Center for Intelligent Objects ZIO, Germany)

Supply Chain Integrity Services Based on Hierarchical Sensor Networks
Alexander Pflaum (Fraunhofer SCS, Center for Intelligent Objects ZIO, Germany); Jürgen Hupp, Hauke Traulsen (Fraunhofer IIS, Germany)

ProAuthent Integrated Protection Against Counterfeiting in Mechanical Engineering Through Marking and Authenticating Critical Components
Dominik Stockenberger (Technical University of Munich, Germany)

Developing an Understanding of Supply Chain Security Management
Irene Sudy, Thorsten Blecker (Hamburg University of Technology, Germany)

100% Container Scanning: Impact on Efficiency and Costs of Container Terminal Operation
Frank Arendt, Susanne Ficke, Matthias Dreyer (Institute of Shipping Economics and Logistics, Germany)

17:30 – 21:00 POSTER SESSION AND WELCOME RECEPTION

16:10 – 17:30 B.2 CRISIS MANAGMENT II

Chairs: Chaim Rafalowski (Magen David Adom, Israel), Hans-Martin Pastuszka (Fraunhofer INT, Germany)

SECURITY2People – Features of and Experience with the First Demonstrator of an Integrated Disaster Management System

Lars Tufte (PRO DV AG, Germany); Ellen Gers (Bundesamt für Bevölkerungsschutz und Katastrophenhilfe, Germany); Peter Meyer zu Drewer (CAE, Germany); Stefan Möllmann, Wolfgang Raskob (KIT, Germany); Kathrin Stärk (DIALOGIK, Germany)

Crowd Management Simulation – Crowd Management in Large Infrastructures

Simon van der Weij, Jeroen Steenbakkers, Holger Pitsch (INCONTROL Simulation Solutions, Germany)

FP7 Project ACRIMAS – Aftermath Crisis Management System-of-Systems Demonstration

Merle Missoweit, Hans-Martin Pastuszka (Fraunhofer INT, Germany); Marcel van Berlo (TNO, The Netherlands); Martin Hamrin (FOI, Sweden)

Process Structures in Crises Management

Alexander Harand (Cologne University of Applied Sciences, Germany); Gertraud Peinel, Thomas Rose (Fraunhofer FIT, Germany)

17:30 – 21:00 POSTER SESSION AND WELCOME RECEPTION

TUESDAY
6TH SEPTEMBER

09:00 A.3
10:20 DETECTION OF HAZARDOUS MATERIAL

Chairs: Philipp Sulzer (IONICON Analytik GmbH, Austria),
Horst Krause (Fraunhofer ICT, Germany)

Novel Sensor Platform for Multiplexed Trace Detection of Hazardous Substances

Peter Lützow, Daniel Pergande, Helmut Heidrich, Rozalia Orghici, Sophie Huscher, Wolfgang Schade (Fraunhofer HHI, Germany)

Change Detection on Millimeter Wave SAR Images for C-IED Applications

Mark Asbach, Georgios Evangelidis (Fraunhofer IAIS, Germany); Christian Bauckhage (Fraunhofer IAIS & University of Bonn, Germany); Helmut Essen, Gregor Biegel, Thorsten Brehm, Stefan Sieger (Fraunhofer FHR, Germany)

Detection and Identification of Illicit and Hazardous Substances with Proton-Transfer-Reaction Mass Spectrometry (PTR-MS)

Philipp Sulzer, Fredrik Petersson, Simone Jürschik, Alfons Jordan, Tilmann Märk (IONICON Analytik GmbH/Universität Innsbruck, Austria); Bishu Agarwal (Universität Innsbruck, Austria); Peter Watts, Christopher Mayhew (University of Birmingham, United Kingdom); Kurt Becker (Polytechnic Institute of New York University, USA)

Characterisation of Critical Material Based on Phase and Amplitude Information of High Frequency Measurements

