

2015 German Microwave Conference

(GeMiC 2015)

**Nuremberg, Germany
16-18 March 2015**



**IEEE Catalog Number: CFP1575F-POD
ISBN: 978-1-4799-6681-3**

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IEEE Catalog Number: CFP1575F-POD
ISBN 13: 978-1-4799-6681-3

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S01 : Power Amplifier Systems

Chairs: Georg Fischer, Rüdiger Quay

Room G1, Time 14:00 - 15:40, Monday 16 March 2015

PAGE 1 S01.1 14:00	Design Method for Harmonically-Tuned, Dynamic Load-Modulated Power Amplifiers <i>(Konstantinos Mimis, Gavin T. Watkins)</i>
PAGE 5 S01.2 14:20	Linearity Analysis of Class-B/J Continuous Mode Power Amplifiers Using Modulated Wideband Signals <i>(Sebastian Preis, Mhd. Tareq Arnous, Zihui Zhang, Wolfgang Heinrich)</i>
PAGE 9 S01.3 14:40	New Output Network Design Approach for Voltage-Mode Class-S PAs <i>(Dhamia Al-Mozani, Andreas Wentzel, Wolfgang Heinrich)</i>
PAGE 13 S01.4 15:00	Complexity of DPD Linearization in the full RF-Band for a WiMAX Power Amplifier <i>(Nikolai Wolff, Olof Bengtsson, Wolfgang Heinrich)</i>
PAGE 17 S01.5 15:20	Wideband Two-Stage 50W GaN-HEMT Power Amplifier <i>(Chi Thanh Nghe, Daniel Maassen, Gernot Zimmer, Georg Boeck)</i>

S02 : Microwave Sensors

Chairs: Dietmar Kissinger, Joerg Schoebel

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PAGE 21 S02.1 14:00	M-Sequence-Based Material Characterisation <i>(Carsten Monka, Sebastian Brueckner, Joerg Schoebel)</i>
PAGE 25 S02.2 14:20	Non-Destructive Permittivity Measurement of Thin Dielectric Sheets: Quality Conformance Testing for the Tracking and Imaging Radar TIRA <i>(Peter Knott, Robert Perkuhn)</i>
PAGE 29 S02.3 14:40	System for in-situ Dielectric and Calorimetric Measurements During Microwave Curing of Resins <i>(Vasileios Ramopoulos, Sergey Soldatov, Guido Link, Thorsten Kayser, John Jelonnek)</i>
PAGE 33 S02.4 15:00	Rotation Sensing Based on the Symmetry Properties of an Open-Ended Microstrip Line Loaded with a Split Ring Resonator <i>(Zahra Shaterian, Ali K. Horestani, Christophe Fumeaux)</i>
PAGE 36 S02.5 15:20	A Cylindrical Cavity Resonator for Material Measurements with Coupled Resonant Modes for Sensing and Position Offset Compensation of the Dielectric Specimen <i>(Usman Faz, Uwe Siart, Thomas F. Eibert)</i>

S03 : UHF Communication

Chairs: Ilona Rolfes, Gerald Ulbricht

Room G1, Time 16:00 - 17:40, Monday 16 March 2015

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16:00 **Usability of Long Term Evolution (LTE) in DLR's Research Aircraft DO 228-212**
(Daniel Rosigkeit, Stefan V. Baumgartner, Anton Nottensteiner)
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S03.2
16:20 **Development and Analysis of a Modified Saleh-Valenzuela Channel Model for the UHF Band**
(Artur Nalobin, Sven Dortmund, Sebastian Sczyslo, Jan Barowski, Bastian Meiners, Ilona Rolfes)
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S03.3
16:40 **A Digital Up-Sampling Technique for a Heterodyne Digital Centric Transmitter**
(Pierre Bousseaud, Renato Negra)
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S03.4
17:00 **Experimental Investigations on a Stacked Analog-to-Digital Converter Configuration for a High Dynamic Range HF Receiver**
(Gerald Ulbricht)
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S03.5
17:20 **A Wide Dynamic Range Four-Port Spectrum Sensor for Cognitive Radio**
(Debalina Chatterjee, Kurt Blau, Matthias A. Hein)

