2016 German Microwave Conference (GeMiC 2016)

Bochum, Germany
14 – 16 March 2016
S01 : Terahertz and Photonics

Chairs: Cartsten Brenner, Jerome Faist
Room HIC, Time 11:00 - 12:40, Monday March 14th 2016

3D Printed Waveguides for 120GHz
(J.C. Balzer, M. Weidenbach, S.F. Busch, M. Koch)

Plant Water Status Monitoring with THz QTDS
(A. Rehn, R. Gente, T. Probst, J.C. Balzer, M. Koch)

Power Budget Analysis and Optimization of Photonic Beamforming Concepts for Terahertz Transmitters
(Kevin Kolpatzek, Lars Häring, Andreas Czylwik)

Terahertz Wave Generation from Dual Wavelength Monolithic Integrated Distributed Bragg Reflector Semiconductor Laser Diode
(Jared O. Gwaro, Carsten Brenner, Martin R. Hofmann, Bernd Sumpf, Andreas Klehr, Jörg Fricke)

WGM Resonators with Microfluidic Channel for Sub-mm Wave Characterization of Biological Liquids
(A.A. Barannik, N.T. Cherpak, A.I. Gubin, I.A. Protsenko, S.A. Vitusevich)

SP1 : Special Session — SatCom

Chairs: Arne F Jacob, Siegfried Voigt
Room HID, Time 11:00 - 12:40, Monday March 14th 2016

High Resolution Patterning of LTCC based Microwave Structures for Q/V-Band Satellite Applications
(A. Schulz, Nam Gutzeit, D. Stöpel, Tilo Welker, Matthias A. Hein, Jens Müller)

Tunable Microwave Component Technologies for SatCom-Platforms

Rx/Tx Integration Concepts for Ground Segment SatCom Antenna Arrays
(Thomas Jaschke, Benjamin Rohrdantz, Hans K. Mitto, Arne F. Jacob)

Active Multi-Feed Satcom Systems with GaN SSPA at K-Band
(Philip Feuerschütz, Christian Rave, Stanislav Samis, Christian Friesicke, Rüdiger Quay, Willibald Konrath, Klaus Hirche, Dennis Schobert, Michael Schneider, Arne F. Jacob)

Modular Concept for Satcom Terminal Antennas
(M. Geissler, O. Litschke, S. Otto, R. Gieron)
| Page | PO1-1 | A Multisection Ultra Wideband Directional Coupler in Multilayer Broadside Coupled Stripline Technology  
(David-Benjamin Grys, Robert Storch, Thomas Musch) |
|------|-------|-----------------------------------------------------------------------------------------------------------------------------|
| Page | PO1-2 | Monitoring of Low Pressure Plasmas with a Calibrated Probe  
(Jan Runkel, Christian Schulz, Ilona Rolťes, Moritz Oberberg, Peter Awakowicz) |
| Page | PO1-3 | An Enhanced Super-Resolution Wavefront Extraction Algorithm for Wideband FMCW Radar Systems  
(B. Friederich, Dilyan Damyanov, Thorsten Schultze, Ingolf Willms) |
| Page | PO1-4 | Miniaturized Broadband Three-Way Power Divider with 120° Phase Differences Between Output Ports  
(Hitoshi Hayashi) |
| Page | PO1-5 | Passive Alignment of an Optical Fiber on a Multi-Layer Ceramic Module for Radio-Over-Fiber Applications  
(Samy Mathew, Tilo Welker, Nam Gutzeit, Steffen Spira, Jens Müller, Ralf Stephan, Matthias A. Hein) |
| Page | PO1-6 | Advanced Receiver Testing in a High Volume Environment Using Pogo Cross-Talk: A Case Study  
(Stephan Fuchs, Robert Weigel) |
| Page | PO1-7 | Microwave-Photonic Filters  
(S. Preussler, A. Zadok, Y. Stern, T. Schneider) |
| Page | PO1-8 | Design of Wide-Band Corrugated Feed Horn for Reflector Antenna in Radar Applications  
(Alexander Haas, Markus Peichl, Simon Anger) |
| Page | PO1-9 | Next Generation mm-Wave Wireless Backhaul Based on LOS MIMO Links  
(Darko Cvetkovski, Tim Hälsig, Berthold Lankl, Eckhard Grass) |
| Page | PO1-10 | Application of Selected Performance Test Scenarios on Multi-Channel UHF Receivers  
(Ralph Trommer, Philipp Quednau, Lorenz-Peter Schmidt) |
| Page | PO1-11 | Synthesis and Design of Narrowband Bandpass Filters in Waveguide Technique  
(S. Reible, R. Herschel, R. Brauns, D. Nüßler, Nils Pohl) |
| Page | PO1-12 | Rapid Patch Antenna Array Design for a Satcom-Demonstrator  
(Korbinian Schraml, Ralf Wilke, Dirk Heberling) |
| Page | PO1-13 | The Influence of Rain on Small Aperture LiDAR Sensors  
(Thomas Fersch, Alexander Buhmann, Alexander Koelpin, Robert Weigel) |
| Page | PO1-14 | Linearity and Efficiency Improvement Using Envelope Tracking Power Amplifier  
(Felix Auer, Stefan Schiller, Michael Kamper) |
| Page | PO1-15 | Farfield Coupling of Antennas in Terms of S-Parameters  
(Andreas R. Diewald) |
### S02: Tomography and Imaging