Matthias Demming, Jasmin Rubart, Dirk Nüßler, Christian Krebs (Fraunhofer FHR, Germany); Badreddine Derouiche, Ilona Weinreich (RheinAhrCampus Remagen of FH Koblenz, Germany)

09:00 B.3
10:20 VIDEO SURVEILLANCE (INVITED)

Chair: Markus Müller (Fraunhofer IOSB, Germany)

Visual Search in Large Surveillance Archives

Csaba Beleznai, Bernhard Strobl, Stephan Veigl, Michael Rauter
(AIT-Austrian Institute of Technology, Austria)

Towards People Re-Identification in Multi-Camera Surveillance Systems

Eduardo Monari, Michael Arens, Kai Jüngling, Tobias Schuchert, Arne Schumann (Fraunhofer IOSB, Germany); Rainer Stiefelhagen (Karlsruhe Institute of Technology, KIT Germany)

Multi-Spectral and Hyperspectral IR-Sensors for Improved Surveillance Applications

Ralf Scheibner, Rainer Breiter, Johann Ziegler, Wolfgang Cabanski (AIM Infrarot-Module GmbH, Germany); Markus Müller, Norbert Heinze (Fraunhofer IOSB, Germany) Martin Walther, Robert Rehm (Fraunhofer IAF, Germany)

Automatic Maritime Video Surveillance with Autonomous Platforms

Zigmund Orlov, Wolfgang Krüger, Norbert Heinze (Fraunhofer IOSB, Germany)

10:50 A.4
12:30 MARITIME SECURITY

Chairs: Frank Reininghaus (University of Applied Science Bremerhaven & Integrated Safety & Security Management, Germany), Hartmut Schimpf (Fraunhofer FHR, Germany)

Introduction to Anti-Piracy
Frank Reininghaus (University of Applied Science Bremerhaven & Integrated Safety & Security Management, Germany)

Development of Indicators to Evaluate a Vessel's Vulnerability to Pirate Attacks and Packages of Appropriate Technological Protection Systems
Niclas Jepsen, Thomas Will, Thorsten Blecker, Lutz Kretschmann (Hamburg University of Technology, Germany)

Polarimetric Detection of small Maritime Targets for Maritime Border Control
Hartmut Schimpf (Fraunhofer FHR, Germany)

Handling Security Relevant Information in the Maritime Domain with the Security Modeling Technique
Daniel Ley, Elena Dalinger, Florian Motz (Fraunhofer FKIE, Germany)

New Challenges for Maritime Safety and Security Training
Christoph Felsenstein, Knud Benedict (Wismar University - University for Technology, Business and Design, Germany); Michael Baldauf (Maritime University Malmoe, Sweden)

10:50 – 12:30 B.4 SOCIAL DIMENSION OF SECURITY

Chairs: Sabine Groth (Ministry for Innovation, Science, Research of the Federal State North Rhine-Westphalia, Germany), Uwe Wiemken (Fraunhofer INT, Germany)

Psychosocial Support for Civil Protection Forces Coping with CBRN – an EU-Project
Barbara Blanckmeister, Claudia Schorr (German Federal Agency for Technical Relief (THW), Germany)

Leaking in the Name of Justice
Viola Schmid (Technische Universität Darmstadt, Germany)

Enhancing the Acceptance of Technology for Civil Security and Surveillance by using Privacy Enhancing Technology
Hauke Vagts (Karlsruhe Institute of Technology, KIT Germany); Jürgen Beyerer (Fraunhofer IOSB, Germany)

Customer Security Environment: Understanding Customers' Views on Security
Eija Kupi, Katariina Palomäki, Mervi Murtonen (VTT Technical Research Centre of Finland, Finland); Andy Nolan (Schneider Electric, Finland)

Towards Information Services for Disaster Relief based on Mobile Social Networking
Sander Wozniak, Günter Schäfer (Technische Universität Ilmenau, Germany)

13:50 15:30 A.5 RADAR SENSORS FOR SECURITY AWARENESS

Chairs: Elmar Compans (Cassidian, Germany),
Joachim H. G. Ender (Fraunhofer FHR, Germany)