S04: Metamaterial Structures

Chair: *Dmitry Kholodnyak*

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(Dmitry Kholodnyak, Viacheslav Turgaliev, Evgenia Zameshaeva)
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S04.2
16:20 **Single and Dual Band-Notched Ultra-Wideband Antenna Based on Dumbbell-Shaped Defects and Complementary Split Ring Resonators**
(Ali K. Horestani, Zahra Shaterian, Thomas Kaufmann, Christophe Fumeaux)
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S04.3
16:40 **Filter-Based Slow Wave Structures for Application in Chipless Microwave RFID**
(Matthias Nickel, Christian Mandel, Martin Schüßler, Rolf Jakoby)
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S04.4
17:00 **Using Metamaterial Resonators for Controlling Surface Wave Modes in an Open Waveguide**
(Sakineh Tooni, Larissa Vietzorreck, Thomas F. Eibert)
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17:20 **Novel Planar Electromagnetic Bandgap for Mutual Coupling Reduction Between Patch Antennas**
(Akanksha Bhutani, Benjamin Göttel, D. Müller, Thomas Zwick)

S05 : Passive Circuits

Chair: Klaus Helmreich

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PAGE 84 S05.2 08:50	A Wideband Radial Substrate Integrated Power Divider at K-Band <i>(Christian Rave, Arne F. Jacob)</i>
PAGE 88 S05.3 09:10	Using Coupled Vias for Band-Pass Filters in Multilayered Printed-Circuit Boards <i>(Andreas Hardock, Christian Schuster)</i>
PAGE 91 S05.4 09:30	Passive Reciprocal Transistor-Based RF Tuneable Inductances <i>(Stefanie Kühn, Ralf Stephan, Kurt Blau, Matthias A. Hein)</i>
PAGE 95 S05.5 09:50	Distributed Active Balun with Improved Linearity Performance <i>(Mirko Palomba, Diego Palombini, Sergio Colangeli, Riccardo Cleriti, Ernesto Limiti)</i>

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Chair: Larissa Vietzorreck

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Combined CGF-PML and CGF-RFFM for Efficient and Uniform Modal Derivation of Green's Function of Planar Layered Media
(Abdorreza Torabi, Amir Ahmad Shishegar)

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Spin-Wave Eigenmodes and Magnetic Resonance in Thin Metallic Film
(A.B. Rinkevich, D.V. Perov)

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FDTD Method Incorporating the Doppler Effect
(Andreas R. Diewald)

S07: Medical Applications of Microwaves

Chairs: Christian Wunsch

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(Zhichao Chen, Klaus Solbach, Daniel Erni, Andreas Rennings)
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08:50 **Comparison of Local Transmit Antennas for Extremity Imaging in MRI**
(Johanna Schöpfer, Stephan Biber, Martin Vossiek)
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09:10 **Power Amplifier for Magnetic Resonance Imaging Using Unconventional Cartesian Feedback Loop**
(Ashraf Abuelhaija, Klaus Solbach, Adam Buck)
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09:30 **Vivaldi Antenna with Improved Directivity for Medical Applications**
(Jerzy Kowalewski, Utpal Dey, Tobias Mahler, Thomas Zwick)
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09:50 **New Approach for Design and Verification of a Wideband Archimedean Spiral Antenna for Radiometric Measurement in Biomedical Applications**
(Hasan Abufanas, Raid J. Hadi, Carl Sandhagen, Axel Bangert)

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Chair: *Christoph Tzschoppe*

