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Session 1 Waveguide Components

Chair: Manfred Thumm, Karlsruhe Institute of Technology, Germany

10:40 - 12:20, Monday May 16th 2022, Kleiner Saal

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10:40 **Additively Manufactured Broadwall Waveguide Couplers for V-Band Applications**
(Andreas Hofmann, Konstantin Lomakin, Mark Sippel, Gerald Gold)
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11:00 **Verification of the 170/204GHz Quasi-Optical Output Coupler of the 2MW Coaxial-Cavity Gyrotron Using a Mode Generator Setup**
(T. Ruess, G. Gantenbein, J. Jin, Alexander Marek, T. Rzesnicki, M. Thumm, D. Wagner, John Jelonnek)
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S01-3
11:20 **A Compact Dual Band Polariser for Q/V-Band**
(Philipp Kohl, Michael Kilian, Michael Schneider, Christian Hartwanger)
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S01-4
11:40 **3D Printed Waveguide Transition for 77GHz Radar Applications**
(Lukas Engel, Konstantin Lomakin, Gerald Gold, Tim Pfahler, Jan Schür, Martin Vossiek)
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12:00 **Coupling Matrix Description of WR-3 Waveguide Filter with Multiple Transmission Zeros Created by Source to Load Cross-Coupling**
(Daniel Miek, Kennet Braasch, Chad Bartlett, Fynn Kamrath, Patrick Boe, Michael Höft)
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Poster Session 1

Chair: Martin Hitzler, Universität Ulm, Germany

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(Maximilian F. Sundermeier, Dirk Fischer)
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P01-2
15:50 **A Compact Wide Coverage 0.7-1.5GHz MEMS-Based Impedance Tuner**
(Jonathan Okocha, Matthias Rudolph)
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P01-3
16:10 **The Effect of Facet Size on the RCS Simulation of an Automotive Radar Target with Curved Surface**
(Mohannad Saifo, Alexander Ioffe, Markus Stefer, Markus Clemens)
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(Dominik Wrana, Benjamin Schoch, Laura Manoliu, Simon Hausmann, Axel Tessmann, Ingmar Kallfass)
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P01-5
16:50 **Evaluation of Range Doppler Processing Algorithms for Tank Level Probing Radar**
(Christoph Dahl, Markus Hammes, Michael Vogt, Christian Schulz, Ilona Rolfes)
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Chair: Peter Knott, Fraunhofer FHR, Germany

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(Abhijit Pal, Martin Schneider, Abdellatif Zanati)
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S02-2
16:20 **A Compact Measurement Setup for the Validation of MIMO Arrays in D-Band and W-Band**
(Jonas Wagner, Christoph Dahl, Ilona Rolfes, Jan Barowski)
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S02-3
16:40 **Characteristics of Diode Detectors for Six-Port Radars**
(Prabhav Manchanda, Sascha Krause, Wolfgang Heinrich, Matthias Rudolph)
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S02-4
17:00 **High Accuracy Thickness Measurements of Conducting Material with Single FMCW Radar Sensor**
(Niklas Muckermann, Lukas Piotrowsky, Nils Pohl)

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Chair: Matthias Rudolph, BTU Cottbus-Senftenberg, Germany

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16:00 **A Robust Programmable Static Frequency Divider in Low-Voltage Emitter-Coupled Logic**
(*Frank Herzel, Thomas Mausolf, Gunter Fischer*)
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16:20 **A Performance Study of 22nm FDSOI CMOS for Wideband 5G Power Amplifier Applications**
(*Quang Huy Le, Dang Khoa Huynh, Anurag Nayak, Thomas Kämpfe, Matthias Rudolph*)
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16:40 **A Novel System for Recovery Time Measurements of GaN-Based Low-Noise Amplifiers**
(*Antonio Tomaz, Stefan Gerlich, Matthias Rudolph, Cristina Andrei*)
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17:00 **GaN-HEMT Integrated Switch LNA Module for 5G Mobile Communications**
(*Megha Krishnaji Rao, Andreas Wentzel, Cristina Andrei, Matthias Rudolph*)
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Session 4 Radar Modelling and Signal Processing

