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Session 1: Integrated PA

Chair: Andreas Wentzel, FBH Berlin, Germany

14:20 – 15:40, Monday, March 9, 2020, Hörsaal A

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S01-1
14:20 **3.6GHz Asymmetric Doherty PA MMIC in 250nm GaN for 5G Applications**
(Andres Seidel, Jens Wagner, Frank Ellinger)
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S01-2
14:40 **Considerations for Through-Substrate-Via Placement in InGaAs mHEMT THz Circuits Using Thin-Film Wiring**
(Laurenz John, Philipp Neininger, Axel Tessmann, Arnulf Leuther, Thomas Zwick)
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S01-3
15:00 **E-Band Balanced Broadband Driver Amplifier MMIC with 1.8THz Gain-Bandwidth Product**
(Benjamin Schoch, Axel Tessmann, Sandrine Wagner, Ingmar Kallfass)
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S01-4
15:20 **A Phase Shifter with Integrated PA MMIC for Ka-Band Frequencies**
(Philipp Neininger, Raul Amirpour, Laurenz John, Christian Friesicke, Rüdiger Quay, Thomas Zwick)
-

Session 2: Radar Imaging

Chair: Viktor Krozer, Goethe Universität Frankfurt am Main, Germany

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14:20 **Differential Radar Imaging at 60GHz for Structural Health Monitoring of Wind Turbine Blades: Preliminary Experimental Results**
(Jochen Moll, Thomas Maetz, Daniel Wessel, Viktor Krozer, Stefan Krause)
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S02-2
14:40 **ConvNet Transfer Learning for GPR Images Classification**
(Mostafa Elsaadouny, Jan Barowski, Ilona Rolfes)
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S02-3
15:00 **Automated Defect Detection for Non-Destructive Evaluation by Radar Imaging and Machine Learning**
(Ingrid Ullmann, Pascal Egerer, Jan Schür, Martin Vossiek)
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S02-4
15:20 **Non-Destructive Testing of Concrete Tunnels with Qualitative Microwave Imaging**
(Hadi Alidoustaghdam, Mehmet Çayören)
-

Session 3: Antennas & Antenna Arrays

Chair: Jan Hesselbarth, University of Stuttgart, Germany

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16:00 **A New Coupling Network Topology for mm-Wave Biomimetic Antenna Arrays**
(Patrik Grüner, David Schmucker, Christian Waldschmidt)
- PAGE 36
S03-2
16:20 **Versatile Dielectric Waveguide Based Leaky-Wave Antenna with Open Stop-Band Suppression**
(Utpal Dey, Julian Tonn, Jan Hesselbarth)
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S03-3
16:40 **Sectorial T-Shaped Dipole Antenna Array for Ku-Band Satellite Communication Integrated with Compact Inverted-F GPS Antenna**
(Xiaozhou Wang, Martin Laabs, Dirk Plettmeier)
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S03-4
17:00 **Evaluation of Different Phased Array Approaches for Orbital Angular Momentum Beam Steering**
(M. Haj Hassan, M. Al-Mulla, B. Sievert, A. Rennings, Daniel Erni)
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S03-5
17:20 **A Novel Simulation Model for Design of Frequency Steered Slotted Waveguide Antennas in SIW Technology for Accurate Far Field Synthesis**
(Patrick Kwiatkowski, Alexander Orth, Nils Pohl)

Session 4: Millimeterwave & THz Systems

Chair: Ulrich Pfeiffer, University of Wuppertal, Germany

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16:00 **Modeling the Noise of Transferred-Substrate InP DHBTs at Highest Frequencies**
(*Evelyne Kaule, Ralf Doerner, Nils Weimann, Matthias Rudolph*)
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S04-2
16:20 **Simple Feedback System for Passive Mode Locked Gyro-Devices at 263GHz**
(*A. Marek, K.A. Avramidis, N.S. Ginzburg, Daniel Haas, S. Illy, J. Jin, Manfred Thumm, John Jelonnek*)
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S04-3
16:40 **A Compact Broadband Marchand Balun for Millimeter-Wave and Sub-THz Applications**
(*M. Hossain, Tom K. Johansen, M. Hrobak, W. Heinrich, Viktor Krozer*)
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S04-4
17:00 **Ultra-Low-Loss Interconnection Between Dielectric and Planar Transmission Line Technologies for Millimeter-Wave Applications**
(*Benedikt Dorbath, Felix Distler, Jan Schür, Martin Vossiek*)
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S04-5
17:20 **Highly-Integrated Scalable D-Band Receiver Front-End Modules in a 130nm SiGe Technology for Imaging and Radar Applications**
(*Erick Aguilar, Vadim Issakov, Robert Weigel*)
-