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(Patrick Oßmann, Jörg Fuhrmann, José Moreira, Harald Pretl, Andreas Springer)
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11:30 **Systematic Characterization of Silicon IMPATT Diode for Monolithic E-Band Amplifier Design**
(Wogong Zhang, Michael Oehme, Konrad KostECKI, Klaus Matthies, Viktor Stefani, Erich Kasper, Joerg Schulze)
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S08.3
11:50 **A 60GHz 24.5dBm Wideband Distributed Active Transformer Power Amplifier on 250nm BiCMOS**
(Jan Dirk Leufker, Corrado Carta, Frank Ellinger)
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12:10 **Noise Modelling in LNAs with Negative Feedback Transformer Matching**
(Christoph Tzschoppe, Alexander Richter, Udo Jörges, Jens Wagner, Frank Ellinger)

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Chairs: Holger Maune, Bernd Geck

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(M. Nikfalazar, Christian Kohler, Daniel Kienemund, Alex Wiens, Y. Zheng, M. Sohrabi, Joachim R. Binder, Rolf Jakoby)
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11:30 **Temperature Dependence of a Tunable Phase Shifter Based on Inkjet Printing Technology**
(Daniel Kienemund, M. Nikfalazar, Christian Kohler, Andreas Friederich, Alex Wiens, Holger Maune, Morten Mikolajek, Joachim R. Binder, Rolf Jakoby)
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11:50 **Measuring Design-DK and True Permittivity of PCB Materials up to 20GHz**
(G. Gold, K. Helmreich)
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12:10 **A Novel Two-Layer Electronically Controllable Substrate Integrated Waveguide Phase Shifter**
(Badar Muneer, Qi Zhu)

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Chairs: Michael Höft, Volker Ziegler

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(Wadim Stein, Maximilian Deckelmann, Andreas Oborovski, Martin Vossiek)
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14:30 **Low-Loss Millimeter-Wave Propagation in Silicon-Based Suspended Dielectric Image Guide**
(Jan Hesselbarth)
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14:50 **Frequency Adjustable Ka Band Cross-Guide Coupler for Space Applications**
(Enric Miralles, Volker Ziegler, Ulrich Wochner, Michael Zedler, Frank Ellinger)
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15:10 **A Wideband Differential Microstrip-to-Waveguide Transition at W-Band**
(Malte Giese, Jan Waldhelm, Arne F. Jacob)

S11: Radar Systems

Chairs: Alexander Koelpin, Christian Waldschmidt

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PAGE 182 S11.2 16:10	Sweep Time Variation Algorithm for High Accuracy FMCW Radar Measurements <i>(Steffen Scherr, Serdal Ayhan, Jonas Hofmann, Mario Pauli, Thomas Zwick)</i>
PAGE 186 S11.3 16:30	Estimation of Uncompensated Trajectory Deviations and Image Refocusing for High-Resolution SAR <i>(Ievgen M. Gorovyi, Oleksandr O. Bezvesilniy, Dmytro M. Vavriv)</i>
PAGE 190 S11.4 16:50	Precise and Robust Crane Boom Tip Localization Using a 24GHz Radar Tachymeter <i>(Christoph Reustle, Denys Shmakov, Sven Röhr, Martin Vossiek)</i>
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Chairs: Lorenz-Peter Schmidt, Uwe Siart

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(Tobias Chaloun, Christoph Hillebrand, Christian Waldschmidt, Wolfgang Menzel)
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(Christian Koenen, Uwe Siart, Thomas F. Eibert, Garrard D. Conway, Ulrich Stroth)
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(D. Müller, S. Diebold, S. Reiss, H. Massler, A. Tessmann, A. Leuther, Thomas Zwick, I. Kallfass)
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(Xin Wang, Andreas Stelzer)
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(Tatiana Pavlenko, Christoph Reustle, Karsten Thurn, Denys Shmakov, Randolph Ebel, Martin Vossiek)

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08:30 **A Method for the Analysis of Ramp-Inherent Linearity Distortions in Automotive Radar Applications**
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08:50 **A Two-Dimensional Radar Simulator for Level Measurement of Bulk Material in Silos**
(C. Dahl, Ilona Rolfes, M. Vogt)
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09:10 **2D Fresnel Diffraction Approach for Wind Turbine Forward Scattering**
(M.B. Raza, T. Fickenscher)
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09:30 **A Compressed Sensing Formulation Based on I/Q-Dictionary: Experimental Case Study at Millimeter-Wave Frequencies**
(Markus Kuhnt, Jochen Moll, Viktor Krozer)
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09:50 **Ultra-Wideband Compressed Sensing Radar Based on Pseudo Random Binary Sequences**
(G. Guarin, M. Gardill, Robert Weigel, G. Fischer, D. Kissinger)