**Chairs:** J-C Chiao, Helmut Erment

**Room:** HID, Time 16:00 - 18:00, Monday March 14th 2016

<table>
<thead>
<tr>
<th>Page</th>
<th>S02-1</th>
<th>16:00</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Multiport Calibration for Microwave Tomography Systems</td>
<td>(Marc Zimmermanns, Ilona Rolfes, Malte Mallach, Patrik Gebhardt, Thomas Musch)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Page</th>
<th>S02-2</th>
<th>16:20</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Microwave Imaging Technique for Lung Tumour Detection</td>
<td>(O.J. Babarinde, M.F. Jamlos, P.J. Soh, D.M.M.-P. Schreurs, A. Beyers)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Page</th>
<th>S02-3</th>
<th>16:40</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Near-Field Measurements and Dual-Tuned Matching of Two CDRA Versions for Combined $^1H$/Na $^7$T-MRI</td>
<td>(Jan Taro Svejda, Daniel Erni, Andreas Rennings)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Page</th>
<th>S02-4</th>
<th>17:00</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Page</th>
<th>S02-5</th>
<th>17:20</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coupling Investigation Between RF Coil Array Elements Backed by Surface Impedance Characterized Shields for 7 Tesla MRI</td>
<td>(Zhichao Chen, Klaus Solbach, Daniel Erni, Andreas Rennings)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Page</th>
<th>S02-6</th>
<th>17:40</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Conceptualization, Design and Simulation of a Hybrid Antenna System as a Simultaneous RF Hyperthermia Applicator at 600MHz and RF Coil for Magnetic Resonance Imaging at 3 Tesla</td>
<td>(Jamal Slim, Dirk Heberling, Jörg Felder, N. Jon Shah)</td>
</tr>
</tbody>
</table>

