



## Auditorium

## Room A

## Room B

## Room B1

### **EuMC/EuRAD04**

#### **Focussed Session: UAV SAR Systems**

Chair: Svein-Erik Hamran, FFI  
Co-Chair: Erik van Halsema, TNO  
Defence, Security and Safety

### **EuMC37**

#### **Focussed Session: Work on RF in the HOLST Centre, Eindhoven**

Chair: Huib Visser, TNO Science and  
Industry

### **EuRAD02**

#### **UWB Radar Systems 1**

Chair: Dave Harmer, Thales Research &  
Technology  
Co-Chair: Timofey Savelyev, IRCTR - Delft  
University of Technology

### **EuMC38**

#### **Filters 6**

Chair: Cedric Quendo, University of Brest  
Co-Chair: Ming Yu, COMDEV Canada

08:30 – 08:50

#### **EuMC/EuRAD04-1: The ONERA Compact Ka-SAR**

J. Nouvel, O. du Plessis  
ONERA, Salon de Provence, France

#### **EuMC37-1: Analytical Equations for the Analysis of Folded Dipole Array Antennas**

H. J. Visser  
Holst Centre, Eindhoven, The Netherlands

#### **EuRAD02-1: Experimental Study on Human Breathing Cross Section using UWB Impulse Radar**

A. Nezirovic, S. Tesfay, S. E. Amaldoss,  
A. Yarovoy  
Delft University of Technology, Delft,  
The Netherlands

#### **EuMC38-1: Design of Miniature Bandpass Filters on an Organic Laminate Substrate Using a Modified T Prototype**

J. Chen<sup>1</sup>, C. Chiu<sup>1</sup>, C. Huang<sup>1</sup>, T. J. Horng<sup>1</sup>,  
B. Li<sup>2</sup>, C. Hung<sup>2</sup>  
<sup>1</sup>National Sun Yat-Sen University,  
Kaohsiung, Taiwan  
<sup>2</sup>Advanced Semiconductor Engineering  
Inc., Kaohsiung, Taiwan

08:50 – 09:10

#### **EuMC/EuRAD04-2: Second- Generation Ka-Band UAV SAR-System**

M. Edrich<sup>1</sup>, G. Weiss<sup>2</sup>  
<sup>1</sup>EADS Deutschland GmbH, Ulm,  
Germany,  
<sup>2</sup>EADS Deutschland GmbH, Ulm, Germany

#### **EuMC37-2: An UWB Transceiver for IEEE 802.15.4a WPAN**

G. Dolmans, K. Philips  
Holst Centre, Eindhoven, The Netherlands

#### **EuRAD02-2: Millimeter-Wave Imaging of Dielectric Objects Using First Order Scattering Models**

S. Bertl, J. Detlefsen  
TU München, Munich, Germany

#### **EuMC38-2: A Compact Dual- Plane Bandpass Filter Based on Grounded Spiral-Shaped Resonators and Quarter- Wavelength Stepped- Impedance Resonators**

T. N. Kuo, C. H. Wu, C. H. Wang,  
C. H. Chen  
National Taiwan University, Taipei, Taiwan

09:10 – 09:30

#### **EuMC/EuRAD04-3: Realization of a Scalable Airborne Radar**

E. van Halsema<sup>1</sup>, R. de Jongh<sup>2</sup>, J. van Es<sup>3</sup>,  
M. Otten<sup>1</sup>, B. Vermeulen<sup>1</sup>, L. van Liempt<sup>2</sup>  
<sup>1</sup>TNO Defence Security and Safety,  
The Hague, The Netherlands  
<sup>2</sup>THALES Nederland BV, Hengelo,  
The Netherlands  
<sup>3</sup>National Aerospace Laboratory,  
Amsterdam, The Netherlands

#### **EuMC37-3: UWB Pulse Shaping for IEEE 802.15.4a**

H. Pflug  
Holst Centre, Eindhoven, The Netherlands

#### **EuRAD02-3: Coherent Integration of UWB RADAR Signals Using the Hough Transform**

M. Malek Mohammadi, A. Moqiseh,  
M. Nayebi  
Sharif University of Technology, Tehran,  
Iran

#### **EuMC38-3: E-Plane Filters with Selectively Located Transmission Zeros**

R. Lopez-Villarroya<sup>1</sup>, G. Goussetis<sup>1</sup>,  
J. Hong<sup>1</sup>, J. L. Gomez-Tornero<sup>2</sup>  
<sup>1</sup>Heriot Watt University, Edinburgh,  
United Kingdom  
<sup>2</sup>Universidad Politécnica de Cartagena,  
Cartagena, Spain

09:30 – 09:50

#### **EuMC/EuRAD04-4: Gated FMCW SAR System**

S. Hamran, T. Berger, L. Hanssen,  
M. J. Oyan  
FFI, Kjeller, Norway

#### **EuMC37-4: A 60μW/180μW Digitally Controlled Switched-Cap LC Oscillator for 900MHz/2.4GHz Operation**

R. M. Vinelli<sup>1</sup>, J. van der Tang<sup>2</sup>  
<sup>1</sup>Holst Centre, Eindhoven,  
The Netherlands  
<sup>2</sup>Broadcom, Bunnik, The Netherlands

#### **EuRAD02-4: Segmentation of GPR Images in the Case of Presence of the Error in Measured Time of Signal Arrival**

N. V. Verdenskaya<sup>1</sup>, V. V. Sazonov<sup>1</sup>,  
I. A. Ivanova<sup>1</sup>, A. G. Yarovoy<sup>2</sup>, L. P. Ligthart<sup>2</sup>  
<sup>1</sup>Mints Radiotechnical Institute, Moscow,  
Russia  
<sup>2</sup>Delft University of Technology, Delft,  
The Netherlands

#### **EuMC38-4: A Modified Lambda/4 Short-Circuited Stub Bandpass Filter with WLAN Stopband for UWB Applications**

T. H. Duong, I. S. Kim  
Kyung Hee University, Yongjin,  
South Korea

09:50 – 10:10

#### **EuMC37-5: Ambient RF Energy Scavenging: GSM and WLAN Power Density Measurements**

H. J. Visser<sup>1,2</sup>, A. C. Reniers<sup>2</sup>,  
J. A. Theeuwes<sup>2</sup>  
<sup>1</sup>Holst Centre, Eindhoven, The Netherlands  
<sup>2</sup>TNO Science and Industry, Eindhoven,  
The Netherlands

#### **EuRAD02-5: Target Resolution Enhancement in UWB Radar for Security System**

M. Gashinova<sup>1</sup>, L. Daniel<sup>1</sup>, Z. Ding<sup>2</sup>,  
M. Chemiakov<sup>1</sup>  
<sup>1</sup>University of Birmingham, Birmingham,  
UK  
<sup>2</sup>Beijing Institute of Technology, Beijing,  
China

#### **EuMC38-5: A Q-band Low- Profile Waveguide BRF with Built-in Cavity-Embedded Dielectric Substrates**

S. Yoneda, H. Uchida, M. Tanaka, T. Sasaki,  
N. Yoneda  
Mitsubishi Electric Corporation,  
Kamakura City, Japan

## Room C

### **EuMC39**

#### **Focussed Session: Advances in Large-Signal Measurement Techniques (NVNA Users' Forum)**

Chair: Gottfried Magerl, Vienna University of Technology  
Co-Chair: Jean-Pierre Teyssier, XLIM CNRS-Université de Limoges

#### ***EuMC39-1: Characterization and Modeling of Direct Conversion Transmitters***

M. E. Gadringer, C. Schuberth, G. Magerl  
Vienna University of Technology, Vienna, Austria

#### ***EuMC39-2: A Generalized Time-Domain Waveform Test-set***

A. Ferrero<sup>1</sup>, V. Teppati<sup>1</sup>, B. Noori<sup>2</sup>  
<sup>1</sup>Politecnico di Torino, Torino, Italy  
<sup>2</sup>Freescale Semiconductor, Tempe, US

#### ***EuMC39-3: Demystifying Device Related Memory Effects using Waveform Engineering and Envelope Domain Analysis***

J. Lees, T. Williams, S. Woodington, P. McGovern, S. Cripps, J. Benedikt, P. Tasker  
Cardiff University, Cardiff, UK

#### ***EuMC39-4: Pulse Profiling for AlGaIn/GaN HEMTs Large Signal Characterizations***

J. Faraj<sup>1</sup>, F. De Groote<sup>2,1</sup>, J. Teyssier<sup>1,2</sup>, J. Verspecht<sup>3,2</sup>, R. Quéré<sup>1</sup>, R. Aubry<sup>4</sup>  
<sup>1</sup>XLIM, Brive, France  
<sup>2</sup>Verspecht-Teyssier-Degroote SAS, Brive, France  
<sup>3</sup>Jan Verspecht bvba, Opwijk, Belgium  
<sup>4</sup>Alcatel-Thales III-V lab, Marcoussis, France