S14: System on Chip

Chairs: Thomas Musch

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(T. Messinger, D. Müller, J. Antes, S. Wagner, A. Tessmann, I. Kallfass)
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08:50 **High Speed Static Frequency Divider Design with 111.6GHz Self-Oscillation Frequency (SOF) in 0.13 μ m SiGe BiCMOS Technology**
(U. Ali, M. Bober, A. Thiede, A. Awny, G. Fischer)
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09:10 **Synchronization Concept for the Characterization of Integrated Circuits with Multi-Gigabit Receivers and a Slow Feedback Channel**
(Martin Schmidt, Jianxiong Zhang, Thomas Föhn, Markus Grözing, Manfred Berroth)
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(Mohammed El-Shennawy, Niko Joram, Frank Ellinger)
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09:50 **A Highly Modular 77GHz Multi-Tone FMCW SiGe Radar Concept for Industrial Measurements**
(Christian Erhart, Steffen Lutz, Hubert Mantz, Thomas Walter, Robert Weigel)

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Chairs: Manfred Thumm, John Jelonnek

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(Markus Losert, Gerd Gantenbein, Jianbo Jin, Andrey Samartsev)
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08:50 **Magnetron Injection Gun for a 238GHz 2MW Coaxial-Cavity Gyrotron**
(J. Franck, I.Gr. Pagonakis, K.A. Avramidis, Gerd Gantenbein, S. Illy, M. Thumm, John Jelonnek)
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09:10 **Interaction Circuit Design and RF Behavior of a 236GHz Gyrotron for DEMO**
(P. Kalaria, K.A. Avramidis, J. Franck, Gerd Gantenbein, S. Illy, I.Gr. Pagonakis, M. Thumm, John Jelonnek)
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09:30 **Particle-in-Cell Simulation of Gyro-TWT Using a Metal PBG Circuit**
(M. Thottappan, P.K. Jain)

S16: Millimeterwave and THz Systems

Chairs: Michael Schlechtweg, Andreas Stöhr

Room G1, Time 10:30 - 11:50, Wednesday 18 March 2015

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PAGE 276 S16.2 10:50	Planar Bias-Tee Circuit Using Single Coupled-Line Approach for 71–76GHz Photonic Transmitters <i>(Beshar Khani, Vitaly Rymanov, Ivan Flammia, Markus Miech, Andreas Stöhr)</i>
PAGE 280 S16.3 11:10	Design of a 32 Element Rotman Lens at 220GHz with 20GHz Bandwidth <i>(Dirk Nüßler)</i>
PAGE 284 S16.4 11:30	A Multi-Antenna Technique for mm-Wave Communications with Large Constellations and Strongly Nonlinear Amplifiers <i>(Rui Dinis, Paulo Montezuma, Pedro Bento, Marco Gomes, Vitor Silva)</i>

S17: MMIC Technology

Chairs: Wolfgang Heinrich, Renato Negra

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PAGE 292 S17.2 10:50	A Tunable Marchand Balun at K Band in Silicon Germanium (SiGe) Technology <i>(Luciano Boglione, Joel Goodman)</i>
PAGE 296 S17.3 11:10	A Highly Linear Broadband LNA for TV White Spaces and Cognitive Radio Applications <i>(Gabor Varga, Carl Philip Heising, Arun Ashok, Iyappan Subbiah, Moritz Schrey, Stefan Heinen)</i>
PAGE 299 S17.4 11:30	Graphene-Based MMIC Process Development and RF Passives Design <i>(Abdelrahman Askar, Ahmed Hamed, Mohamed Saeed, Abhay A. Sagade, Daniel Neumaier, Renato Negra)</i>