---

### S03: Waveguide Engineering

**Chairs:** Daniel Erni, Dirk Heberling

**Room:** HIC, Time 16:00 - 18:00, Monday March 14th 2016

<table>
<thead>
<tr>
<th>Page</th>
<th>S03-1</th>
<th>16:00</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Analysis of Composite Materials with Periodically Aligned Inclusions Using 3D EM Field Simulations</td>
<td>(Christoph Baer, Birk Hattenhorst, Christian Schulz, Bianca Will, Ilona Rolfes, Thomas Musch)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Page</th>
<th>S03-2</th>
<th>16:20</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Modeling and Design of Stepped Transitions for Substrate-Integrated Waveguides</td>
<td>(Thomas Jaschke, Benjamin Rohrdantz, Wanja M. Gitzel, Arne F. Jacob)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Page</th>
<th>S03-3</th>
<th>16:40</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>An Efficient Approach for Reflectivity and Coupling Computation in an Abruptly Ended Planar Layered Waveguide Using Modified Formulation of CGF-RFFM</td>
<td>(Abdorreza Torabi, Amir Ahmad Shishegar)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Page</th>
<th>S03-4</th>
<th>17:00</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Eigenmodes of Partially Filled Coaxial Waveguides</td>
<td>(Carsten Monka, Joerg Schoebel)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Page</th>
<th>S03-5</th>
<th>17:20</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Electrical Biasing Scheme for Liquid-Crystal-Based Tunable Substrate Integrated Waveguide Structures</td>
<td>(A.E. Prasetiadi, S. Rahmawati, C. Weickhmann, M. Nickel, M. Jost, T. Franke, W. Hu, H. Maune, Rolf Jakoby)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Page</th>
<th>S03-6</th>
<th>17:40</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Comparison of Hollow Waveguide and Dielectric Fibre Based SPDT Switches for W-Band</td>
<td>(M. Jost, R. Reese, J. Pauls, J.S.K. Gautam, R. Gemble, C. Weickhmann, O.H. Karabey, Rolf Jakoby)</td>
</tr>
</tbody>
</table>
SP2: Special Session — Wireless 100Gb/s and Beyond

Chairs: Rolf Kraemer, Martin Vossiek
Room ID 03/471, Time 16:00 – 18:00, Monday March 14th 2016

A DC to 10.1GHz, 31dB Gain Range Control, Digital Programmable Gain Amplifier
(Xuan-Quang Du, Anselm Knobloch, Markus Grözing, Matthias Buck, Manfred Berroth)

Multiple-Feed On-Chip Antennas for 100Gbit/s Wireless Systems
(Benjamin Goettel, Stefan Malz, Ulrich R. Pfeiffer, Thomas Zwick)

Broadband W-Band Power Amplifier Using 40nm Bulk CMOS
(T.A. Tran, S. Vehring, Y. Ding, A. Hamidian, Georg Boeck)

Evaluation of a Compact Antenna Concept for UWB Massive MIMO
(Dirk Manteuffel, Niklas Doose, Peter A. Höher)

A Wideband Phase Detector SiGe HBT MMIC for Multi-Gigabit Synchronous Receivers
(A. Dyskin, P. Harati, D. Müller, T. Messinger, I. Kallfass)

Distributed On-Chip Antennas to Increase System Bandwidth at 180GHz
(R. Hahnel, B. Klein, Christoph Hammerschmidt, Dirk Plettemeier, P.V. Testa, Corrado Carta, Frank Ellinger)

S04: Microwave Sensors

Chairs: Karam Noujeim, Dirk Nüßler
Room H1D, Time 08:30 – 09:50, Tuesday March 15th 2016

Differential Measuring Dual Six-Port Concept and Antenna Design for an Inline Foil Thickness Sensor
(S. Mann, S. Linz, S. Erhardt, S. Lindner, F. Luzer, H. Maune, Robert Weigel, Alexander Koelpin)

A 868MHz Wireless Transmitter for a Sensor-System-in-Foil — A 10dBm 846kbit/s ASK-Transmitter on a Ultra-Thin 0.5μm CMOS Gate-Array
(Jochen Briem, Markus Grözing, Manfred Berroth)

A 24GHz Dielectric Sensor Based on Distributed Architecture
(F.I. Jamal, S. Guha, M.H. Eissa, D. Kissinger, J. Wessel)

Design and Realization of a Microwave Applicator for Diagnosis and Thermal Ablation Treatment of Cancerous Tissue
(Carolin Reimann, Margarita Puentes, Martin Schüßler, Rolf Jakoby)
**S05 : Power Amplifier 1**

*Chairs: Manfred Berroth, Georg Fischer*

*Room HIC, Time 08:30 - 09:50, Tuesday March 15th 2016*

- **Page 181**
  - **S05-1**
  - **08:30**
  - Load Modulation with an Adaptive Matching Network Based on MEMS for Efficiency Enhancement of an Inverse Class-F Power Amplifier
    *Steffen Probst, Bernard Lüers, Bernd Geck*