Chair: Martin Vossiek, FAU Erlangen-Nürnberg, Germany

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(*Patrick Rippl, Thomas Walter*)
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08:50 **Influence of Waveform Orthogonality and Array Geometry on Compressed Sensing Algorithms for CDMA MIMO Radar**
(*Saravanan Nagesh, Joachim Ender, María A. González-Huici*)
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09:10 **A Data-Driven Approach for Stochastic Modeling of Automotive Radar Detections for Extended Objects**
(*Philip Aust, Florian Hau, Jürgen Dickmann, Matthias A. Hein*)
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09:30 **A Ground Truth System for Radar Measurements of Humans**
(*Nicolai Kern, Adrian Holzbock, Timo Grebner, Vasileios Belagiannis, Klaus Dietmayer, Christian Waldschmidt*)
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(*Pirmin Schoeder, Timo Grebner, Vinzenz Janoudi, Christian Waldschmidt*)
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Session 5 Millimeter-Wave Circuits

Chair: Ingmar Kallfass, Universität Stuttgart, Germany

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08:30 **A Broadband Low-Noise Amplifier for D-Band Communications in SiGe BiCMOS Technology**
(*Mohammed K. Ali, Goran Panic, Dietmar Kissinger*)
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08:50 **An H-Band mHEMT-Based Millimeter-Wave True-Time Delay MMIC**
(*C. Maurette-Blasini, K. Kuliabin, S. Chartier, R. Quay*)
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09:10 **66GHz 11.5mW Low-Power SiGe Frequency Quadrupler Operating at 300K and 4K**
(*Yaxin Zhang, Xiaodi Jin, Wenfeng Liang, Paulius Sakalas, Michael Schröter*)
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S05-4
09:30 **A 0.007mm² 48-53GHz Low-Noise LC-Oscillator Using an Ultra-Compact High-Q Resonator**
(*Patrick Kurth, Kai Misselwitz, Philipp Scholz, Urs Hecht, Friedel Gerfers*)
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09:50 **A Differential Travelling-Wave Amplifier in a 22nm FD-SOI CMOS Technology**
(*Athanasios Gatzastras, Christian Volmer, Ingmar Kallfass*)

Poster Session 2

Chair: Mohammed Ali, Universität Ulm, Germany

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(Gordon Notzon, Robert Storch, Thomas Musch, Michael Vogt)
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10:30 **Frequency Extension Method for Multirate Radar Target Simulation Systems**
(Georg Körner, Christoph Birkenhauer, Patrick Stief, Christian Carlowitz, Martin Vossiek)
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P02-3
10:50 **Determination of Quasi-Coaxial Via Capacitance Using Conformal Mapping Technique**
(Hiroaki Takahashi, Ioannis Peppas, Erich Schlaffer, Helmut Paulitsch, Wolfgang Bösch)
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11:30 **Feasibility Study for Dual Septum Polarizers Manufactured by Additive Layer Manufacturing**
(Michael Kilian, Michael Schneider, Philipp Kohl, Christian Hartwanger)
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Session 6 Localization Systems

Chair: Rolf Jakoby, Technische Universität Darmstadt, Germany

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(Christian Erhart, Dirk Doser, Thomas Janner)
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(Robin Neuder, Jesús Sánchez-Pastor, Martin Schüßler, Rolf Jakoby, Alejandro Jiménez-Sáez)
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11:20 **Impact of Integration Time on Detection Performance Based on Field Trial Results in Passive Radar**
(Markus Steck, Steffen Lutz, Robert Weigel)
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11:40 **Instantaneous Ego-Motion Estimation Based on Ambiguous Velocity Information within a Network of Radar Sensors**
(Timo Grebner, Pirmin Schoeder, Fabian Konrad, Christian Waldschmidt)
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Session 7 Passive Components

Chair: Holger Maune, OvG Universität Magdeburg, Germany

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10:40 **Validation of a New Fast-Time Scale Code for Advanced Simulations of Gyrotron Cavities**
(Lukas Feuerstein, Alexander Marek, Konstantinos A. Avramidis, Stefan Illy, Chuanren Wu, John Jelonnek)
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11:00 **Microstrip Compline Bandpass Filter with Tuning Range Enhancement and Bandwidth Tunability Using Resonator Loaded Series Varactor and SLR**
(Robert Wünsche, Ralf Collmann, Marco Krondorf, Josef Forster)
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11:20 **Fully Canonical Dielectric TM-Mode Filters with Frequency Dependent Coupling Matrix Description**
(Kennet Braasch, Daniel Miek, Patrick Boe, Fynn Kamrath, Michael Höft)
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11:40 **A Broad Band Patch Antenna Used as Auxiliary Load for Measuring Multi-Port Device with 2-Port VNA at W-Band**
(Dongwei Wang, Rolf Jakoby, Holger Maune, Philippe Ferrari, Ariana L.C. Serrano, Gustavo P. Rehder)