Security in Space – Space Situational Awareness via Radar Observation
Joachim H. G. Ender, Ludger Leushacke, Andreas R. Brenner, Helmut Wilden (Fraunhofer FHR, Germany)

Ground Moving Target Indication and Ship Surveillance with the German TerraSAR-X/TanDEM-X Radar Satellite Constellation
Stefan V. Baumgartner, Gerhard Krieger (German Aerospace Center (DLR), Germany)

Security-Related Change Detection with TerraSAR-X Radar Satellite Data
Diana Weihing, Oliver Lang, Lutz Petrat (Astrium GEO-Information Services, Germany)

Pulse Radar Technology for Detection of Trapped and Buried Victims Electronic Devices
John M. Pavlina, Leonhard M. Reindl, Thomas Ostertag (University of Freiburg, Germany)

An Integrated Radar-Optronic Sensor – Architecture and Operational Experiences
Andreas Strecker, Dirk K. Neumann, Stefan Jock (Cassidian Electronics, Germany)

13:50 15:30 B.5 ANOMALY DETECTION AND RISK ANALYSIS

Chairs: Ran Cohen (ISCA, Israel), Maurus Tacke (Fraunhofer IOSB, Germany)

Towards Proactive Security Surveillance by Combining Technology and Human Factors

Maaike Lousberg, Jeroen van Rest (TNO, The Netherlands)

Searching for Abnormalities

Joanna Pliner, Ran Cohen (ISCA, Israel)

Applied Text Mining for Military Intelligence Necessities

Bastian Haarmann, Lukas Sikorski (Fraunhofer FKIE, Germany); Jürgen Ziegler (IABG mbH, Germany)

Topic-oriented Analysis of Data Streams

Christian Betz, Vera Kamp, Mirko Böttcher (Plath GmbH, Germany)

Video Analysis for Situation and Threat Recognition

David Münch, Kai Jüngling, Michael Arens (Fraunhofer IOSB, Germany)

16:00 – 17:40 A.6 TERAHERTZ SECURITY APPLICATIONS (INVITED)

Chair: Peter Haring Bolívar (University of Siegen, Germany)

Security Check of the Future

Christian Evers, Sherif Ahmed, Andreas Schiessl (Rohde & Schwarz GmbH & Co. KG, Germany); Torsten May, Hans-Georg Meyer (Institute of Photonic Technology, Germany)

Progress in Device Technology Creates Potential for Active Real-Time THz Security Scanners

Alvydas Lisauskas, S. Boppel, Viktor Krozer, H. G. Roskos (Physikalisches Institut, Johann Wolfgang Göthe-Universität Frankfurt, Germany)

Terahertz Sensor Systems for Field Applications

Bernd Sartorius, Helmut Röhle, Roman Dietz, Thorsten Göbel, Harald Künzel, Dennis Stanze, Martin Schell (Fraunhofer HHI, Germany)

QPASS – Quick Personnel Automatic Safe Screening for Security Enhancement of Passengers

Sherif Ahmed, Andreas Schiessl, Markus Reiband, Cyrille Maire, Olaf Ostwald, Christian Evers (Rohde & Schwarz GmbH & Co. KG, Germany); Frank Gumbmann, Sebastian Methfessel, Amir Cenanovic, Lorenz-Peter Schmidt (University of Erlangen-Nürnberg, Germany)

Millimeter Wave Radar Sensor for Protection of Outdoor Areas

Grygoriy Khlopov (Institute of RadioPhysics and Electronics of National Academy of Science of Ukraine, Ukraine)

16:00 – 17:40 B.6 CRITICAL INFRASTRUCTURE

Chair: Klaus Thoma (Fraunhofer EMI, Germany)

Geometrical Design Criteria for Analysing the Vulnerability of Urban Area Construction to Blast Effects

Christian Perez-Jimenez, Mikel Minguez-Fica, Fernando Morente (Tecnalia Research & Innovation, Spain)