- **Page 185**
  - **S05-2**
  - **08:50**
  - A 56W Power Amplifier with 2-Level Supply and Load Modulation
    *(Sebastian Kelz, Martin Schmidt, Nikolai Wolff, Manfred Berroth, Wolfgang Heinrich, Olof Bengtsson)*

- **Page 189**
  - **S05-3**
  - **09:10**
  - Challenges in the Design of Wideband GaN-HEMT Based Class-G RF-Power Amplifiers
    *(Nikolai Wolff, Wolfgang Heinrich, Olof Bengtsson)*

- **Page 193**
  - **S05-4**
  - **09:30**
  - A Flexible, Dynamically Load-Modulated GaN Power Amplifier for the UHF Band
    *(Konstantinos Mimis, Gavin T. Watkins)*

---

**S06 : MIMO Radar and SAR**

*Chairs: Lorenz-Peter Schmidt, Thomas Zwick*

*Room IID, Time 10:10 - 11:50, Tuesday March 15th 2016*

- **Page 197**
  - **S06-1**
  - **10:10**
  - **MIRANDA 35GHz SAR Based Change Detection**
    *(Denis Noetel, Frank Kloeppel, Stefan Sieger, Daniel Janssen, Nils Pohl)*

- **Page 201**
  - **S06-2**
  - **10:30**
  - **A System Concept for a 3D Real-Time OFDM MIMO Radar for Flying Platforms**
    *(Alexander Ganis, Enric Miralles, Christoph Heller, Ulrich Prechtel, Askold Meusling, Heinz-Peter Feldle, Mirko Loghi, Frank Ellinger, Volker Ziegler)*

- **Page 205**
  - **S06-3**
  - **10:50**
  - **Ultra-High Resolution SAR in Lower Terahertz Domain for Applications in Mobile Mapping**
    *(Stephan Palm, Rainer Sommer, Michael Caris, Nils Pohl, Axel Tessmann, Uwe Stilla)*

- **Page 209**
  - **S06-4**
  - **11:10**
  - **3D Radar Image Fusion using OFDM-Based MIMO Radar**
    *(Benjamin Nuss, Yoke Leen Sit, Thomas Zwick)*

- **Page 213**
  - **S06-5**
  - **11:30**
  - **Coherent Resampling for Coherent MIMO Radar Setups**
    *(Andreas Kirschner, Juergen Detlefsen, Wim Mees)*
GeMiC 2016 Table of Contents

S07 : Filter

Chairs: Amelie Hagelauer, Jan Hesselbarth
Room HIC, Time 10:10 – 11:50, Tuesday March 15th 2016

Page 217
S07-1
10:10
A New Compact Microstrip Slow Wave Open Loop Resonator Filter with Improved Spurious-Free Band
(Payman Rezaee, Michael Höft)

Page 221
S07-2
10:30
Barium Hexaferite Films Prepared by Means of the Sol-Gel Method for Self-Biased Nonreciprocal Microwave Devices
(Frauke K.H. Gellersen, Felix M. Klichowski, Adrian G.C. Rusche, Arne F. Jacob)

Page 225
S07-3
10:50
Design and Comparison of Various Coupled Line Tx-Filters for a Ku-Band Block Upconverter
(Daniel Maassen, Felix Rautschke, Georg Boeck)

Page 229
S07-4
11:10
Tunable Lumped-Element-Filter for RF Power Applications Based on Printed Ferroelectrics
(Christian Schuster, Alex Wiens, Martin Schüßler, Rolf Jakoby, Christian Kohler, Joachim R. Binder)

Page 233
S07-5
11:30
A 60MHz OTA-Based IF Filter for Wireless Wake-Up Receivers with 115ns Settling Time
(Christoph Tzschoppe, Alexander Richter, Markus Schulz, Corrado Carta, Frank Ellinger)