Session 5: Components for Radar & Communication Systems

Chair: Cristina Andrei, Brandenburg University of Technology, Germany

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08:40 **Compact 60GHz Base Station with Planar Antenna Array on Glass Substrate**
(*Jacqueline Damas, Niels Neumann, Muhammad Umar, Klaus Wolf, Dirk Plettmeier*)
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S05-2
09:00 **Broadband Polarizer Miter Bend for High-Power Radar Applications**
(*Daniel Haas, A. Marek, Manfred Thumm, John Jelonnek, Matthias Jirousek, Markus Peichl*)
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S05-3
09:20 **Multi-Antenna Diversity Set for Transmission and Reception in Car-to-Car and Car-to-X Communication**
(*Olha Voitsun, Simon Senega, Stefan Lindenmeier*)
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S05-4
09:40 **A 108GHz Up-Conversion Mixer in 22nm FDSOI**
(*Stefan Malz, Philipp Hillger, Thomas Bücher, Ritesh Jain, Ullrich R. Pfeiffer*)
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Session 6: Radar Systems

Chair: Arne F. Jacob, TU Hamburg, Germany

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08:40 **Real-Time Gesture Recognition with Shallow Convolutional Neural Networks Employing an Ultra Low Cost Radar System**
(*Matthias G. Ehrnsperger, Thomas Brenner, Uwe Siart, Thomas F. Eibert*)
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S06-2
09:00 **Design and Evaluation of a Passive Frequency-Coded Reflector Using W-Band FMCW Radar**
(*Jan Barowski, Ali Alhaj Abbas, Mohammed El-Absi, Lukas Piotrowsky, Nils Pohl, Ilona Rolfes, Klaus Solbach*)
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S06-3
09:20 **A 122GHz ISM-Band FMCW Radar Transceiver**
(*V. Lammert, S. Achatz, Robert Weigel, Vadim Issakov*)
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S06-4
09:40 **3D Localization Using a Scalable FMCW MIMO Radar Design**
(*Jonathan Wittmeier, Aya Mostafa Ahmed, Thanh Nhat Tran, Aydin Sezgin, Nils Pohl*)

Interactive Poster Session

Chair: Evelyne Kaule, Brandenburg University of Technology, Germany

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10:20 **Analysis and Design of CMOS-Based High Output Power RF-DAC Cell**
(Jan Göbbels, Erkan Bayram, Oner Hanay, Renato Negra)
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P-2
10:20 **Motion Based Online Calibration for 4D Imaging Radar in Autonomous Driving Applications**
(Yiyang Bao, Tobias Mahler, André Pieper, Axel Schreiber, Matthias Schulze)
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P-3
10:20 **Prototyping of a Multistandard Transmitter with Discrete Components for FBMC Applications**
(Daniel Stracke, Oner Hanay, Erkan Bayram, Patrick Döll, Renato Negra)
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P-4
10:20 **Extended Kalman Filtering and Maximum-Likelihood Estimation for Point Target Localisation**
(Stephan Häfner, Reiner Thomä)
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P-5
10:20 **Channel Measurements for the Evaluation of Evolving Next Generation Wireless Railway Communication Applications**
(Kariem Elkholi, Johann Lichtblau, Torsten Reissland, Robert Weigel, Alexander Koelpin)
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P-6
10:20 **Design and Development of a Hot S-Parameter Measurement System for Plasma and Magnetron Applications**
(Abdelrahman Elgamal, Holger Heuermann)
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P-7
10:20 **High-Temperature Device Characterisation, Modelling and Oscillator Design**
(David Bierbüsse, Thomas Bürger, Muh-Dey Wei, Renato Negra)
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P-8
10:20 **Low-Phase-Noise VCO Using Cascode Q-Enhancement Connection and Source-Damping-Resistance Technique**
(Muh-Dey Wei, Sheng-Fuh Chang, Gyn-Wei Ko, Renato Negra)
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Session 7: Communication Systems