## Room D

### **EuMC40**

#### **Integrated Antennas**

Chair: Achim Dreher, Deutsches Zentrum für Luft- und Raumfahrt e.V.  
Co-Chair: Ioan Lager, IRCTR - Delft University of Technology

#### ***EuMC40-1: Radiation Pattern Measurements and Predictions of the PLANCK RF Qualification Model***

G. Forma<sup>1</sup>, D. Dubruel<sup>1</sup>, J. Marti-Canales<sup>2</sup>, M. Paquay<sup>2</sup>, G. Crone<sup>2</sup>  
<sup>1</sup>Thales Alenia Space, Cannes la Bocca, France  
<sup>2</sup>European Space Agency, Noordwijk, The Netherlands

#### ***EuMC40-2: Alignment Verification of the PLANCK Reflector Configuration by RCS Measurements at 320 GHz***

M. Paquay<sup>1</sup>, J. Marti-Canales<sup>1</sup>, L. Rolo<sup>1</sup>, G. Forma<sup>2</sup>, D. Dubruel<sup>2</sup>, D. Doyle<sup>1</sup>, G. Crone<sup>1</sup>  
<sup>1</sup>European Space Agency, Noordwijk, The Netherlands  
<sup>2</sup>Thales Alenia Space, Cannes La Bocca, France

#### ***EuMC40-3: Efficient Design of a Compact Wideband EBG Filter for Active Integrated Antennas***

P. Baccarelli, P. Burghignoli, F. Frezza, A. Galli, P. Lampariello, S. Paulotto, G. Valerio  
"La Sapienza" University of Rome, Rome, Italy

#### ***EuMC40-4: Hybrid Integrated Antenna for Automotive Short Range Radar Applications at 79GHz***

Y. C. Pinto<sup>1</sup>, C. Person<sup>1</sup>, D. Gloria<sup>2</sup>, A. Cathelin<sup>2</sup>, D. Belot<sup>2</sup>, R. Plana<sup>3</sup>  
<sup>1</sup>Lab-STICC/TELECOM Bretagne, Brest, France  
<sup>2</sup>ST Microelectronics, Crolles, France  
<sup>3</sup>Laas CNRS, Toulouse, France

#### ***EuMC40-5: Chip-to-Chip Interconnects Using Integrated Antennas***

H. H. Jordanov, P. Russer,  
Technische Universität München, Munich, Germany

## Room E

### **EuMC41**

#### **Microwave Techniques for Material Characterization**

Chair: Andy Gibson, University of Manchester  
Co-Chair: Peter Zwamborn, Eindhoven University of Technology/ TNO Defence, Security and Safety

#### ***EuMC41-1: Study of Temperature Distribution of a One Layer EM-Wave Absorber Using a Lossy Magnetic Material under High Power Injection***

S. Watanabe<sup>1</sup>, T. Kurakata<sup>1</sup>, O. Hashimoto<sup>1</sup>, T. Saito<sup>2</sup>, H. Kurihara<sup>2</sup>  
<sup>1</sup>Aoyama Gakuin University, Sagami-hara, Japan  
<sup>2</sup>TDK Corporation Technical Center, Ichikawa, Japan

#### ***EuMC41-2: Microstrip Photonic Crystals and their Application for Measurement Parameters of Materials***

D. A. Usanov, A. V. Skripal, A. V. Abramov, A. S. Bogolubov, M. Y. Kulikov  
Saratov State University, Saratov, Russian Federation

#### ***EuMC41-3: Quasi-Optical Dielectric Resonator-Based Technique of HTS Film Millimeter-Wave Surface Resistance Measurements: Three Types of Resonators***

N. T. Cherpak, A. A. Barannik, S. O. Bunyayev, O. Ya. Usikov  
IRE NAS of Ukraine, Kharkiv, Ukraine

#### ***EuMC41-4: Non-Destructive Broad-Band Characterization Method of Thin Ferroelectric Layers at Microwave Frequencies***

S. De Blasi, P. Quéffelec  
LabSTICC, Brest Cedex 03, France

#### ***EuMC41-5: Permeameter For The Characterization of Magnetic Thin Films up to 15 GHz***

F. Hettstedt, U. Schürmann, R. Knöchel, E. Quandt  
University of Kiel, Kiel, Germany

08:30 – 08:50

08:50 – 09:10

09:10 – 09:30

09:30 – 09:50

09:50 – 10:10



**Auditorium**

**EuRAD Plenary Session**

Chair: Alexander Yarovoy, EuRAD2008 Chair  
Co-Chair: Emiel Stolp, EuRAD2008 Co-Chair

**Room A**

**EuMC42  
Innovative Tunable  
Materials and  
Structures**

Chair: Spartak Gevorgian, Chalmers  
University of Technology  
Co-Chair: Mike Lancaster, Birmingham  
University

**Room B**

**EuMC43  
Focussed Session: New  
Modeling Techniques  
for Antenna Design**

Chair: Anton Tjihuis, Eindhoven University  
of Technology  
Co-Chair: Martijn van Beurden,  
Eindhoven University of Technology

10:50 – 11:00

**Welcome Address**

11:00 – 11:20

**PAMIR - a Multifunctional Phased Array SAR/GMTI Sensor:  
Objectives, Design and Realisation**

Joachim H.G. Ender, FGAN-FHR, Wachtberg, Germany

At FGAN the experimental X-band radar PAMIR (Phased Array Multifunctional Imaging Radar) has been developed to demonstrate the capabilities of future long range airborne reconnaissance systems. The variety of operational modes as high resolution SAR and GMTI is achieved with a wideband phased array frontend. In this presentation, the objectives and the principle design of this system are described.

Joachim Ender is the head of FGAN's research institute for high frequency physics and radar techniques (FHR). He started the PAMIR programme several years ago.

11:20 – 11:40

**PAMIR - The Reconfigurable Radar Front-End**

Helmut Wilden, FGAN-FHR, Wachtberg, Germany

Two reconfigurable radar frontend configurations for the PAMIR SAR/GMTI imaging radar, an experimental active phased array system with a very high instantaneous bandwidth of 1.82 GHz in X-band are described: a pod mounted antenna structure accommodating a linear time and phase steered array antenna with a length of 4.25 m and a two-dimensional interferometric antenna aperture. Both RF-frontends are based on identical antenna subarrays performing the required beamforming by use of switchable true time delay networks with time increments equivalent to a fraction of a wavelength.

Helmut Wilden is since 1977 scientist at FGAN on the area of phased array technology and systems and since 2002 project leader of the PAMIR frontend development.

11:40 – 12:00

**PAMIR - New Results on SAR and GMTI**

Andreas R. Brenner, FGAN-FHR, Wachtberg, Germany

By means of various PAMIR radar modes very high resolution SAR, interferometric SAR and ISAR can be demonstrated with a resolution in the order of 10 cm and below. With respect to moving objects current results of along-track interferometry and a multi-channel scan-MTI mode will be presented as well. The talk concludes with an overview of experimental results in context of bistatic imaging.

Andreas R. Brenner is head of the department Array-based Radar Imaging of FHR and since 2003 responsible for the realisation of PAMIR and the exploitation of its radar modes.

12:00 – 12:45

**Advanced Technologies Enabled Via Active Electronically Scanned  
Array (AESA) Radar**

Barry M. Alexia, Director, Business Development Science & Technology, Raytheon Space & Airborne Systems, USA (the author of the paper is Dr. William T. Gardner)

The emergence of AESA based military radar systems has enabled demonstration and fielding of significant advanced technologies. These technologies are providing the basis on which next generation capabilities will become available to the modern warfighter. Great progress has been made over the last several years in the development and fielding of AESA based airborne military radar and now is the time to leverage next generation capabilities enabled via the AESA.

Dr. Barry M. Alexia, with more than 25 years of military, engineering, technology development, and BD experience. A former officer in the US Marines, and Hughes Aircraft Company, who was employed in the private equity field responsible for the development of RF MEMS devices; a cofounder of a distributed wireless network nodal sensor company; and managing director of advanced sensor development for Deere & Company.