Security Impact Simulation for Critical Infrastructure of Freight Villages Using Software-Agents

Hendrik Wildebrand, Hans-Dietrich Haasis, Falko Zimmermann, Marco Plöger (Institute of Shipping Economics and Logistics, Germany)

Safety and Protection of Built Infrastructure to Resist Integral Threats

Jolanda van Deursen, Jaap Weerheijm (TNO, The Netherlands)

Risk Evaluation for Critical Built Infrastructure – Asset Classification and Rating

Markus Nöldgen, Assad Nawabi (Schüßler-Plan Engineering Consultants, Germany) Marek Juszkiewicz (Schüßler-Plan Engineering Consultants, Poland)

Servitization in Security Business

Markus Jähi, Mervi Murtonen (VTT Technical Research Centre of Finland, Finland)

TUESDAY 6TH SEPTEMBER

18:00 TRANSFER TO TELEVISION TOWER

19:00 CONFERENCE DINNER IN THE RESTAURANT OF THE TELEVISION TOWER

6TH FUTURE SECURITY
SECURITY RESEARCH CONFERENCE
BERLIN, SEPTEMBER 5TH – 7TH, 2011

WEDNESDAY
7TH SEPTEMBER

09:00 A.7
10:00 RESPONSE TO CBRNE THREATS

Chairs: Ruud Busker (TNO, The Netherlands),
Uwe Wiemken (Fraunhofer INT, Germany)

Research Against CBRN-E Terrorism: A Real Opportunity for Materials Science
Laurent Olmedo, Christophe Bossuet, Francoise Simonet, Catherine Gallou, Philippe Bergonzo, Mehdi Gmar, Frédérick Carrel, Martine Mayne, Claude Fermon, Daniel Gilllet, Hervé Volland, Guillaume Delapierre, François Simoens, Jean-Louis Amans, Didier Poullain (CEA Commissariat l'Energie atomique, France)

DECOTESSC1: Results of an EU FP7 Demonstration Project Phase 1 CBRNE System-of-Systems Analysis
Maarten Nieuwenhuizen, Mark van den Brink (TNO, The Netherlands)

EXAKT – Joint BMBF Research Project: Near Real-Time Trace Analysis of Airborne Chemical Warfare Agents and Explosives Using a TD-GC-TOF-MS
Gudrun Bunte (Fraunhofer ICT, Germany)

09:00 B.7
10:00 BORDER SECURITY (INVITED)

Chairs: Çağatay Güler (TÜBİTAK BİLGEM, Turkey),
Heiner Kuschel (Fraunhofer FHR, Germany)

Integrated Border Management - Remarks on a Border Control Roadmap
Heiner Kuschel, Ingo Walterscheid (Fraunhofer FHR, Germany); Gört Luedtke (Fraunhofer FKIE, Germany); Wolfgang Koch (Fraunhofer FKIE & Bonn University, Germany)

Coastal Surveillance Radars Developed in TÜBİTAK BİLGEM UEKAE
Nazlı Candan (TÜBİTAK UEKAE, Turkey)

Enhancing Nuclear Security At Ukrainian Border Stations to Prevent Illicit Trafficking
Wolfgang Rosenstock, Wolfram Berky, Sebastian Chmel, Hermann Friedrich, Theo Köble, Monika Risse, Olaf Schumann (Fraunhofer INT, Germany)

10:30 12:10 A.8 FOOD CHAIN AND TRANSPORT SECURITY

Chair: Bernd Appel (Federal Institute for Risk Assessment, Germany)

Risk Assessment, Epidemiology, Detection of Biological Agents to Secure the Feed and Food Chain

Juliane Bräunig, Annemarie Käsbohrer, Heidi Wichmann-Schauer, Bernd Appel (Federal Institute for Risk Assessment, Germany)

Network of German Authorities in the Context of Bioterrorism in the Food Chain

Anja Buschulte, Niels Bandick, Bernd Appel (Federal Institute for Risk Assessment, Germany)