---

PO2 : Interactive Poster Session 2

Chair: Nils Pohl
Room Foyer, Time 11:50 – 12:50, Tuesday March 15th 2016

Page 237
PO2-1
Enhanced Physical Layer Security Using Monopulse Antennas
(Adam Narbudowicz, Korbinian Schraml, Max Ammann, Dirk Heberling)

Page 239
PO2-2
Radar-Based Detection of Birds Near Wind Energy Plants: First Experiences from a Field Study
(Jochen Moll, Moritz Mälzer, Nikolas Scholz, Viktor Krozer, Manfred Dürr, Dimitry Pozdniakov, Rahmi Salman, Ralph Zimmermann, Markus Scholz)

Page 243
PO2-3
High-Speed Start-Up and Low-Power Decoding Circuit for Wireless Sensor Networks
(Hitoshi Hayashi)

Page 247
PO2-4
Optically Transparent and Circularly Polarized Patch Antenna for K-Band Applications
(Q.H. Dao, T.J. Cherogony, Bernd Geck)

Page 251
PO2-5
Performance of Mobile Base Station Using Genetic Algorithms in Wireless Sensor Networks
(N.A. Abdul Latiff, I.S. Ismail)

Page 255
PO2-6
Spatial Smoothing for Coherent MIMO Radar Setups with Minimum Redundancy
(Andreas Kirschner, Juergen Detlefsen, Wim Mees)

Page 259
PO2-7
RCS Measurements of a Human Hand for Radar-Based Gesture Recognition at E-Band
(Philipp Hagler, Martin Geiger, Christian Waldschmidt)

Page 263
PO2-8
Methods and Apparatus for Microwave Thermotherapy Based on Slow-Wave Systems
(Andrey Yelizarov, Ruslan Shymydanov, Yuriy Pchelnikov)

Page 267
PO2-9
Design of a Switched Injection-Locked Oscillator as an Active Backscatter Transponder for a 2.45GHz FMCW Radar System
(Markus Schulz, Niko Joram, Christoph Tzschoppe, Frank Ellinger)

PO2 : Interactive Poster Session 2 continues next page...
### PO2: Interactive Poster Session 2 continued...

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>271</td>
<td>Metamaterial-Based Frequency Selective Surface with a Band Gap Electronic Adjustment</td>
<td>Andrey Yelizarov, Alexander Kukharenko</td>
</tr>
<tr>
<td>274</td>
<td>Influence of the Wafer Chuck on Integrated Antenna Measurements</td>
<td>Linus Boehm, Markus Hehl, Christian Waldschmidt</td>
</tr>
<tr>
<td>278</td>
<td>Novel DGS Shape for Mutual Coupling Reduction</td>
<td>A.M.M.A. Allam, Adham Mohamed Gamal Hemdan</td>
</tr>
<tr>
<td>282</td>
<td>An Integrated 118.4 to 122GHz Low Noise Phase-Locked Loop (PLL) in 0.13(\mu)m SiGe BiCMOS Technology</td>
<td>U. Ali, M. Bober, A. Thiede</td>
</tr>
<tr>
<td>286</td>
<td>Integrated, 16–21GHz Marchand Balun in 65nm CMOS</td>
<td>Ahmed Hamed, Mohamed Saeed, Renato Negra</td>
</tr>
<tr>
<td>289</td>
<td>An Adaptive Biasing Method for SRD Comb Generators</td>
<td>Thomas Harzheim, Holger Heuermann, Michel Marso</td>
</tr>
<tr>
<td>293</td>
<td>A Practical Approach for RF Circuit Size Reduction</td>
<td>Xuan Anh Nghiem, Renato Negra</td>
</tr>
<tr>
<td>297</td>
<td>Fundamental Limitations of Crystal Oscillator Tolerances on FMCW Radar Accuracy</td>
<td>Mohammed El-Shennawy, Belal Al-Quds, Niko Joram, Frank Ellinger</td>
</tr>
</tbody>
</table>