**EuMC42-1: Magnetic Control  
of Negative Permeability  
Metamaterials Based on  
Liquid Crystals**

F. Zhang<sup>1,2</sup>, Zhao<sup>3</sup>, L. Kang<sup>3</sup>, D. P. Gaillot<sup>1</sup>,  
X. Zhao<sup>2</sup>, J. Zhou<sup>3</sup>, D. Lippens<sup>1</sup>  
<sup>1</sup>University of Lille, Villeneuve d'Ascq,  
France  
<sup>2</sup>Northwestern Polytechnical University,  
Xi'an, China  
<sup>3</sup>Tsinghua University, Beijing, China

**EuMC42-2: Constraints on  
Efficient Control of Tunable  
Impedance Matching  
Network Based on Barium-  
Strontium-Titanate Thick-  
Film Varactors**

Y. Zheng, H. Maune, A. Giere, M. Sazegar,  
R. Jakoby  
TU Darmstadt, Darmstadt, Germany

**EuMC42-3: Tuning of Barium  
Strontium Titanate (BST) Thin  
Film Materials Employing  
High Resistive Thin Indium  
Tin Oxide (ITO) Layer**

M. Al Ahmad, R. Plana  
CNRS, Toulouse, France

**EuMC42-4: Tunable  
Frequency Selective Surfaces  
Characterisation**

A. Munir, V. Fusco  
Queen's University of Belfast, Belfast,  
United Kingdom

**EuMC42-5: A Distributed  
Analogue CMOS Phase  
Shifter with Shielded  
Transmission Line**

R. R. Lahiji<sup>1</sup>, L. P. Katehi<sup>2</sup>, S. Mohammadi<sup>1</sup>  
<sup>1</sup>Purdue University, West Lafayette, USA  
<sup>2</sup>University of Illinois, Urbana-Champaign,  
USA

**EuMC43-1: Computational  
Techniques for Antenna  
Engineering**

A. G. Tijhuis, M. C. van Beurden,  
B. P. de Hon,  
Eindhoven University of Technology,  
Eindhoven, The Netherlands

**EuMC43-2: Modular  
Modeling and Optimization  
for Large Antenna Arrays**

M. C. van Beurden, R. Dirks, A. G. Tijhuis  
Eindhoven University of Technology,  
Eindhoven, The Netherlands

**EuMC43-3: Preconditioned  
Finite-Difference Frequency-  
Domain for Modelling  
Periodic Dielectric Structures-  
Comparisons with FDTD**

A. Chabory<sup>1,2</sup>, B. P. de Hon<sup>1</sup>,  
W. H. Schilders<sup>1</sup>, A. G. Tijhuis<sup>1</sup>  
<sup>1</sup>Eindhoven University of Technology,  
Eindhoven, The Netherlands  
<sup>2</sup>ENAC, Toulouse, France

**EuMC43-4: Experimental  
Validation of the Stochastic  
Model of a Randomly  
Fluctuating Transmission-Line**

O. O. Sy<sup>1</sup>, J. Vaessen<sup>1</sup>, M. van Beurden<sup>1</sup>,  
B. Michielsen<sup>2</sup>, A. Tijhuis<sup>1</sup>, P. Zwamborn<sup>3</sup>,  
J. Groot<sup>3</sup>  
<sup>1</sup>Eindhoven University of Technology,  
Eindhoven, The Netherlands,  
<sup>2</sup>ONERA, Toulouse, France,  
<sup>3</sup>TNO Defence Security and Safety,  
The Hague, The Netherlands

**EuMC43-5: Hybridization of  
Efficient Modeling Techniques  
for Fast Analysis of Large-  
Scale Antenna Structures in  
the Context of the Square  
Kilometre Array Project**

R. Maaskant<sup>1</sup>, A. Tijhuis<sup>2</sup>, R. Mittra<sup>3</sup>,  
M. Ivashina<sup>1</sup>, W. van Cappellen<sup>1</sup>, M. Arts<sup>1</sup>  
<sup>1</sup>ASTRON, Dwingeloo, The Netherlands  
<sup>2</sup>Eindhoven University of Technology,  
Eindhoven, The Netherlands  
<sup>3</sup>Pennsylvania State University, Penn State, USA

10:50 – 12:30

# THURSDAY



## Room B1

### EuMC44

#### Filters 7

Chair: Ming Yu, COMDEV Canada  
Co-Chair: Pierre Blondy, XLIM  
CNRS-Université de Limoges

#### *EuMC44-1: Design of 60GHz Millimetre-Wave Integrated SIR-MH Microstrip Bandpass Filters on Bulk CMOS*

B. Yang, E. Skafidas, R. J. Evans  
National ICT Australia, Melbourne, Australia

#### *EuMC44-2: Multi-Layered Ultra-Wide Band (UWB) Bandpass Filters*

D. Kurita, K. Li  
National Institute of Information and Communications Technology, Yokosuka, Japan

#### *EuMC44-3: Synthesis/Design of Novel Compact Ultra-wideband Bandpass Filter with Very Steep Skirt Selectivity*

C. Chen<sup>1</sup>, Z. Ma<sup>2</sup>, T. Anada<sup>1</sup>  
<sup>1</sup>Kanagawa University, Yokohama-shi, Japan  
<sup>2</sup>Saitama University, Saitama-shi, Japan

#### *EuMC44-4: Narrow-Band Filter for Radar-Transmitter Application*

H. Kayano, T. Kawaguchi, N. Shiokawa, K. Nakayama, T. Watanabe, T. Hashimoto  
Toshiba Corporation, Kawasaki, Japan

#### *EuMC44-5: Ultra-Wide Band (UWB) Microstrip Bandpass Filter with Narrow Notched Band*

H. N. Shaman, J. Hong  
Heriot-Watt University, Edinburgh, United Kingdom

## Room C

### EuMC45

#### Wave Propagation and Scattering

Chair: Danielle Vanhoenacker-Janvier, Université Catholique de Louvain  
Co-Chair: Dieter Jäger, University of Duisburg

#### *EuMC45-1: Specific Results of 7-Year Hydrometeor Attenuation Research at 58GHz on an 850 m Terrestrial Path*

V. Kvicera<sup>1</sup>, M. Grabner<sup>1</sup>, O. Fiser<sup>2</sup>  
<sup>1</sup>Technical Centre of Telecommunications and Posts Prague, Prague, Czech Republic  
<sup>2</sup>Institute of Atmospheric Physics Academy of Sciences of the Czech Republic, Prague, Czech Republic

#### *EuMC45-2: Computation of Frequency Average Power Density Based on the TLM Method*

U. Siart, S. Hofmann, N. Fichtner, P. Russer  
Technische Universität München, Munich, Germany

#### *EuMC45-3: Transparency Cloak Based on High-K BST Rod*

D. P. Gaillot<sup>1</sup>, Q. Zhao<sup>2,3</sup>, F. Zhang<sup>1</sup>, L. Kang<sup>3</sup>, C. Croënne<sup>1</sup>, J. Zhou<sup>3</sup>, D. Lippens<sup>1</sup>  
<sup>1</sup>Institut d'Électronique de Microélectronique et Nanotechnologies, Université des Sciences et Technologies de Lille, Villeneuve d'Ascq, France  
<sup>2</sup>State Key Lab of Tribology, University of Beijing, Beijing, China  
<sup>3</sup>State Key Lab of New Ceramics and Fine Processing, University of Beijing, Beijing, China

#### *EuMC45-4: Discrete Geodesics Method for Creeping Waves on Numerical Surfaces*

E. Di Giampaolo, A. Scaramella  
Università di Roma, Roma, Italy

#### *EuMC45-5: Transient Band Evolution in Electromagnetic Bandgap Structures*

R. Safian  
Isfahan University of Technology, Isfahan, Iran

## Room D

### EuMC46

#### Antenna Elements

Chair: Huib Visser, TNO Science and Industry  
Co-Chair: Marian Wnuk, Military Academy Warsaw

#### *EuMC46-1: A Band-Notched Tulip Antenna for UWB Applications*

A. N. Askarpour, A. Gholipour, R. Faraji-Dana  
University of Tehran, Tehran, Iran

#### *EuMC46-2: Directional Ultra-Wideband Antennas in Planar Technologies*

M. Mokhtaari, J. Bornemann  
University of Victoria, Victoria, Canada

#### *EuMC46-3: Band Notched Semi-Elliptic Slot Antenna for UWB Systems*

M. G. Krishna, D. D. Krishna, C. K. Aanandan  
Cochin University of Science and Technology, Ernakulam, India

#### *EuMC46-4: Electrically Small Square Loop Antenna with a Capacitive SRR Cover Structure*

H. M. Lee, J. H. Kim, Y. J. Kim  
Kyonggi university, Suwon, South Korea

#### *EuMC46-5: A CPW-Fed Triple Band Monopole Antenna for WiMAX/WLAN Applications*

D. D. Krishna, M. G. Krishna, C. K. Aanandan  
Cochin University of Science and Technology, Cochin, India

## Room E

### EuMC47

#### Microwave Characterization of Complex Dielectric Materials

Chair: Viktor Krozer, Technical University Denmark  
Co-Chair: Peter Zwamborn, Eindhoven University of Technology/ TNO Defence, Security and Safety

#### *EuMC47-1: A Novel Microwave-based Inspection System for Continuously Streaming Materials Using a Cavity Resonator*

T. J. Hermann, G. R. Olbrich, P. Russer  
Technische Universität München, Munich, Germany

#### *EuMC47-2: Permittivity Measurement of Biological Materials with Improved Microwave Cavity Perturbation Technique*

W. Che<sup>1,2</sup>, Z. Wang<sup>1</sup>, Y. Chang<sup>1</sup>, P. Russer<sup>2</sup>  
<sup>1</sup>Nanjing University of Science and Technology, Nanjing, China  
<sup>2</sup>Technische Universität München, Munich, Germany