Securing the Feed and Food Supply Chain in the Event of Biological and Agro-terrorism (BAT) Incidents – The German SiLeBAT Project

Matthias Filter, Anja Buschulte, Anneluise Mader, Bernd Appel (Federal Institute for Risk Assessment, Germany)

Improving the Security of Critical Transport Infrastructures

Sascha Goldner (EADS Deutschland GmbH, Germany); Alf Papproth (Fraunhofer ALI, Germany); Erhard Petzel (Institute for Risk- and Processmanagement GmbH, Germany); Gebhard Geiger (Technische Universität München, Germany)

Improving Security in Intermodal Transports

Frank Arendt, Nils Meyer-Larsen, Rainer Müller (Institute of Shipping Economics and Logistics, Germany)

10:30 12:10 B.8 CYBER DEFENSE AND INFORMATION SECURITY

Chair: Peter Martini (Fraunhofer FKIE & University of Bonn, Germany)

Botnets: Detection, Measurement and Defense

Daniel Plohmann (Fraunhofer FKIE, Germany); Elmar Gerhards-Padilla, Felix Leder, Jan Gassen, André Wichmann, Sebastian Eschweiler (University of Bonn, Germany)

Realising a Trustworthy Sensor Node with the Idea of Virtualisation

Dennis Gessner (NEC Laboratories Europe, Germany); Marcel Selhorst, Christian Stüble (Sirrix AG, Germany); Peter Langendörfer (IHP microelectronics, Germany)

WSNLab – a Security Testbed for WSNs

Nils Aschenbruck, Jan Bauer, Jakob Bieling, Elmar Gerhards-Padilla, Matthias Schwamborn (University of Bonn, Germany)

Interoperability of Information Systems for Public Urban Transport Security: The SECUR-ED Approach

Wolf Engelbach (Fraunhofer IAO & University Stuttgart IAT, Germany); Heiko Roßnagel, Jan Zibuschka (Fraunhofer IAO, Germany)

Security and Backup-System at the IT Center of the Technical University of Applied Science Wildau Including Autonomous Satellite Faculty and Degree Programme IT Systems

Alexander Höftmann, Bernd Eylert, Bernd Heimer (Technical University of Wildau, Germany)

13:10 14:50 A.9 MULTIPLE SENSOR CHECKPOINT CONTROL (INVITED)

Chairs: Cordula Gotthardt (Cassidian, Germany),
Wolfgang Koch (Fraunhofer FKIE & Bonn University, Germany)

Multisensor Checkpoints as Essential Part of Process Improvement (Impulse Talk)
Cordula Gotthardt (Cassidian, Germany)

Detection, Classification and Localization of Hazardous Substances in Public Facilities
Monika Wieneke (Fraunhofer FKIE, Germany); Wolfgang Koch (Fraunhofer FKIE & Bonn University, Germany)

Multisensory Acquisition for Situation Awareness in Riot Control Scenarios
Dieter Willersinn (Fraunhofer IOSB, Germany)

The Need for High-Performance Detectors in Security Applications: Results From a Test Bed for the Detection of Vapours Emitted From Moving Sources and the Results From Outgassing Experiments of Packaged TATP
Christopher W. Becher, Peter Kaul, Johannes Warmer, Mario Beisel (University of Applied Sciences Bonn-Rhein-Sieg, Germany)

Detection of Explosives - Scenarios, Sensors and Realistic Concentrations
Frank Schnürer (Fraunhofer ICT, Germany)

Multi-Sensor Awareness for Protection and Security
Christian Micheloni, Claudio Piciarelli, Gian Luca Foresti (Università degli Studi di Udine, Italy)

13:10 – 14:30 B.9 SURVEILLANCE AND IDENTIFICATION OF PEOPLE (INVITED)

Chair: Thomas von der Grün (Fraunhofer IIS, Germany)

GPS/EGNOS Based Surveillance and Guidance in an Airport Environment
Augusto Casaca (Instituto Superior Técnico in Lisbon, Portugal)