### S08: Radar Signal Processing

**Chairs:** Joachim H.G. Ender, Mario Pauli  
**Room HII, Time 14:00 - 15:40, Tuesday March 15th 2016**

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>301</td>
<td>Detection of Fluid Vortices Based on Compensated FMCW-Radar Phase Measurements</td>
<td>Birk Hattenhorst, Christoph Baer, Thomas Musch</td>
</tr>
<tr>
<td>305</td>
<td>A Super-Resolution Polarimetric Direct Mapping Imaging Algorithm for a Bistatic UWB-Radar</td>
<td>Dilyan Damyanov, Thorsten Schultze, Ingolf Willms, Rahmi Salman</td>
</tr>
<tr>
<td>313</td>
<td>Radar Array Self-Calibration and Imaging with Applications to Bulk Material Gauging</td>
<td>Dominik Zankl, Stefan Schuster, Reinhard Feger, Andreas Stelzer</td>
</tr>
<tr>
<td>317</td>
<td>Range Migration Compensation for Chirp-Sequence Based Radar</td>
<td>Fabian Roos, Daniel Ellenrieder, Nils Appenrodt, Jürgen Dickmann, Christian Waldschmidt</td>
</tr>
</tbody>
</table>
## S09: Steerable Antennas

**Chairs:** Matthias Hein, Peter Knott  
**Room HIC, Time 14:00 - 15:40, Tuesday March 15th 2016**

<table>
<thead>
<tr>
<th>Page</th>
<th>Time</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>321</td>
<td>14:00</td>
<td>An Electronically Reconfigurable Reflectarray Element Based on Binary Phase Shifters for K-Band Applications</td>
<td>Helen Theissen, Christoph Dahl, Ilona Rolfes, Thomas Musch</td>
</tr>
<tr>
<td>325</td>
<td>14:20</td>
<td>A Frequency Steerable Substrate-Integrated Waveguide Slot Antenna for 77GHz Radar Application</td>
<td>Tim Martin Böbel, Matthias Rabel, Thomas Dallmann, Dirk Heberling</td>
</tr>
<tr>
<td>329</td>
<td>14:40</td>
<td>Steerable Ka-Band Dual Reflector Antenna</td>
<td>Tatjana Gabriel, Horst Kozilek, Christian Hartwanger, Marko Gerhard, Michael Schneider</td>
</tr>
<tr>
<td>333</td>
<td>15:00</td>
<td>Modular Steerable Active Phased Array Antenna at 2.4GHz</td>
<td>Niels Neumann, Christoph Hammerschmidt, Martin Laabs, Dirk Plettemeier</td>
</tr>
<tr>
<td>337</td>
<td>15:20</td>
<td>200GHz 1×4 Antenna Array Based on Planar Butler Matrix</td>
<td>Michael Jenning, Dirk Plettemeier</td>
</tr>
</tbody>
</table>

## S10: Integrated Circuits

**Chairs:** Dietmar Kissinger, Hermann Schumacher  
**Room IID, Time 16:00 - 17:40, Tuesday March 15th 2016**

<table>
<thead>
<tr>
<th>Page</th>
<th>Time</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>341</td>
<td>16:00</td>
<td>10 to 40GHz Superheterodyne Receiver Frontend in 0.13μm SiGe BiCMOS Technology</td>
<td>Hebat-Allah Yehia Abdeen, Shuai Yuan, Hermann Schumacher, Volker Ziegler, Askold Meusling, Peter Feldle</td>
</tr>
<tr>
<td>345</td>
<td>16:20</td>
<td>An OOK-Modulator at 240GHz with 20GHz Bandwidth</td>
<td>Pedro Rodríguez-Vázquez, Neelanjan Sarmah, Klaus Aufinger, Ullrich R. Pfeiffer</td>
</tr>
<tr>
<td>349</td>
<td>16:40</td>
<td>Low Power High-Speed 10Gb/s 4:1 Multiplexer for Sliding-IF digital Centric Transmitter in 65nm CMOS</td>
<td>Pierre Bousseaud, Renato Negra</td>
</tr>
<tr>
<td>353</td>
<td>17:00</td>
<td>Hybrid-Integrated RF MEMS-Based Reference Oscillator Using a Silicon-Ceramic Composite Substrate</td>
<td>J. Stegner, U. Stehr, D. Podoskin, S. Gropp, M. Fischer, M. Hoffmann, Jens Müller, Matthias A. Hein</td>
</tr>
<tr>
<td>357</td>
<td>17:20</td>
<td>Integrated Tri-State PLL for the Control of a Switched Injection-Locked Oscillator at 2.45GHz</td>
<td>Markus Schulz, Niko Joram, Mohammed El-Shennawy, Christoph Tzschoppe, Frank Ellinger</td>
</tr>
</tbody>
</table>
GeMiC 2016 Table of Contents