#### *EuMC47-3: Triple-Mode Cavity Perturbation Method for the Characterization of Anisotropic Media*

A. Gaebler, F. Goelden, S. Mueller, R. Jacoby  
TU Darmstadt, Darmstadt, Germany

#### *EuMC47-4: Broadband Dielectric Material Characterization: A Comparison of On-Wafer and Split-Cylinder Measurements*

U. Arz<sup>1</sup>, J. Leinhos<sup>1</sup>, M. D. Janezic<sup>2</sup>  
<sup>1</sup>PTB, Braunschweig, Germany  
<sup>2</sup>NIST, Boulder, USA

#### *EuMC47-5: Characterization of Dielectric Profiles by Using Microwave Delay Time Measurements*

B. Will, M. Gerding  
Ruhr-University Bochum, Bochum, Germany

10:50 – 11:10

11:10 – 11:30

11:30 – 11:50

11:50 – 12:10

12:10 – 12:30

THURSDAY

Exhibition Hall 12:30 – 13:50 (authors present), posters on display 10:10 – 16:00

Exhibition Hall 12:30-13:50

***EuMCP03-1: The Gunn Diode Autodyne Sensors in the Mm Ranges***

S. Votoropin  
NIIPP, Tomsk, Russia

***EuMCP03-2: Analysis of the Frequency Locking Region of Coupled Oscillators Applied to 1-D Antenna Arrays***

N. Tohme, J. Paillot, D. Cordeau,  
P. Coirault  
University of Poitiers, Angouleme,  
France

***EuMCP03-3: High Performance Vertical Transition from DC to 70 GHz for System-on-Package Applications***

I. Ju<sup>1</sup>, I. Yom<sup>1</sup>, H. Lee<sup>1</sup>, S. Oh<sup>2</sup>  
<sup>1</sup>ETRI, Daejeon, South Korea  
<sup>2</sup>Chung-nam National University,  
Daejeon, South Korea

***EuMCP03-4: Multi-Band Rejection DGS with Improved Slow-wave Effect***

D. Woo, T. Lee  
Korea Aerospace University, Goyang,  
South Korea

***EuMCP03-5: Field Theory Analysis and Matrix Synthesis of Cylindrical Array with Multi-Lobe Pattern***

M. B. Manuilov, B. D. Manuilov,  
P. N. Bashly  
South Federal University,  
Rostov-on-Don, Russia

***EuMCP03-6: Theoretical Minimum Insertion Loss of Butterworth and Chebyshev Bandpass Filters***

A. Simin<sup>1</sup>, D. Kholodnyak<sup>2</sup>, I. B. Vendik<sup>2</sup>  
<sup>1</sup>NXP Semiconductors B.V., Nijmegen,  
The Netherlands  
<sup>2</sup>Saint-Petersburg Electrotechnical  
University, St-Petersburg, Russia

***EuMCP03-7: PAPR Evaluation in Multi-Mode SDR Transceivers***

P. M. Cruz, N. B. Carvalho  
IT-Universidade de Aveiro, Aveiro,  
Portugal

***EuMCP03-8: Design of a Ka-band MMIC Filtering LNA with a Metamorphic HEMT Technology for a Space Application***

V. Armengaud<sup>1</sup>, J. Lintignat<sup>1</sup>,  
B. Barelaud<sup>1</sup>, B. Jarry<sup>1</sup>, L. Babak<sup>2</sup>,  
C. Laporte<sup>3</sup>, <sup>1</sup>XLIM, Limoges, France,  
<sup>2</sup>TSCUCR, Tomsk, Russia  
<sup>3</sup>CNES, Toulouse, France

***EuMCP03-9: LTON Ferroelectric Thin Film, Measurement and Application to Microwave Device***

H. Kassem<sup>1</sup>, V. Vigneras<sup>1</sup>, G. Lunet<sup>1</sup>,  
A. Ziani<sup>2</sup>  
<sup>1</sup>IMS-Bordeaux laboratory, Pessac,  
France  
<sup>2</sup>SGM Rennes, Rennes, France

***EuMCP03-10: Novel Two Dimensional Metamaterial Array for Multi-Band Filter Applications***

K. Herbertz, S. Lucyszyn  
Imperial College, London,  
United Kingdom

***EuMCP03-11: Analysis of Stability of MOT Scheme with Different Temporal Basis Functions***

J. Lacik, Z. Lukes, Z. Raida  
Brno University of Technology, Brno,  
Czech Republic

***EuMCP03-12: A Novel Electromagnetic Bandgap Structure for Broadband Switching Noise Suppression in High-Speed Printed Circuit Boards***

S. Genovesi, A. Monorchio  
University of Pisa, Pisa, Italy

***EuMCP03-13: Power Amplifier Design for E-band Wireless System Communications***

D. Hadziabdic, V. Krozer, T. K. Johansen  
Technical University of Denmark,  
Lyngby, Denmark

***EuMCP03-14: Different Feeding Geometries for Planar Elliptical UWB Dipoles, and the Excitation of Leakage Current***

G. Whyte<sup>1</sup>, F. Darbai<sup>2</sup>, I. McGregor<sup>1</sup>,  
I. Glover<sup>2</sup>, I. Thayne<sup>1</sup>  
<sup>1</sup>Glasgow University, Glasgow,  
United Kingdom  
<sup>2</sup>Strathclyde University, Glasgow,  
United Kingdom

***EuMCP03-15: Integrated Compact Microstrip Filters for 60 GHz Applications***

S. Glisic, C. Scheytt  
IHP, Frankfurt Oder, Germany

***EuMCP03-16: Design Considerations of Bandwidth Reconfigurable Input Multiplexers***

D. Denti, M. Letizia  
Politecnico di Milano, Milan, Italy

***EuMCP03-17: Combined Electromagnetic and Circuit Approaches for Accurate RF Circuits Modeling***

T. Caillet<sup>1</sup>, D. Bajon<sup>1</sup>, S. Wane<sup>2</sup>,  
R. Plana<sup>3</sup>, <sup>1</sup>Université Toulouse ISAE  
Supaero, Toulouse, France  
<sup>2</sup>NXP Semiconductors, Caens, France  
<sup>3</sup>Université Toulouse LAAS, Toulouse,  
France

**Student Challenge**

12:30 – 13:50

All conference delegates are invited to attend the Student Challenge presentations

For more information see page 23

12:30 – 13:50

## EuRAD Poster Session

Chair: Alex Yarovoy, Delft University of Technology



Exhibition Hall 12:30 – 13:50 (authors present), posters on display 10:10 – 16:00

### **EuRADPoster01-1: Fractal Convolution Techniques for Speckle Noise Reduction**

J. A. Martinez-Rojas, R. Sanchez-Montero, J. Alpuente-Hermosilla, P. Lopez-Espi  
Universidad de Alcalá,  
Alcalá de Henares, Spain

### **EuRADPoster01-2: Coherent Calibration Techniques for Multistatic SAR Image Formation**

A. M. Chan, M. D. Casciato, P. K. Rennich  
General Dynamics Advanced Information Systems, Ypsilanti, USA

### **EuRADPoster01-3: C-Band Transceiver Testbed with Substrate Integrated Waveguide (SIW) Filter for Ultra-Wideband (UWB) Communications**

C. Seifarth, R. Draheim, G. Scholl  
Helmut Schmidt University / University of the Federal Armed Forces Hamburg, Hamburg, Germany

### **EuRADPoster01-4: Hough Detector with an OS CFAR Processor in Presence of Randomly Arriving Impulse Interference**

L. A. Doukouska<sup>1</sup>, C. A. Kabakchiev<sup>2</sup>, V. A. Kyovtorov<sup>1</sup>, I. G. Garvanov<sup>1</sup>  
<sup>1</sup>Bulgarian Academy of Sciences, Sofia, Bulgaria  
<sup>2</sup>Sofia University, Sofia, Bulgaria

### **EuRADPoster01-5: Optimizing Two-Tone Spurious-Free Dynamic Range for Polarimetric Agile Radar Receivers**

Z. Li<sup>2,1</sup>, L. P. Ligthart<sup>2</sup>, P. Huang<sup>3</sup>, W. Lu<sup>1</sup>, W. F. van der Zwan<sup>2</sup>, O. A. Krasnov<sup>2</sup>, E. P. Lys<sup>2</sup>  
<sup>1</sup>Nanjing Electronic Equipment Institute, Nanjing, China  
<sup>2</sup>Delft University of Technology, Delft, The Netherlands  
<sup>3</sup>The Second Academy of China Aerospace, Beijing, China

### **EuRADPoster01-6: Traffic Intensity Estimation via PHD Filtering**

G. Battistelli<sup>1</sup>, L. Chisci<sup>1</sup>, S. Morrocchi<sup>1</sup>, F. Papi<sup>1</sup>, A. Benavoli<sup>2</sup>, A. Farina<sup>2</sup>, A. Graziano<sup>2</sup>  
<sup>1</sup>University of Firenze, Firenze, Italy  
<sup>2</sup>Selex Sistemi Integrati, Roma, Italy