Realtime Event Detection and Prediction on Position Data Streams
Stephan Otto (Fraunhofer IIS, Germany)

Security Systems with Seamless Authentication
Martin Klepal, Christian Beder (Cork Institute of Technology, Ireland)

A Step Forward to Automated Latent Fingerprint Segmentation
Sebastian Bodó (University of Applied Science, Germany); Thorsten M. Buzug (Universität zu Lübeck, Germany)

14:50 – 15:00 CLOSING CEREMONY

13:10 16:10 WORKSHOP ON "EU RESEARCH AND INNOVATION FOR AIR TRAFFIC SECURITY"

Chairs: P. Lombardo (University of Rome "La Sapienza", Italy),
H. Kuschel (Fraunhofer FHR, Germany)

13:10 **Introduction and presentation of the Workshop**
Pierfrancesco Lombardo (University of Rome "La Sapienza", Italy)

13:20 **The status of Air Traffic Security: needs, present technology and challenges**
Andrea Lacopini (ENAV - Italian Air Navigation Service Provider, Italy)
(An open view of the status of the Air Traffic Security, with special attention to Europe, and of the current activities, projects, researches aiming at reducing the risks associated with terrorism for people, goods, and infrastructures)

14:00 **The ARGUS-3D project and its solutions**
Roberta Cardinali (SELEX-Sistemi Integrati, Italy)
(A presentation of the European Union - 7th Framework Program ARGUS-3D project, aimed at creating a multisensor system able to detect non-cooperating flying platforms potentially entering the controlled airspace with terroristic aim, track their position, monitor their intention, and prevent their potential damage to the air traffic security)

14:25 **The use of the innovative passive radar technology for air traffic security**
Heiner Kuschel (Fraunhofer FHR, Germany); F. Colone, P. Lombardo (University of Rome "La Sapienza", Italy)
(Potentiality and status of the technology developed for the new passive radar to increment the global radar coverage at every flight level/height, without requiring flying platform cooperation and without emitting e.m. radiations)

14:50 **Coffee Break**

15:00 **Large systems and multisensor fusion for the air traffic security**

Alfonso Farina, Antonio Graziano, Luca Timmoneri (SELEX-Sistemi Integrati, Italy)

(The advances in large multisensor systems architectures, design, and data fusion techniques to monitor air platforms, monitor evolutions, behaviors, and anomalies and increase the air traffic security)

15:25 **Round table: "Potentialities of the innovative technologies for air traffic security"**

(The convergence of security requirements, innovative technology, and business opportunities in the development of a more secure air traffic management system in the next decade)

- Giorgio Franceschetti (University of Trento & Visiting scientist Jet Propulsion Laboratory (TBC), Italy)
- Giorgio Gulienetti (Head of Product & Technology Development, Strategic Planning – SELEX-Sistemi Integrati, Italy)
- Jose Neves (Head of Department Aerospace, Security & Defense - GMV Skysoft, Portugal)
- João Taborda (Embraer Europe, France (TBC))
- Cagatay Karabat (Researcher, TUBITAK UEKAE -Turkey National Research Institute of Electronics and Cryptology (TBC), Turkey)
- Roland Guraly (CEARES-NET Coordinator, Slot Consulting Ltd (TBC), Hungary)

16:10 **End**

The research leading to the results presented in this workshop has received funding from the European Union FP7 under grant agreement n° 218041.

POSTERS

POSTER SESSION AND WELCOME RECEPTION
MONDAY, 5TH 17:30-21:00

P 1 **Universal Detector of Concealed Hazardous Materials**
Igor Gorshkov, Alexey Evsenin, Andrey Kuznetsov, Pavel Yurmanov, Dmitry Vakhtin (Applied Physics Science and Technology Center, Russia)

P 2 **Laser Ion Mobility Spectrometer Technology and Security Applications**
Matthias Kessler, Andreas Borowsky, Thomas Eggenstein, Anne Kröske, Jörg Sander, Michael Strasser, Manfred Zoberbier (Cassidian, Germany)