Chair: Vadim Issakov, Infineon Technologies AG, Germany

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13:00 **An Integrated 16-Element Phased-Array Transmitter Front-End for Wireless Communication at 185GHz**
(Vincent Rieß, Songhui Li, Paolo V. Testa, David Fritsche, Paul Stärke, Corrado Carta, Frank Ellinger)
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S07-2
13:20 **Analysis and Simulation of a Wireless Phased Array System with Optical Carrier Distribution and an Optical IQ Return Path**
(Stephan Kruse, Christian Kress, Heiko G. Kurz, Thomas Schneider, J. Christoph Scheytt)
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S07-3
13:40 **Design and Assembly of Miniature Long-Term Trackers for Migrating Bats**
(Stefan Erhardt, Frank Tost, Fabian Lurz, Robert Weigel, Alexander Koelpin)
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S07-4
14:00 **Adaption of a Low Power 122GHz Radar Transceiver for Long Range Communications**
(A.J. Anderson, Dieter Genschow)
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S07-5
14:20 **Measurement-Based Misalignment Analysis of Dual-Polarized 2×2 LoS MIMO System at 28GHz**
(Yueheng Li, Joerg Eisenbeis, Rossen Michev, Mohamad Basim Alabd, Thomas Zwick)

Session 8: Passive Structures & Systems

Chair: Holger Maune, TU Darmstadt, Germany

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13:00 **Dielectric Image Line Liquid Crystal Phase Shifter at W-Band**
(Henning Tesmer, Roland Reese, Ersin Polat, Rolf Jakoby, Holger Maune)
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13:20 **Slow Wave Inverted Microstrip Line Based on Metallic Nanowire Filled Alumina Membrane**
(Dongwei Wang, Mattihas Nickel, Dominic Walk, Alejandro Jimenez, Ersin Polat, Roland Reese, Gustavo P. Rehder, Ariana L.C. Serrano, Leonardo G. Gomes, Philippe Ferrari, Rolf Jakoby, Holger Maune)
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13:40 **Design and Fabrication of Barker Coded Surface Acoustic Wave (SAW) Correlator at 2.45GHz for Low-Power Wake-Up Receivers**
(Sylvain Ballandras, Saed Abughannam, Emilie Courjon, J. Christoph Scheytt)
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14:00 **Design and Tolerance Analysis of Cascaded Broadband Contiguous Microwave Diplexers**
(Florian Boes, Joschua Weißer, Marius Kretschmann, Georg Gramlich, Sören Marahrens, Thomas Zwick)
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14:20 **Design and Modelling of Magnetic On-Chip Structures at 240GHz**
(Joachim Hebel, Thomas Zwick, Ahmet Çağrı Ulusoy)
-

Session 9: Biomedical & Radar Systems

Chair: Nils Pohl, Ruhr-Universität Bochum, Germany

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14:40 **DLR's Innovative Reference Target Development for Future SAR Missions**
(Anna Maria Büchner, Klaus Weidenhaupt, Markus Limbach, Sebastian Raab, Marco Schwerdt)
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15:00 **A Radar-Based Hand-Held Guidance Aid for the Visually Impaired**
(Alexander Orth, Patrick Kwiatkowski, Nils Pohl)
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S09-3
15:20 **Spectrum-Based Single-Snapshot Super-Resolution Direction-of-Arrival Estimation Using Deep Learning**
(Maximilian Gall, Markus Gardill, Thomas Horn, Jonas Fuchs)
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S09-4
15:40 **A Radar-Based Vital Sign Sensing System for In-Bed Monitoring in Clinical Applications**
(Fabian Michler, Kilin Shi, Sven Schellenberger, Thilo Lenhard, Florian Dassel, Benedict Scheiner, Fabian Lurz, Robert Weigel, Alexander Koelpin)
-

Session 10: Calibration & Characterization

Chair: Ilona Rolfes, Ruhr-Universität Bochum, Germany

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14:40 **Dielectric Measurements of PAN Precursor and Stabilized Fibers**
(J. Hofele, G. Link, John Jelonnek)
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15:00 **Instrument Error Model for Internal Calibration**
(Jan Paul Kroll, Marwan Younis, Gerhard Krieger)
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15:20 **Design and Verification of Teststructures for Complex Multilayer-PCB Interconnections**
(Maren Willemsen, Jens Leiß, Marta Martínez-Vázquez)
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15:40 **Level Probing in Highly Overmoded Waveguides**
(Mark A. Eberspächer, Albert D. Dorneich)