### **EuRADPoster01-7: Why Should We Use Particle Filtering in FM Band Passive Radars?**

A. Benavoli, A. Di Lallo  
SELEX Sistemi Integrati, Rome, Italy

### **EuRADPoster01-8: K-Band/S-Band Satellite Transponder System for On-Orbit Evaluation of LTCC Technology**

T. Baras, S. Brosius, A. F. Jacob  
Tech. Univ. Hamburg-Harburg, Hamburg, Germany

### **EuRADPoster01-9: Range Resolution Improvement for FMCW Radars**

H. Ko, K. Cheng, H. Su  
National Taiwan University, Taipei, Taiwan

### **EuRADPoster01-11: Wind Turbine Clutter Mitigation using Fully Adaptive Arrays**

R. D. Palmer, K. D. Le, B. Isom  
University of Oklahoma, Norman, USA

### **EuRADPoster01-12: Parameter Estimation of Heavy-Tailed Rayleigh Prior Model from Observed SAR Amplitude Images**

Z. Sun<sup>1,2</sup>, R. M. Narayanan<sup>2</sup>, C. Han<sup>1</sup>  
<sup>1</sup>Xi'an Jiaotong University, Xi'an, P.R. China  
<sup>2</sup>The Pennsylvania State University, University Park, USA

### **EuRADPoster01-13: Analog Pulse Compressor for Radar System**

S. M. Lee, T. Song, J. Park, K. Lim, J. Laskar  
Georgia Institute of Technology, Atlanta, USA

### **EuRADPoster01-14: A new Beam-Former using Multi-Layered Phase-shifter for 60GHz WPAN Applications**

H. Kim<sup>1</sup>, K. Eun<sup>1</sup>, J. Kim<sup>1</sup>, Y. Kim<sup>2</sup>, J. Choi<sup>2</sup>, S. Cho<sup>2</sup>, D. Lee<sup>2</sup>, C. Park<sup>1</sup>  
<sup>1</sup>Information Communication University, Daejeon, South Korea  
<sup>2</sup>Samsung Advanced Institute of Technology, Yongin, South Korea

### **EuRADPoster01-15: Signal Processing to Eliminate Multi-Reflected Pulses for NRD Guide Pulse Radar at 60 GHz**

K. Takayama, F. Kuroki  
Kure Nat'l Coll Of Tech, Kure, Japan

### **EuRADPoster01-16: Design of a 6-10GHz Low LO-Power CMOS Folded-Mirror Mixer With Link-Budget Consideration for DS-UWB Receivers**

H. Chung, J. Yeh, H. Kuo, H. Chuang  
National Cheng Kung University, Tainan, Taiwan, R.O.C

### **EuRADPoster01-17: On-Board SAR Compression System Based on Back Propagation Neural Network**

N. Agrawal<sup>1</sup>, K. Venugopalan<sup>2</sup>  
<sup>1</sup>College of Technology & Engineering, MPUAT, Udaipur, India  
<sup>2</sup>Mohan Lal Sukhadia University, Udaipur, India

### **EuRADPoster01-18: Binary and Fuzzy Distributed CFAR Detectors**

A. Zaimbashi, M. Akhavan Saraf MirMohamad-Sadeghi, Information & Communication Technology Institute, Isfahan, University of Technology, Isfahan, Iran

### **EuRADPoster01-19: ISAR Imaging Based on Two-Dimensional GTD Scattering Model**

A. V. Karakasiotis<sup>1</sup>, A. D. Lazarov<sup>2</sup>, P. V. Frangos<sup>1</sup>  
<sup>1</sup>National Technical University of Athens, Athens, Greece  
<sup>2</sup>Burgas Free University, Burgas, Bulgaria

### **EuRADPoster01-20: Signal Detection Against the Background of Non Gaussian Clutter from Underlying Surface**

I. V. Lutsenko, V. I. Lutsenko, I. V. Popov  
Usikov Institute of Radiophysics and Electronics of National Academy of Sciences of Ukraine, Kharkov, Ukraine

### **EuRADPoster01-21: Illumination of Air Environment Using Radiation of SB Broadcast Stations**

I. V. Popov, I. V. Lutsenko, V. I. Lutsenko  
Usikov Institute of Radiophysics and Electronics of National Academy of Sciences of Ukraine, Kharkov, Ukraine

12:30 – 13:50

THURSDAY

Exhibition Hall 12:30 – 13:50 (authors present)

**EuMCP04-1: TEM Horn Antenna Using Improved UWB Feeding Mechanism**

S. Ghosh, B. K. Sarkar, S. V. Pandey  
 Indian Institute of Technology, IIT,  
 Kharagpur, India,

**EuMCP04-2: A New «Region» Technique for Designing Low-Noise Microwave Transistor Amplifiers with Lossless Equalizers**

L. I. Babak, M. V. Cherkashin,  
 A. Y. Polyakov  
 Tomsk State University of Control  
 Systems and Radioelectronics, Tomsk,  
 Russia

**EuMCP04-3: Novel Multi-Strip Resonator and Filter**

I. Awai<sup>1</sup>, M. Inoue<sup>1</sup>, Y. Maeda<sup>1</sup>,  
 T. Fukanaga<sup>2</sup>, Y. Murabayashi<sup>2</sup>,  
 M. Fujimoto<sup>3</sup>  
<sup>1</sup>Ryukoku University, Otsu, Japan  
<sup>2</sup>TDK Corporation, Ichikawa, Japan  
<sup>3</sup>Hirai Seimitsu Corporation, Ogaki,  
 Japan

**EuMCP04-4: Non-Contact Signal Transmission Based on Open Ring Resonator BPF**

I. Awai<sup>1</sup>, K. Hori<sup>1</sup>, Y. Okuyama<sup>2</sup>,  
 Y. Ohno<sup>2</sup>  
<sup>1</sup>Ryukoku University, Otsu, Japan  
<sup>2</sup>The University of Tokushima,  
 Tokushima, Japan

**EuMCP04-5: High Performance Vertical MOSFET Technology Enables Phased Array Radar Applications**

B. Battaglia, R. Neeley, W. Wright,  
 B. Gogoi  
 HVVi Semiconductors, Inc., Phoenix,  
 USA

**EuMCP04-6: Low Loss Left-Handed Media Using Dielectric Ring Resonators**

A. Deleniv<sup>1</sup>, S. Gevorgian<sup>1,2</sup>  
<sup>1</sup>Chalmers University of Technology,  
 Göteborg, Sweden  
<sup>2</sup>Ericsson AB, Göteborg, Sweden

**EuRADPoster02-1: Towards a Lifecycle Test and Verification Environment for Sensor Systems**

D. Murray  
 The Real-Time Data Co. Ltd.,  
 Walton-on-Thames, UK

**EuRADPoster02-2: An Ultra-Wide Band Indoor Personnel Tracking System for Emergency Situations (Europcom)**

D. Harmer<sup>1</sup>, M. Russell<sup>1</sup>, E. Frazer<sup>1</sup>,  
 T. Bauge<sup>1</sup>, S. Ingram<sup>1</sup>, N. Schmidt<sup>2</sup>,  
 B. Kul<sup>2</sup>, A. Yarovoy<sup>3</sup>, A. Lo<sup>3</sup>, L. Xia<sup>3</sup>,  
 A. Nezirovic<sup>3</sup>, V. Dizdarevic<sup>4</sup>,  
 K. Witrissal<sup>4</sup>  
<sup>1</sup>Thales Research and Technology (UK)  
 Ltd, Reading, Great Britain  
<sup>2</sup>IMST GmbH, Kamp-Lintfort, Germany  
<sup>3</sup>Delft University of Technology, Delft,  
 The Netherlands  
<sup>4</sup>Graz University of Technology, Graz,  
 Austria

**EuRADPoster02-3: Detection and Tracking of Moving or Trapped People Hidden by Obstacles Using Ultra-Wideband Pseudo-Noise Radar**

J. Sachs<sup>1</sup>, M. Aftanas<sup>2</sup>, S. Crabbe<sup>3</sup>,  
 M. Drutarovsky<sup>2</sup>, R. Klukas<sup>4</sup>, D. Kocur<sup>2</sup>,  
 T. T. Nguyen<sup>5</sup>, P. Peyerl<sup>6</sup>, J. Rovnakova<sup>2</sup>,  
 E. Zaikov<sup>1</sup>  
<sup>1</sup>Technical University Ilmenau,  
 Ilmenau, Germany  
<sup>2</sup>Technical University of Košice, Košice,  
 Slovakia  
<sup>3</sup>Crabbe Consulting Ltd., Stockton-on-  
 Tees, UK  
<sup>4</sup>Ingenieurbüro Ralf Klukas-Dresden,  
 Dresden, Germany  
<sup>5</sup>Vrije Universiteit Brussel, Brussels,  
 Belgium  
<sup>6</sup>MEODAT GmbH, Ilmenau, Germany