P 3 **Fluorescent Biosensors for Standoff-Detection of Gamma-Radiation**
Martin Wehner, Reinhart Poprawe (Fraunhofer ILT, Germany); Nicole Raven, Stefan Schillberg, Kerstin Hund-Rinke, Christoph Kühn (Fraunhofer IME, Germany)

P 4 **Development of a Fully Automated Centrifugal Lab-on-a-Chip System for Rapid Field Testing of Biological Threats**
Thomas van Oordt, Daniel Mark (HSG-IMIT, Germany); Roland Zengerle, Felix von Stetten (Universität Freiburg - IMTEK, Germany); Michael Eberhard (Qiagen Lake Constance, Germany); Matthias Niedrig (Robert Koch Institut, Germany)

P 5 **Detection Technologies - Common Concepts in Security and Safety**
Kurt Osterloh, Norma Wrobel, Uwe Ewert (BAM Federal Institute for Materials Research and Testing, Germany); Vjera Krstelj (EFNDT European Federation for Non-Destructive Testing, Croatia); Davor Zvizdic (FSB-Faculty of Mechanical Engineering and Naval Architecture, Croatia)

P 6 **Variable Irradiation Geometry with a New X-ray Backscatter Camera for Security Applications**
Norma Wrobel, Kurt Osterloh, Uwe Zscherpel, Uwe Ewert (BAM Federal Institute for Materials Research and Testing, Germany)

POSTERS

P 14 **Acoustic-generator Based on a Small Rocket-Burner with Intermittent Combustion to Dissolve Violent Demonstrations**
Helmut Schmid (Fraunhofer ICT, Germany)

P 15 **FP7 Project ETCETERA - Evaluation of Critical and Emerging Technologies for the Elaboration of a Security Research Agenda**
Joachim Burbiel, Stefanie Goymann (Fraunhofer INT, Germany); Steven J. Savage (Swedish Defence Research Agency (FOI) & Royal Institute of Technology (KTH), Sweden); Javier Herrera Lotero (Tecnalia-Sistemas de Innovación, Spain)

P 16 **Presentation of TALOS, a Project of a Mobile, Scalable and Autonomous System for Protecting European Borders**
Yolande Louvet, Jean-Claude Krapez (ONERA, France)

P 17 **Risk Treatment Measures for Managing Cargo Theft in Road Transportation**
Irene Sudy (Hamburg University of Technology, Germany); Ellis Lehner (Vienna University of Economics and Business, Austria)

P 18 **Risk Analysis for a German Harbour Within the Project ECSIT**
Julia Ziehm, Ivo Häring (Fraunhofer EMI, Germany)

P 19 **Integrated Open-Source Software for Modeling the Effects of Bio- or Agro-terroristic Attacks on the Food Chain**
Jan-Frederik Wigger, Matthias Filter, Armin Weiser, Annemarie Käsbohrer, Bernd Appel (Bundesinstitut für Risikobewertung, Germany)

P 20 **Laser-based Ranging and Tracking of Space Debris**
Ivo Buske (German Aerospace Center & DLR, Germany)

POSTERS

P 29 **A New System for Mobile Phone Localization for Search and Rescue Applications**
Stefan Zorn, Richard Rose, Alexander Götz, Robert Weigel, Alexander Kölpin (Friedrich-Alexander University of Erlangen-Nürnberg & Institute for Ecltronics Engineering, Germany)

P 30 **Multistatic 96 GHz Rotating W Band Radar for Passenger Inspection on Airports**
Sebastian Hantscher, Beverly Schlenther, Stefan Lang, Manfred Hägelen, Helmut Essen (Fraunhofer FHR, Germany); Axel Tessmann (Fraunhofer IAF, Germany)

P 31 **A Multichannel Scanning Receiver System for Surveillance Applications**
Frank Hausknecht, Raphael Mzyk, Gunther Dehm-Andone, Georg Fischer, Robert Weigel (Friedrich-Alexander University of Erlangen-Nürnberg & Institute for Ecltronics Engineering, Germany)