Session 8 Antennas and Antenna Arrays

Chair: Dirk Heberling, RWTH Aachen University, Germany

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16:00 **Model-Based Optimization of Fishnet Metamaterial Lenses Under Oblique Incidence**
(Adrian Diepolder, Mario Mueh, Susanne Brandl, Christian Waldschmidt, Christian Damm)
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16:20 **Effect of the Orientation of the Array Elements of Uniform Circular Antenna Arrays on Orbital Angular Momentum (OAM) Modes**
(M. Wulff, L. Wang, C. Yang, C. Schuster)
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16:40 **Dielectric Rod Antenna for Glass-Packaged Radar Sensors at G-Band**
(Thomas Galler, Philipp Hügler, Tobias Chaloun, Christian Waldschmidt)
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17:00 **Self-Diplexing, Dual-Polarized Ka-Band SIW Slot Antenna with Integrated K-Band Patch**
(Noah Sielck, Till Schwiers, Kevin Erkelenz, Alexander Koelpin, Arne F. Jacob)
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17:20 **High-Gain Holographic Multi-Feed Antenna**
(Maximilian Döring, Thomas Frey, Christian Waldschmidt, Tobias Chaloun)
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Chair: Manfred Berroth, Universität Stuttgart, Germany

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(Nima Lotfi, Philipp Scholz, Friedel Gerfers)
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(Julian Tonn, Thomas Veigel, Manuel Wittlinger, Markus Grözing, Manfred Berroth)
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16:40 **Polar Transmitter with Pseudo-Differential Inverse Class-E Output Stage in 22nm FD-SOI**
(Andres Seidel, Jens Wagner, Frank Ellinger)
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17:00 **Design and Measurements of a Low-Power Low-Data-Rate Direct-Detection Wireless Receiver with Improved Co-Channel Interference Robustness**
(Saed Abughannam, Stephan Kruse, Mohammed Iftekhar, J. Christoph Scheytt)
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17:20 **Receiver Synchronization of Ultra-Wideband Phase Modulated Signals with a Fully Analog QPSK Costas Loop**
(Janis Wörmann, Ulrich Jagdhold, Eswara Rao Bammidi, Ingmar Kallfass)

Session 10 Communication Systems

Chair: Vadim Issakov, Braunschweig University of Technology, Germany

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(Andre Meyer, Martin Schneider)
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(Winfried Johannes, Stephan Stanko, Ingmar Kallfass)
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09:10 **Measurements of Atmospheric Attenuation in an Outdoor Wireless E/W-Band Communication Link**
(Laura Manoliu, Ralf Henneberger, Axel Tessmann, Jochen Seidel, Michael Eppard, Dominik Wrana, Benjamin Schoch, Ingmar Kallfass)
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(Anton Dobler, Stefan Lindenmeier)
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09:50 **Performance Optimization of an E-Band Communication Link Using Open-Loop Predistortion**
(Benjamin Schoch, Florian Wiewel, Dominik Wrana, Laura Manoliu, Simon Haussmann, Axel Tessmann, Ingmar Kallfass)
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Chair: Ilona Rolfes, Ruhr-Universität Bochum, Germany

08:30 - 10:10, Wednesday May 18th 2022, Kleiner Saal

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(Christian Winter, Stefan Holzknacht, Tiziano Fabbri, Ingo Weber, Erwin M. Biebl)
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08:50 **Efficient Method for Determining Substrate Parameters of Additive Manufactured Spatial Circuit Carriers**
(Thomas Mager, Christoph Jürgehake, Roman Dumitrescu)
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09:10 **Temperature Dependent Dielectric Characterization with Partially Loaded Waveguides**
(Irwin Barengolts, Francesca Schenkel, Christian Schulz, Jan Barowski, Ilona Rolfes)
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09:30 **Combination of Scattering Matrix Code and Process Model to Optimize a Microwave Applicator Suitable for the Stabilization of PAN Fibers**
(Julia Hofele, Moritz Engler, Guido Link, John Jelonnek)
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09:50 **Evaluating Error Influences of a Dielectric Waveguide for mm-Wave in vitro Epithelial Cell Vitality Measurements**
(Philipp Hinz, Mario Mueh, Jessica Heck, Christian Damm)