**EuRADPoster02-4: Multi-Mode FMCW Radar Array with Independent Digital Beam Steering for Transmit and Receive**

R. van Dijk, N. P. Maas,  
 E. H. van der Houwen  
 TNO Defence, Safety and Security,  
 The Hague, The Netherlands

**EuRADPoster02-5: Wide Arbitrary Waveform Generator for Enhanced Spaceborne SAR**

N. Salerno, L. Simone, S. Cocchi,  
 V. Piloni, M. Maffei, O. Coccioni  
 Thales Alenia Space - Italy, Rome, Italy

**EuRADPoster02-6: Radar Tube Crawler for Quality Assurance Measurements of Pipe Systems**

F. Bonitz, J. Sachs, R. Herrmann  
 Technische Universität Ilmenau,  
 Ilmenau, Germany

12:30 – 13:50

## PHOTO IMPRESSION OF THE TPC MEETING



THURSDAY

The Technical Programme Committee meeting is a vital step towards the Technical Programme of the conferences in the European Microwave Week. This year the TPC meeting was held in The Hague on Saturday 12 April, with additional meetings the day before and after. Shmuel Auster provided a great number of pictures, which are clear signs of the cooperative and hard-working atmosphere!

# THURSDAY



## Room A

### **EuMC/EuRAD01**

#### **UWB Technology**

Chair: David Daniels, ERA Technology  
Co-Chair: Andreas Springer, University of Linz

## Room B

### **EuRAD03**

#### **Synthetic Aperture Radar**

Chair: Krzysztof Kulpa, Warsaw University of Technology  
Co-Chair: Dmitry M. Vavriv, IRA NASU

## Room B1

### **EuMC/EuRAD05**

#### **SOSTAR-X, the European Air to Ground Surveillance System Demonstrator**

Chair: Peter Hoozeboom, TNO Defence, Security and Safety  
Co-Chair: Peter Angenooth, EADS

## Room C

### **EuMC/EuRAD02**

#### **FMCW Radar**

Chair: Patrick Beasley, QinetiQ  
Co-Chair: Andrew Stove, Thales Crawley

13:50 – 14:10

#### **EuMC/EuRAD01-1: Sub-10ns Frequency Hopping Synthesizer Based on Injection-Locking**

N. Lanka, S. Patnaik, R. Harjani  
University of Minnesota-Twin Cities, Minneapolis, United States of America

#### **EuRAD03-1: Efficient Spotlight SAR MIMO Collection Geometries**

B. Correll, Jr.  
General Dynamics Advanced Information Systems, Ypsilanti, USA

#### **EuMC/EuRAD05-2: SOSTAR-X Active Antenna : Results and Lessons Learned**

L. Chabod, C. Renard  
Thales, Elancourt, France

#### **EuMC/EuRAD02-1: INDRA: The Indonesian Maritime Radar**

A. Lestari, P. Hakkaart, J. Zijdeveld, F. V. Zwan, M. Hajian, L. Ligthart  
TU Delft, Delft, The Netherlands,

14:10 – 14:30

#### **EuMC/EuRAD01-2: A New Ultra-Wideband Monocycle Pulse Generator Using Second-Order Transient Circuit**

W. Lin, Y. Liu, F. Chen  
National Chiao Tung University, Hsinchu, Taiwan

#### **EuRAD03-2: Illumination Constraints for Forward-Looking Radar Receivers in Bistatic SAR Geometries**

J. Balke, D. Matthes, T. Mathy  
Research Establishment for Applied Science (FGAN), Wachtberg, Germany

#### **EuMC/EuRAD05-3: Spectral Classification with SOSTAR-X**

M. Otten<sup>1</sup>, E. de Koster<sup>2</sup>, J. Groot<sup>1</sup>, A. de Jong<sup>1</sup>, M. van den Akker<sup>2</sup>, P. Vriend<sup>2</sup>  
<sup>1</sup>TNO Defence Security and Safety, The Hague, The Netherlands  
<sup>2</sup>Dutch Space, Leiden, The Netherlands

#### **EuMC/EuRAD02-2: A Versatile FMCW Radar System Simulator for Millimeter-Wave Applications**

S. Scheiblhofer, M. Tremel, S. Schuster, R. Feger, A. Stelzer  
Johannes Kepler University, Linz, Institute for Communications and Information Engineering, Linz, Austria

14:30 – 14:50

#### **EuMC/EuRAD01-3: Ultra Wide Band -High Power Radar- Material Responses (Waveform and Material Density)**

R. Moore, J. Meadors, R. Rice  
Georgia Institute of Technology, Atlanta, United States

#### **EuRAD03-3: High-Accuracy Doppler Measurements for Airborne SAR Applications**

O. O. Bezvesilniy, V. V. Vynogradov, D. M. Vavriv  
Institute of Radio Astronomy of NAS of Ukraine, Kharkov, Ukraine

#### **EuMC/EuRAD05-4: SOSTAR-X Program: SELEX GALILEO Contributions**

D. Zei<sup>1</sup>, A. Delogu<sup>2</sup>, A. Montanari<sup>1</sup>, P. Tellini<sup>1</sup>  
<sup>1</sup>Selex Galileo, Pomezia, Italy  
<sup>2</sup>Selex Galileo, S. Maurizio Canavese - Caselle, Italy

#### **EuMC/EuRAD02-3: Debris Detection (FOD) on Airport Runways Using a Broadband 78 GHz Sensor**

P. Feil<sup>1</sup>, W. Menzel<sup>1</sup>, T. Nguyen<sup>2</sup>, C. Pichot<sup>2</sup>, C. Migliaccio<sup>2</sup>  
<sup>1</sup>University of Ulm, Ulm, Germany  
<sup>2</sup>University of Nice Sophia Antipolis, Valbonne, France

14:50 – 15:10

#### **EuMC/EuRAD01-4: Measured and FDTD Calculated Ultra Wide Band (UWB) RCS for Treated Test Fixtures**

S. Blalock, J. Davis, D. Denison, J. Fraley, R. Moore, R. Rice  
Georgia Institute of Technology, Atlanta, USA

#### **EuRAD03-4: Incoherent Polarimetric ISAR Decomposition for Target Classification**

R. Paladini, M. Martorella, F. Berizzi  
University of Pisa, Pisa, Italy

#### **EuMC/EuRAD05-5: SOSTAR-X System Integration and Flight Trials**

M. Kirscht, J. Boukamp, K. Hoffmann, F. Lang-Schnee, K. Weidmann  
EADS Deutschland GmbH, Friedrichshafen, Germany

#### **EuMC/EuRAD02-4: A Highly Modular 77-GHz FMCW Radar Sensor Prototype for Multi Target Tracking Applications**

K. Pourvoyeur<sup>1</sup>, R. Feger<sup>1</sup>, A. Haderer<sup>2</sup>, C. Wagner<sup>1</sup>, A. Stelzer<sup>1,2</sup>, L. Maurer<sup>3</sup>  
<sup>1</sup>CD Laboratory for Integrated Radar Sensors, Linz, Austria  
<sup>2</sup>J. Kepler University, Linz, Austria  
<sup>3</sup>DICE GmbH, Linz, Austria

15:10 – 15:30

#### **EuMC/EuRAD01-5: The Non-Uniform Non-Linear Transmission Line Based on Parallel-Plate Ferro-Electric Capacitors**

A. K. Mikhailov, T. B. Samoilova, A. B. Kozzyrev  
Saint-Petersburg State Electrotechnical University (LETI), Saint-Petersburg, Russia

#### **EuRAD03-5: Distributed ISAR for Enhanced Cross-Range Resolution with Formation Flying**

D. Pastina, P. Lombardo, F. Buratti  
University of Rome, Rome, Italy

#### **EuMC/EuRAD05-6: SOSTAR-X Strip SAR Mode Validation Approach**

I. G. Hervás  
Indra Sistemas, S.A., Torrejón de Ardoz, Spain,

#### **EuMC/EuRAD02-5: Automotive Short Range Radar Sensor Based on the 79GHz Single-Chip ATRX-Transceiver-Family**

V. Winkler<sup>1</sup>, R. Feger<sup>2</sup>, L. Maurer<sup>1</sup>  
<sup>1</sup>DICE GmbH & Co KG, Linz, Austria  
<sup>2</sup>Johannes Kepler University, Linz, Austria

## Room D

### EuMC48

#### Experimental Antenna Research

Chair: Matthias Geissler, IMST  
Co-Chair: Dirk van Troyen, De Nayer Instituut, Sint Katharinje Waver

#### *EuMC48-1: Leaky Wave Enhanced Feeds for Single Aperture Multi Beam Reflectors*

A. Neto<sup>1</sup>, M. Ettorre<sup>1</sup>, G. Gerini<sup>1</sup>, P. de Maagt<sup>2</sup>  
<sup>1</sup>TNO Defence, Security and Safety, The Hague, The Netherlands,  
<sup>2</sup>ESA-ESTEC, Noordwijk, The Netherlands