P 32 **How to Model and Simulate Multi-Modal Alerting of the Population: The Alert4All Approach**
Wolf Engelbach (Fraunhofer IAO & University Stuttgart IAT, Germany); Sigmund Kluckner (University of Stuttgart, Germany); Sebastian Kurowski (Fraunhofer IAO, Germany)

P 33 **VALUESEC - Mastering the Value Function of Security Measures**
Eduardo Bellido Zúñiga (Atos Origin – Atos Research & Innovation, Spain); Christian Blobner (Fraunhofer IFF, Germany)

P 34 **A Historical Analysis on the Nature of Criminal and Terrorist Threats Against Civil Aviation**
Sascha Goldner (EADS Deutschland GmbH, Germany); Magdalena Pree (TU München, Germany)

P 35 **Esfo – the Information System on European Security Research**

Joachim Burbiel, Beate Becker, Sonja Grigoleit, Merle Missoweit, Sabine Müller, Britta Pinzger, Silke Römer, Ruth Schietke, Joachim Schulze (Fraunhofer INT, Germany)

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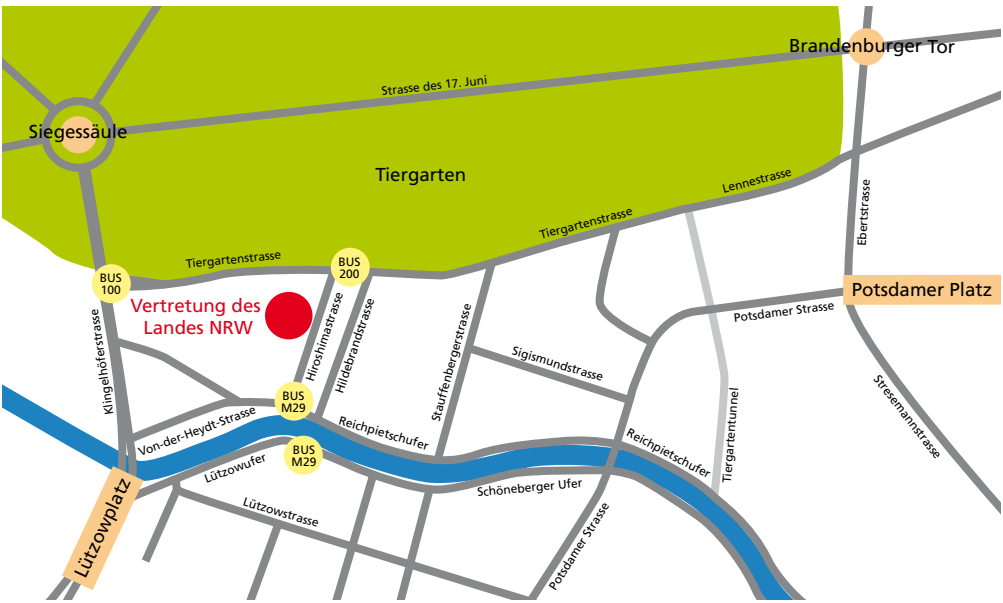

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6TH FUTURE SECURITY
SECURITY RESEARCH CONFERENCE
BERLIN, SEPTEMBER 5TH – 7TH, 2011

GENERAL INFORMATION

REGISTRATION AND OPENING HOURS

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

Monday, September 5th: 9.00 - 21.00

Tuesday, September 6th: 8.00 - 19.00

Wednesday, September 7th: 8.00 - 17.00

CONFERENCE FEES

Regular	714,00 €
Students (only with certificate)	357,00 €
Ministries and subordinate agencies	238,00 €

These fees include coffee breaks and lunch buffets, the welcome reception and the conference dinner.

CONFERENCE LANGUAGE

The conference language is English.

CONFERENCE PROCEEDINGS

The conference proceedings will be published on CD under ISBN 978-3-8396-0295-9 by Fraunhofer Verlag. Every participant will get a free CD at the registration desk.

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