PS-Mo: Interactive Poster Session Monday

Chairs: Stefan Lindner, Sarah Linz

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(Markus Lehner, Michael Eberhardt, Alois Ascher, Erwin Biebl)
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PS-Mo.2 **Enhancing Dynamic Range and Accuracy of Load-Pull Measurements by Using Prematched Transistors**
(Erhan Ersoy, Olof Bengtsson, Wolfgang Heinrich)
- PAGE 311
PS-Mo.3 **Permittivity Sensor Based on 60GHz Patch Antenna**
(S. Vehring, S. Guha, F.I. Jamal, D. Kissinger, C. Meliani)
- PAGE 315
PS-Mo.4 **Detection of Very Small Impurity Particles in High-Quality Granulated Sugar**
(Tobias Albers, Markus Peichl, Stephan Dill)
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PS-Mo.5 **Low-Loss Mesh-Type Coplanar Waveguides for High-Current, High-Frequency CMOS Circuits**
(Muh-Dey Wei, Renato Negra)
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PS-Mo.6 **Absolute Radiometric Calibration of the Novel DLR "Kalibri" Transponder**
(Daniel Rudolf, Sebastian Raab, Björn J. Döring, Matthias Jirousek, Jens Reimann, Marco Schwerdt)
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PS-Mo.7 **Multiple-Port SIW Power Divider Utilizing Cascade-Connected Crisscross Directional Couplers**
(Koji Takahashi, Tadashi Kawai, Mitsuyoshi Kishihara, Isao Ohta, Akira Enokihara)
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PS-Mo.8 **Evaluation and Optimization of Active Signal Canceling for Coexistence Management in Vehicular Multistandard Transceivers**
(Adrian Posselt, Marcel Welpot, Christian Böhm, Oliver Klemp, Bernd Geck)
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PS-Mo.9 **Enhanced Gain Bandwidth and Loss Compensated Cascaded Single-Stage CMOS Distributed Amplifier**
(Mohsin Tarar, Muh-Dey Wei, Marc Reckmann, Renato Negra)

PS-Tu : Interactive Poster Session Tuesday

Chairs: Sarah Linz, Stefan Lindner

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- PS-Tu.1 **Lumped Equivalent Circuit Modeling of Dual Band PIFA**
(Jawad Yousaf, Wansoo Nah)
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PS-Tu.2 **A Miniaturized Very Low-Power Vector Modulated CMOS Phase Shifter for Wireless Receivers**
(Tina Kastenhuber, Juergen Roeber, Andreas Baenisch, G. Fischer, Robert Weigel)
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PS-Tu.3 **Optoelectronic Comb Oscillators with FBG Based Frequency Control**
(Krzysztof Madziar, Bogdan Galwas, Tomasz Osuch)
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PS-Tu.4 **Locating Utility Pipes Using m-Sequence Ground Penetrating Radar**
(Sebastian Brueckner, Daniel Seyfried, Joerg Schoebel)
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PS-Tu.5 **Compact and Easy to Manufacture Dual Mode Feed Horn with Ultra-Low Backlobes**
(Jeffrey Pawlan)
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PS-Tu.6 **Low Power Fundamental VCO Design in D-Band Using 0.13 μ m SiGe BiCMOS Technology**
(U. Ali, G. Fischer, A. Thiede)
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PS-Tu.7 **Geometrical Tolerance of Optical Fiber and Laser Diode for Passive Alignment Using LTCC Technology**
(Sumy Mathew, Steffen Spira, Ralf Stephan, Tilo Welker, Nam Gutzeit, Jens Müller, Matthias A. Hein)
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PS-Tu.9 **Multiple Rhombus Monopole Antenna**
(Thomas Landeau, Onofrio Losito, Giuseppe Palma, Vincenza Portosi, Alain Jouanneaux, Francesco Prudenzeno)

FA7.1 : Meeting VDE/ITG Specialist Group FA7.1 on Antennas

Chair: Dirk Heberling

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FA7.1.2
11:30

Improving Bandwidth of Planar Microstrip Patch Array Antennas

(Shenaro Ezhil Valavan, Peter Knott)