S11: Microwave Tubes

Chairs: Dirk Plettemeier, Werner Wiesbeck
Room HIC, Time 16:00 - 17:40, Tuesday March 15th 2016

S11-1 16:00
Design Procedure for Hot-Matched Severs in Folded-Waveguide Traveling-Wave Tubes
(Sascha Meyne, Djamshid Safi, Arne F. Jacob)

S11-2 16:20
Preliminary Studies on Multistage Depressed Collectors for Fusion Gyrotrons
(Chuanren Wu, Ioannis Gr. Pagonakis, Stefan Illy, Manfred Thumm, Gerd Gantenbein, John Jelonnek)

S11-3 16:40
Experimental Results and Outlook of the 2MW 170GHz Coaxial-Cavity Gyrotron Towards Long Pulse Operation

S11-4 17:00
A Fast Frequency Step-Tunable 236GHz Gyrotron Design for DEMO
(P. Kalaria, K.A. Avramidis, J. Franck, Gerd Gantenbein, Stefan Illy, Ioannis Gr. Pagonakis, Manfred Thumm, John Jelonnek)

GeMiC 2016 Table of Contents

SP3: Special Session — Radar Systems

Chairs: Madhukar Chandra, Dirk Fischer
Room ID 04/445, Time 16:00 - 17:20, Tuesday March 15th 2016

SP3-1 16:00
On the Verification of the Quantitative Precipitation Estimation based on Quality Assured Polarimetric Weather Radar Measurements at DWD
(Patrick Tracksdorf)

SP3-2 16:20
Implementation and verification of hydrometeor classification for German weather radar network
(Jörg Steinert, Patrick Tracksdorf)

SP3-3 16:40
Demonstration of Simultaneous Quad-Polarization SAR Imaging for Extended Targets in MIMO-SAR
(Tobias Rommel, Marwan Younis, Gerhard Krieger)

SP3-4 17:00
Investigation of Polarimetric Multi parameter Intrapulse Modulation for Radar Applications and its Impact on the Detection Capabilities
(Ingo Klein, Moritz Kunze, Dirk Fischer)
S12: Radar and TDR Systems

Chairs: Christoph Scheytt, Stephan Stanko
Room HID, Time 08:30 - 10:10, Wednesday March 16th 2016

<table>
<thead>
<tr>
<th>Page</th>
<th>Time</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>389</td>
<td>08:30</td>
<td>Determining Linearity of Wideband FMCW-Systems Based on Low-Cost Six-Port Technology</td>
<td>(S. Wibbing, F. Lurz, S. Mann, S. Lindner, S. Linz, Robert Weigel, Alexander Koelpin)</td>
</tr>
<tr>
<td>393</td>
<td>08:50</td>
<td>Spectral Properties of Time Domain Reflectometry Systems</td>
<td>(Robert Storch, Michael Gerding)</td>
</tr>
<tr>
<td>405</td>
<td>09:50</td>
<td>Crystal Oscillator Frequency Offset Compensation for Accurate FMCW Radar Ranging</td>
<td>(Belal Al-Qudsi, Mohammed El-Shennawy, Niki Joram, Frank Ellinger)</td>
</tr>
</tbody>
</table>

S13: Electromagnetic Engineering

Chairs: John Jelonnek, Dirk Manteuffel
Room HIC, Time 08:30 - 10:10, Wednesday March 16th 2016