Session 11: Waveguide Components

Chair: Bianca Will, FH Südwestfalen, Germany

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16:20 **Realization of X-Band Waveguide Filters by Low-Cost FDM Additive Manufacturing Techniques**
(Daniel Miek, Kennet Braasch, Sebastian Simmich, Fynn Kamrath, Patrick Boe, Michael Höft)
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16:40 **Numerical Study and Optimization of Post-Wall Waveguides and Filters for Millimeter Waves**
(Arkadi Akopian, Guga Burduli, Vakhtang Jandieri, Hiroshi Maeda, Wonbin Hong, Kiyotoshi Yasumoto, Daniel Erni)
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17:00 **Radiating Properties of a Hybrid Metal-Dielectric Structure**
(S.A. Pogarsky, D.V. Mayboroda, K.O. Smirnova)
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S11-4
17:20 **Study of Spurious Passbands of Ridged Hollow Waveguide Filters**
(Jonas Weindl, Thomas F. Eibert)
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17:40 **Design of a Quadruple-Mode Filter Using Folded Quarter-Mode Substrate Integrated Waveguide**
(Yang Yuan, Liang Zhou, Lixue Yang, Yu Chen)
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Session 12: Microwave Devices & Circuits

Chair: Ingmar Kallfass, University of Stuttgart, Germany

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16:20 **Simulation and Measurement of PCB Crossover Structures from DC up to 70GHz**
(Andreas Scharl, Felix Sepaintner, Franz Xaver Röhr, Werner Bogner, Stefan Zorn)
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S12-2
16:40 **A 1.6GS/s Direct Digital Frequency Synthesizer with an Interleaved CS-DAC Layout Structure**
(Tobias Schirmer, Steve Bigalke, Jan Pliva, Mohammad Mahdi Khafaji, Frank Ellinger)
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17:00 **Fully Reconfigurable Bandpass with Continuously Tunable Center Frequency and Bandwidth Featuring a Constant Filter Characteristic**
(Christian Schuster, Fynn Kamrath, Daniel Miek, Ersin Polat, Patrick Boe, Laura Pimentel Paes Frank, Daniel Kienemund, Rolf Jakoby, Holger Maune, Michael Höft)
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S12-4
17:20 **An Improved EM-Simulation Procedure to Extract Extrinsic Elements of Terahertz InP DHBTs**
(Sriperumbuduri Venkata Pawan, Tom K. Johansen, K. Erkelenz, Andreas Wentzel, Ralf Doerner, Sebastian Boppel, Matthias Rudolph)
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S12-5
17:40 **Analysis of Hot-Carrier Degradation in 22nm FDSOI Transistors Using RF Small-Signal Characteristics**
(Dang Khoa Huynh, Quang Huy Le, Pardeep Duhan, Defu Wang, Thomas Kämpfe, Matthias Rudolph)
-

Session 13: Radar Modelling & Processing

Chair: Martin Vossiek, Friedrich-Alexander University Erlangen-Nürnberg (FAU), Germany

08:40 – 10:00, Wednesday, March 11, 2020, Hörsaal A

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08:40 **On the Performance of Holographic Extended Kalman Filters for Localization in Industrial Automation**
(Melanie Lipka, Erik Sippel, Stefan Brückner, Martin Vossiek)
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09:00 **Validation Strategy for Radar-Based Assistance Systems Under the Influence of Interference**
(Alexander Prinz, Jonathan Roth, Johannes Schwendner, Mohamed Ayeb, Ludwig Brabetz)
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S13-3
09:20 **A Concept for Self-Monitoring of Radar Devices Using a Coherently Coded Reflector**
(M. Vogt, C. Dahl, Ilona Rolfes, T. Musch)
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S13-4
09:40 **MAP and MMSE Based Parameter Estimation from Noisy Radar Observations**
(Stephan Häfner, Reiner Thomä)

Session 14: PA & Microwave Tubes

Chair: John Jelonnek, Karlsruhe Institute of Technology, Germany

08:40 – 10:00, Wednesday, March 11, 2020, Hörsaal B

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Switching Mode Power Amplifier Concept Combining Multi-Level and Pulse-Width Modulation

(Robert Bieg, Markus Grözing, Martin Schmidt, Manfred Berroth)

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Output Matching Network Design for Highly Efficient InP-DHBT W-Band PAs Utilizing a Defected Ground Structure

(K. Erkelenz, Sriperumbuduri Venkata Pawan, T. Flisgen, Matthias Rudolph, Tom K. Johansen, W. Heinrich, Andreas Wentzel)

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RF Properties of Stretchable Transmission Line Structures

(U. Stehr, L.F. Centeno, Y. Ni, H.O. Jacobs, M.A. Hein)

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Bunching Parameter Study of Hybrid Gyrotron Amplifier

(Anshu Sharan Singh, Muthiah Thottappan)