#### *EuMC48-2: Leaky-Wave Slot Array Antenna Fed by a Pin-Made Planar Dual Offset Gregorian Reflector System*

M. Ettorre<sup>1</sup>, A. Neto<sup>1</sup>, G. Gerini<sup>1</sup>, S. Maci<sup>2</sup>  
<sup>1</sup>TNO Defence, Safety and Security, The Hague, The Netherlands  
<sup>2</sup>University of Siena, Siena, Italy

#### *EuMC48-3: Accuracy Improvement of Cavity Model Effective Patch Dimensions Using a Single Full-Wave Iteration*

J. A. Theeuwes<sup>1</sup>, H. J. Visser<sup>3</sup>, M. C. van Beurden<sup>2</sup>, G. J. Doodeman<sup>1</sup>  
<sup>1</sup>TNO Science and Industry, Eindhoven, Netherlands, <sup>2</sup>Eindhoven University of Technology, Eindhoven, Netherlands  
<sup>3</sup>Holst Centre, Eindhoven, Netherlands

#### *EuMC48-4: Patch Antenna on a High Impedance Wire*

A. R. El-Damak<sup>1</sup>, A. M. Safwat<sup>1</sup>, S. A. Tretyakov<sup>2</sup>, H. S. El-Hennawy<sup>1</sup>  
<sup>1</sup>Faculty of Engineering, Ain Shams University, Cairo, Egypt  
<sup>2</sup>TKK Helsinki University of Technology, Helsinki, Finland

#### *EuMC48-5: A Primary Radiator Using L-shaped Vertical Strip Line with Stub for Planar Antennas at 60 GHz*

M. Okiyokota, F. Kuroki  
Kure Nat'l Coll Of Tech, Kure, Japan

## Room E

### EuRAD05

#### UWB Radar Systems 2

Chair: Jürgen Sachs, TU Ilmenau  
Co-Chair: Michèle Lalande, XLIM  
CNRS-Université de Limoges

#### *EuRAD05-1: Comparison between 60-GHz UWB Frequency modulation and UWB Impulse-Radio Location Systems*

M. Bocquet, N. Obeid, C. Loyez, F. Boukour, N. Rolland, M. Heddebau  
IRCICA, Villeneuve d'Ascq, France

#### *EuRAD05-2: Detection Problem for Searching Survivors in Rubble with UWB Radars*

V. Chemyak  
Moscow Aviation Institute (State Technical University), Moscow, Russia

#### *EuRAD05-3: Optimal Background Subtraction in GPR for Humanitarian Demining*

A. Muñoz Mayordomo<sup>1</sup>, A. G. Yarovsky<sup>2</sup>  
<sup>1</sup>Public University of Navarre, Pamplona, Spain  
<sup>2</sup>Delft University of Technology, Delft, The Netherlands

#### *EuRAD05-4: Discussion on the Functions of Hadamard Phase Pattern in Millimeter Wave Imaging*

F. Qi, V. Tavakol, I. Ocket, D. Schreurs, B. Nauwelaers  
K.U. Leuven, Leuven, Belgium

#### *EuRAD05-5: System Modeling for Active Mm-Wave Imaging Systems Using an Enhanced Calculation Method*

V. Tavakol, Q. Feng, I. Ocket, D. Schreurs, B. Nauwelaers  
K.U. Leuven, Heverlee, Belgium

13:50 – 14:10

14:10 – 14:30

14:30 – 14:50

14:50 – 15:10

15:10 – 15:30



## Auditorium

### **EuMC/EuMW Closing Sessions**

Chair: Peter Hoogeboom, EuMC2008 Chair  
 Co-Chairs: Jan Geralt bij de Vaate and Dominique Schreurs, EuMC 2008 Co-Chairs  
 Panel:  
 Roberto Sorrentino, President EuMA  
 Frank van den Bogaart, EuMW2008 General Chair  
 Paolo Lampariello, EuMW2009 General Chair  
 Maurizio Cicolani, EuMC2009 Chair

### **EuMC/EuMW Pre-Closing Presentations**

**16:00 - 16:30**

#### ***LOFAR - A European Large Array System for Astronomy***

Marco de Vos, technical director ASTRON, Dwingeloo, The Netherlands  
 LOFAR is a large distributed radio-telescope developed by ASTRON, combining the concepts of phased array technology and aperture synthesis. LOFAR operates at frequencies between 30 and 240 MHz. By applying early digitization, many functions can be shifted in the digital domain, adding flexibility and robustness against man-made interference.  
 Through European extensions the Dutch LOFAR will become an international facility, adding many technical challenges.  
 Marco de Vos did his PhD in astronomy and has been involved in several instrument development projects, including the LOFAR radio-telescope; he is currently director of R&D at ASTRON, the Netherlands Institute for Radio-Astronomy.

**16:30 - 17:00**

#### ***Modern Radar***

Willem A. Hol, Thales Nederland B.V., Hengelo, The Netherlands  
 The crucial role of radar in Defence and Security operations is highlighted. Trends in modern radar/sensor systems are elaborated. Scalable and re-configurable architectures, RF-front-ends and processing enable a fast response to changed missions and capabilities and provide multi-mission radars with superior availability. Finally, the application and integration of modern radar is illustrated with the Integrated Mast provided with multiple sensor arrays and communication antennas.  
 Willem Hol graduated at TU-Delft in 1979 and joined Hollandse Signaalapparaten B.V. (now Thales) where he held different positions in the field of R&D of radar and sensor systems. His current position is Technical Director Surface Radar.

### **EuMC/EuMW Closing Session**

**17:10 - 17:30**

#### ***Awards***

- EuMC Microwave Prize
- EuMC Young Engineer Prizes - Sponsored by EADS
- Interactive Poster Prize - Sponsored by Thales Nederland (only if the winning paper is a EuMC paper)
- Student Challenge Prize - Sponsored by Thales Nederland

**17:30 - 17:50**

#### ***Concluding Presentations***

- EuMW 2008
- EuMC 2008
- EuMW 2009, Roma, Italy
- EuMC 2009, Roma, Italy

## Room A

### **EuMC49**

#### **Focussed Session: Sub-Mm Wave Imaging**

Chair: Giampiero Gerini, TNO Defence, Security and Safety

#### ***EuMC49-1: EBG Enhanced Dielectric Lens Antennas for the Imaging at Sub-Mm Waves***

J. Baselmans<sup>1</sup>, S. Yates<sup>1</sup>, A. Neto<sup>2</sup>, D. Bekers<sup>2</sup>, G. Gerini<sup>2</sup>, A. Baryshev<sup>1</sup>, J. Lankwarden<sup>1</sup>, H. Hoevers<sup>1</sup>  
<sup>1</sup>SRON Netherlands Institute for Space Research, Utrecht, The Netherlands  
<sup>2</sup>TNO Defence and Security, The Hague, The Netherlands

#### ***EuMC49-2: Passive Broadband Terahertz Camera for Stand-off Concealed Threat Identification Using Superconducting Antenna-Coupled Microbolometers***

A. Luukanen<sup>1</sup>, L. Grönberg<sup>2</sup>, T. Haamoja<sup>2</sup>, P. Helistö<sup>2</sup>, M. M. Leivo<sup>2</sup>, A. Rautiainen<sup>2</sup>, J. S. Penttilä<sup>2</sup>, J. E. Bjarnason<sup>3</sup>, C. R. Dietlein<sup>4,5</sup>, M. D. Ramirez<sup>4,5</sup>, E. N. Grossman<sup>3</sup>  
<sup>1</sup>Millimetre-Wave Laboratory of Finland - Millilab, Espoo, Finland, <sup>2</sup>VTT Technical Research Centre of Finland, Espoo, Finland, <sup>3</sup>Aivon Oy, Espoo, Finland, <sup>4</sup>University of Colorado at Boulder, Boulder, USA, <sup>5</sup>National Institute of Standards and Technology, Boulder, USA

#### ***EuMC49-3: THz Heterodyne Imaging Applications, Instruments and Directions***

N. Llombart, T. Bryllert, G. Chatoopadhyay, K. B. Cooper, R. J. Dengler, J. Gill, A. J. McNary, I. Mehdi, E. Schlecht, A. Skalare, P. H. Siegel  
 Caltech Jet Propulsion Laboratory, Pasadena, USA

## Room B

### **EuRAD06**

#### **Novel Architectures and Processing**

Chair: Michail Chernyakov, University of Birmingham  
 Co-Chair: Chris Baker, University College London

#### ***EuRAD06-1: The Duty Cycle and Contrast Ratio Trade-off in the Design of Interrupted HFSWR Waveform***

R. Kassab<sup>1</sup>, M. Lesturgie<sup>1</sup>, J. Fiorina<sup>2</sup>  
<sup>1</sup>Onera Palaiseau, Palaiseau, France  
<sup>2</sup>Supelec, Gif sur Yvette, France