<table>
<thead>
<tr>
<th>Page</th>
<th>Time</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>409</td>
<td>08:30</td>
<td>Probe-Receiver Coupling in External Calibration Systems</td>
<td>(M. Nhat Pham, Ridvan Akpinar, Arne F. Jacob)</td>
</tr>
<tr>
<td>413</td>
<td>08:50</td>
<td>Side-Lobe Reduction of Horn Antenna Using Circular Patch Mushroom-Like EBG Structure</td>
<td>(Tanan Hongnara, Korbinian Schraml, Sarawuth Chaimool, Prayoot Akkaraekthalin, Dirk Heberling)</td>
</tr>
<tr>
<td>417</td>
<td>09:10</td>
<td>Far Field Analysis of Wrinkles in Space Membrane Antennas</td>
<td>(Ralf Wilke, Korbinian Schraml, Dirk Heberling)</td>
</tr>
<tr>
<td>421</td>
<td>09:30</td>
<td>Self-Calibration of Differential Cable-Adapters with Intra-Mode Crosstalk</td>
<td>(Sebastian Wagner, Stephan Kolb, Reinhard Stolle)</td>
</tr>
<tr>
<td>425</td>
<td>09:50</td>
<td>Measured Impact of Electromagnetic Scattering Off Wind Turbines on Broadcast Signal Propagation</td>
<td>(Christian Bornkessel, Sindy Schulze, Matthias A. Hein)</td>
</tr>
</tbody>
</table>
S14 : Power Amplifier 2

Chairs: Renato Negra, Michael Schlechtweg
Room HID, Time 10:30 - 12:10, Wednesday March 16th 2016

**Page 429**
**S14-1**
10:30
A 500W High Efficiency Class-E Power Amplifier for Heating a Variable Plasma Load at 10MHz
*(Gordon Notzon, Thomas Busch, Marcel van Delden, Thomas Musch)*

**Page 433**
**S14-2**
10:50
A Low Power CMOS Transmitter with Class-E Power Amplifiers for Positioning Application in Multi-Band
*(Chia-Yu Hsieh, Juergen Roeber, Andreas Baenisch, Amelie Hagelauer, Thomas Ussmueller, Robert Weigel)*

**Page 437**
**S14-3**
11:10
Wideband 80W Balanced Power Amplifier for ISM and LTE-Bands
*(Sophie Paul, Sebastian Preis, Wolfgang Heinrich, Olof Bengtsson)*

**Page 441**
**S14-4**
11:30
Reliable GaN HEMT Modeling Based on Chalmers Model and Pulsed S-Parameter Measurements
*(Peng Luo, Olof Bengtsson, Matthias Rudolph)*

**Page 445**
**S14-5**
11:50
VSWR Protection of Power Amplifiers Using BST Components
*(Jérôme Ferretti, Sebastian Preis, Wolfgang Heinrich, Olof Bengtsson)*

S15 : Material Characterization

Chairs: Christian Damm, Joerg Schoebel
Room HIC, Time 10:30 - 11:50, Wednesday March 16th 2016

**Page 449**
**S15-1**
10:30
Monostatic and Thickness-Independent Material Characterisation Based on Microwave Ellipsometry
*(Jan Barowski, Thorsten Schultz, Ingolf Willms, Ilona Rolfes)*

**Page 453**
**S15-2**
10:50
Dielectric Permittivity Determination in W-Band with Dielectric Ring Resonators
*(Janis Sebastian Häseker, Steffen Vogt, Martin Schneider)*

**Page 457**
**S15-3**
11:10
A Grounded Coplanar Waveguide Resonator Based In-Line Material Characterization Sensor
*(Armin Talai, S. Mann, Robert Weigel, Alexander Koelpin)*

**Page 461**
**S15-4**
11:30
Measurement of Complex Permittivity of Anisotropic Dielectric Spheres
*(Daniel Lopez Cuenca, Rajpal Dudi, Jan Hesselbarth)*