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FA7.1.3
11:50

Influence of the Vehicle Environment on the Radiation Characteristics of Vehicle Roof Antennas

(Marina S.L. Mocker, Shu Liu, Vicente A. Fuertes, Hicham Tazi, Thomas F. Eibert)

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FA7.1.4
12:10

Active Re-Configurable Multibeam Reflector Antenna for Satellite Application

(Dennis Schobert, Enrico Reiche, Christian Hartwanger, Michael Schneider, Helmut Wolf)

SP1 : Special Session — DFG Research Unit ‘BATS’

Chairs: Joern Thielecke, Simon Ripperger

Room G2, Time 09:00 – 13:15, Monday 16 March 2015

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System Design for Encounter Detection of Distributed Wireless Sensors
(Martin Hierold, Simon Ripperger, Frieder Mayer, Robert Weigel, Alexander Koelpin)

SP2 : Special Session — IMB5 Integration of Broadcast in LTE

Chairs: Swen Petersen, Thomas Heyn

Room G3, Time 14:00 – 15:40, Monday 16 March 2015

No papers from this session for publication

SP3 : Special Session — MIKON

Chairs: Michal Mrozowski, Martin Vossiek

Room G2, Time 14:10 – 15:30, Tuesday 17 March 2015

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SP3.1
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Compact Multiport System for Broadband Measurement of S-Parameters
(Kamil Staszek, Slawomir Gruszczynski, Krzysztof Wincza)

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SP3.2
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Efficient Behavioral Model Extraction of Nonlinear Active Devices Using Adaptive Sampling with Compact Nonlinearity Measure
(Paweł Barmuta, Francesco Ferranti, Arkadiusz Lewandowski, Dominique Schreurs)

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The Convergence of Modal Series for Waveguide Green Functions in the Analysis of Shielded Microwave Structures by the SIE-MoM Approach
(Bartosz Bieda, Piotr Słobodzian)

SP4: Special Session — DFG Research Unit ‘MUSIK’

Chairs: Matthias Hein, Amelie Hagelauer

Room G4, Time 08:30 – 10:15, Wednesday 18 March 2015

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PAGE 402 SP4.2 08:45	Determination of Temperature Coefficients of Thin Film Materials in RF BAW Components <i>(A. Tag, Robert Weigel, A. Hagelauer, B. Bader, M. Pitschi, K. Wagner)</i>
PAGE 406 SP4.3 09:00	Multi-Technology Design of an Integrated MEMS-Based RF Oscillator Using a Novel Silicon-Ceramic Compound Substrate <i>(D. Podoskin, K. Brückner, M. Fischer, S. Gropp, D. Krauß, Jacek Nowak, M. Hoffmann, Jens Müller, Ralf Sommer, Matthias A. Hein)</i>
PAGE 410 SP4.4 09:15	Modeling of BAW Filters for System Level Simulation <i>(D. Karolewski, C. Schäffel, A. Tag, V. Silva Cortes, A. Hagelauer, G. Fischer)</i>
PAGE 414 SP4.5 09:30	Electrostatic Parallel-Plate MEMS Switch on Silicon-Ceramic-Composite-Substrates <i>(S. Gropp, A. Frank, M. Fischer, C. Schäffel, Jens Müller, M. Hoffmann)</i>
PAGE 418 SP4.6 09:45	Systematic Design Strategies for Multi-Physical RF Systems Using the Example of MEMS Oscillator <i>(Jacek Nowak, Ralf Sommer)</i>
PAGE 422 SP4.7 10:00	Shunt MEMS Switch Requirements for Tunable Matching Network at 1.9GHz in Composite Substrates <i>(V. Silva Cortes, G. Fischer)</i>

SP5: Project Meeting DFG Priority Programme ‘Wireless 100 Gb/s and Beyond’

Chair: Rolf Kraemer

Room G2, Time 13:30 – 16:30, Wednesday 18 March 2015