#### ***EuRAD06-2: Real-Time Rapid Refractivity Retrieval Using the National Weather Radar Testbed Phased Array Radar***

B. Cheong<sup>1</sup>, R. D. Palmer<sup>1,3</sup>, C. D. Curtis<sup>2,4</sup>, T. Yu<sup>3,1</sup>, D. Zrnica<sup>1</sup>, D. Forsyth<sup>4</sup>  
<sup>1</sup>University of Oklahoma, Norman, United States,  
<sup>2</sup>NOAA, Norman, United States  
<sup>3</sup>University of Oklahoma, Norman, United States,  
<sup>4</sup>NOAA, Norman, United States

#### ***EuRAD06-3: ATC Possibilities in a Low Frequency FSR Network***

N. Abd Rashid<sup>1</sup>, M. Antoniou<sup>1</sup>, V. Sizov<sup>2,1</sup>, P. Jancovic<sup>1</sup>, R. Raja Abdullah<sup>3</sup>, M. Cherniakov<sup>1</sup>  
<sup>1</sup>University of Birmingham, Edgbaston, United Kingdom, <sup>2</sup>Moscow Institute of Electronic Technology, Moscow, Russian Federation, <sup>3</sup>Universiti Putra Malaysia, Serdang, Malaysia

#### ***EuRAD06-4: Solving Doppler Ambiguity by Doppler Sensitive Pulse Compression Using Multi-Carrier Waveform***

R. F. Tigrek<sup>1</sup>, W. J. de Heij<sup>2</sup>, P. van Genderen<sup>3</sup>  
<sup>1</sup>Thales, Delft, The Netherlands,  
<sup>2</sup>Thales, Hengelo, The Netherlands  
<sup>3</sup>Delft University of Technology, Delft, The Netherlands

#### ***EuRAD06-5: Automatic Target Detection using Wavelet Technique in Forward Scattering Radar***

M. Hasan<sup>1</sup>, M. Cherniakov<sup>1,2</sup>, R. Raja Abdullah<sup>1</sup>  
<sup>1</sup>Universiti Putra Malaysia, Serdang, Malaysia  
<sup>2</sup>The University of Birmingham, Edgbaston, United Kingdom

16:00 - 17:00

17:10 - 17:50



Room B1	Room C	Room D	Room E	
<p><b>EuRAD07</b> <b>Polarimetric Radar</b> Chair: Leo Ligthart, IRCTR - Delft University of Technology Co-Chair: Wilhelm Grüner, EADS Deutschland GmbH</p>	<p><b>EuRAD08</b> <b>Radar Systems</b> Chair: Piet van Genderen, IRCTR - Delft University of Technology Co-Chair: Michael Inngs, University of Cape Town</p>	<p><b>EuMC/EuRAD03</b> <b>Antenna Arrays</b> Chair: Tuami Lasri, Institut d'Electronique de Microelectronique et de Nanotechnologie Co-Chair: Rob Maaskant, ASTRON</p>	<p><b>EuMC50</b> <b>Active Array Systems in Focus</b> Chair: Arnold van Ardenne, ASTRON Co-Chair: Pierre Saulais, Thales</p>	
<p><b><i>EuRAD07-1: Adaptive Ground Clutter and Noise Filter Based on Dual-Polarization Spectral Decompositions</i></b> D. Moisseev<sup>1</sup>, V. Chandrasekar<sup>2</sup> <sup>1</sup>University of Helsinki, Helsinki, Finland, <sup>2</sup>Colorado State University, Fort Collins, USA</p>	<p><b><i>EuRAD08-1: Ka-Band Seeker with Adaptive Beam Forming Using MEMS Phase Shifters</i></b> C. Neumann, S. Schuetz, F. Wolschendorf, Y. Venot EADS Deutschland GmbH, Ulm, Germany</p>	<p><b><i>EuMC/EuRAD03-1: UWB MIMO Antenna Array Topology Design Using PSO for Through Dress Near-Field Imaging</i></b> B. Yang, X. Zhuge, A. G. Yarovoy, L. P. Ligthart Delft University of Technology, Delft, The Netherlands</p>	<p><b><i>EuMC50-1: Nondiffracting Millimeter Wave Beams Generated by Diffractive Optical Elements</i></b> Y. Yu<sup>1,2</sup>, W. Dou<sup>1</sup> <sup>1</sup>Southeast University, Nanjing, China <sup>2</sup>Quanzhou Normal University, Quanzhou, China</p>	16:00 – 16:20
<p><b><i>EuRAD07-2: The PARSAX - Full Polarimetric FMCW Radar with Dual-Orthogonal Signals</i></b> O. A. Krasnov, L. P. Ligthart, Z. Li, P. Lys, F. van der Zwan TU Delft, Delft, The Netherlands</p>	<p><b><i>EuRAD08-2: Reconfigurable L-Band Radar</i></b> R. F. Rincon NASA Goddard Space Flight Center, Greenbelt, USA</p>	<p><b><i>EuMC/EuRAD03-2: Projection Based Methodology for Designing Non-Periodic, Planar Arrays</i></b> M. Vigano<sup>1</sup>, I. E. Lager<sup>1</sup>, G. Toso<sup>2</sup>, C. Mangenot<sup>2</sup>, G. Caille<sup>3</sup> <sup>1</sup>TU Delft, Delft, The Netherlands <sup>2</sup>European Space Agency, Noordwijk, The Netherlands, <sup>3</sup>Thales Alenia Space, Toulouse, France</p>	<p><b><i>EuMC50-2: Dielectric Lens Utilization for Fabry-Perot Resonator Optimal Coupling</i></b> P. Piksa<sup>1</sup>, P. Cerny<sup>1</sup>, S. Zvanovec<sup>1</sup>, M. Mazanek<sup>1</sup>, S. Urban<sup>2</sup> <sup>1</sup>Czech Technical University in Prague, Prague, Czech Republic <sup>2</sup>Institute of Chemical Technology, Prague, Czech Republic</p>	16:20 – 16:40
<p><b><i>EuRAD07-3: Hydrometeor Type and Turbulence Intensity Recognition with Doppler-Polarimetric Radar</i></b> F. Yanovsky, Y. Ostrovsky, V. Marchuk National Aviation University, Kiev, Ukraine</p>	<p><b><i>EuRAD08-3: Digital Front-End Design for Space-borne C-Band SAR</i></b> P. Saameno, M. Ludwig ESTEC, Noordwijk, The Netherlands</p>	<p><b><i>EuMC/EuRAD03-3: Wide-Band Antenna Array</i></b> L. P. Ligthart<sup>1</sup>, I. V. Ivanchenko<sup>2</sup>, N. A. Popenko<sup>2</sup>, A. M. Korolev<sup>3</sup>, R. E. Chernobrovkin<sup>2</sup>, V. L. Pazyinin<sup>2</sup> <sup>1</sup>IRCTR-Delft University, Delft, The Netherlands <sup>2</sup>Usikov Institute for Radiophysics and Electronics of National Academy of Sciences of Ukraine, Kharkov, Ukraine, <sup>3</sup>Institute of Radioastronomy of the National Academy of Sciences of Ukraine, Kharkov, Ukraine</p>	<p><b><i>EuMC50-3: Integrated Antenna on HR Silicon for Single Chip Automotive Radar Applications</i></b> M. Morschbach, S. R. Spießberger, H. Xu, E. Kasper Universität Stuttgart, Stuttgart, Germany</p>	16:40 – 17:00
<p><b><i>EuRAD07-4: Matched NLFM Pulse Compression Method with Ultra-Low Sidelobes</i></b> Z. Ge, P. Huang, W. Lu The Second Academy of China Aerospace, Beijing, P.R.China</p>	<p><b><i>EuRAD08-4: A Compact Mm-Wave Spaceborne SAR Concept</i></b> M. Otten<sup>1</sup>, H. Crujssens<sup>2</sup>, B. Vollmuller<sup>3</sup>, R. Grooters<sup>1</sup> <sup>1</sup>TNO Defence Security and Safety, The Hague, The Netherlands <sup>2</sup>Dutch Space, Leiden, The Netherlands <sup>3</sup>National Aerospace Laboratory, Amsterdam, The Netherlands</p>			17:00 – 17:20
<p><b><i>EuRAD07-5: Polarimetric Synthetic Range Profile Autofocusing via Contrast Optimization</i></b> A. Cacciamano, E. Giusti, A. Capria, M. Martorella, F. Berizzi University of Pisa, Pisa, Italy</p>	<p><b><i>EuRAD08-5: Microwave Radar Sensor for Detection of Anti-Armour Missiles</i></b> P. Hudec, K. Hoffmann, M. Randus, M. Ryneš, J. Raboch, M. Svanda, M. Polivka Czech Technical University, Prague 6, Czech Republic</p>			17:20 – 17:40

THURSDAY