RFIC 2017 Session List

Sunday Sessions
- RFIC Plenary
- RSUIF Interactive Forum

Monday Sessions
- RMO1A 28GHz Phased-Array Transceivers for 5G Systems
- RMO1B Advanced Technologies for Optical, Millimeter-Wave and Radio Frequency Applications
- RMO1D High-Performance Frequency Synthesizers
- RMO2A Radio Building Blocks for 5G Systems
- RMO2B Modeling and Characterization for Emerging High Frequency and RF Front-End Applications
- RMO2D Millimeter-Wave and THz Sources
- RMO3A Ultra-Low Power Wake-Up Receivers
- RMO3B Next Generation Transmitters and Receivers for Cellular and Wireless Connectivity
- RMO3D X Band PAs and Beyond
- RMO4A Low-Power Transceivers
- RMO4B RF Circuits for Emerging Applications and Gigabit Optical Links
- RMO4D Reconfigurable Receiver Front-Ends

Tuesday Sessions
- RTU1A RF Front-End Building Blocks
- RTU1B Advanced Millimeter-Wave Circuit Techniques
- RTU1D Reconfigurable Multi-Mode PAs
- RTU2A Full-Duplex, Interference-Resilient and Harmonic-Rejection Receivers
- RTU2B System-on-Chip for Millimeter-Wave and Above
- RTU2D Power Amplifiers in Advanced Technologies

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RFIC Plenary
Chair: Kevin W. Kobayashi, QORVO
Co-Chairs: Walid Ali-Ahmad, Qualcomm and Stefano Pellerano, Intel
Hilton Coral Ballroom, Time 18:00 – 19:30, Sunday 4th June 2017

18:00 Welcome Message from General Chair and TPC Chairs, Student Paper Awards, Industry Best Paper Award, Tina Quach Service Award

18:30 Deployment Realities of 5G
Seizo Onoe, NTT DOCOMO, Japan

19:00 RFIC/Silicon-Based Phased Arrays and Transceivers for 5G
Gabriel M. Rebeiz, University of California, San Diego, USA
RSUIF: Interactive Forum

Chair: Waleed Khalil, Ohio State University — Co-Chair: Jennifer Kitchen, Arizona State University

Hilton Coral Lounge, Time 19:30 – 21:30, Sunday 4th June 2017

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RSUIF-1 19:30
An FTNC Receiver with +32.5dBm Effective OB-IIP3 Using Baseband IM3 Cancellation
Yudong Zhang, Jianxun Zhu, Peter R. Kinget, Columbia University, USA

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RSUIF-2 19:30
Envelope Time-Domain Characterizations to Assess In-Band Linearity Performances of Pre-Matched MASMOS Power Amplifier
F. Simbelè 1, Y. Gillet 1, S. Laurent 1, P. Médrel 1, Y. Creveuil 2, M. Régis 2, M. Prigent 1, R. Quére 1
1XLIM, France; 2ACCO Semiconductor, France

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RSUIF-3 19:30
Improving the Linearity of Wideband Receiver Systems by Component IM3 Phasor Manipulation
Gabor Varga, Fabian Speicher, Arun Ashok, Ivappan Subbiah, Moritz Schrey, Ralf Wunderlich, Stefan Heinen, RWTH Aachen University, Germany

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RSUIF-4 19:30
A Fully-Integrated SOI CMOS Complex-Impedance Detector for Matching Network Tuning in LTE Power Amplifier
D. Nicolas 1, A. Serhan 1, A. Giry 1, T. Parra 2, E. Mercier 1
1CEA-LETI, France; 2LAAS, France

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RSUIF-5 19:30
V-Band Flip-Chip pHEMT Balanced Power Amplifier with CPWG-MS-CPWG Topology and CPWG Lange Couplers
Wei-Ling Chang 1, Jen-Yi Su 1, Chinchun Meng 1, Chia-Hung Chang 1, Guo-Wei Huang 2
1National Chiao Tung University, Taiwan; 2National Nano Device Laboratories, Taiwan

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Multi-Standard 5Gbps to 28.2Gbps Adaptive, Single Voltage SerDes Transceiver with Analog FIR and 2-Tap Unrolled DFE in 28nm CMOS
Mohammad Mahani 1, Rod Zavari 1, Su-Tarn Lim 1, David Hong 1, Karl Scheffer 1, Peter Graumann 1, Hans Ransijn 2, Tomas Dusatko 3, Stanley Ho 3, Philip Snyder 2, Jomy Joy 4, Suresh Nalluri 4, Tony Zortea 2
1Microsemi, Canada; 2Multiphy, USA; 3Inphi, Canada; 4Texas Instruments, India

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A Harmonic-Selective Wireless Full-Band-Capture Receiver with Digital Harmonic Rejection Calibration
Hao Wu, David Murphy, Hooman Darabi, Broadcom, USA

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RSUIF-8 19:30
A 40GHz PLL with -92.5dBc/Hz In-Band Phase Noise and 104fs-RMS-Jitter
Ying Chen 1, Louis Praamsma 1, Nikola Ivanisevic 2, Domine M.W. Leenaerts 1
1NXP Semiconductors, The Netherlands; 2KTH, Sweden

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A High-Efficiency Linear Power Amplifier for 28GHz Mobile Communications in 40nm CMOS
Yang Zhang, Patrick Reynaert, Katholieke Universiteit Leuven, Belgium

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An Analysis of Phase Noise Requirements for Ultra-Low-Power FSK Radios
Xing Chen, Hun-Seok Kim, David D. Wentzloff, University of Michigan, USA

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A Ka-Band 4-Ch Bi-Directional CMOS T/R Chipset for 5G Beamforming System
JangHoon Han, JinHyun Kim, Jeongsuk Park, JeongGeun Kim, Kwangwoon University, Korea

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A 32GHz 20dBm-PSAT Transformer-Based Doherty Power Amplifier for Multi-Gb/s 5G Applications in 28nm Bulk CMOS
Paramartha Indirayanti, Patrick Reynaert, Katholieke Universiteit Leuven, Belgium
A 10–40GHz Frequency Quadrupler Source with Switchable Bandpass Filters and >30dBc Harmonic Rejection
Hyunchul Chung, Qian Ma, Gabriel M. Rebeiz, University of California, San Diego, USA

Joint TX and Feedback RX IQ Mismatch Compensation for Integrated Direct Conversion Transmitters
Hunsoo Choo, Charles Sestok, Xiaoxi Zhang, Nikolaus Klemmer, Texas Instruments, USA

A Precision 140MHz Relaxation Oscillator in 40nm CMOS with 28ppm/°C Frequency Stability for Automotive SoC Applications
Dmytro Cherniak, Roberto Nonis, Fabio Padovan, Infineon Technologies, Austria

Bi-Directional Flip-Chip 28GHz Phased-Array Core-Chip in 45nm CMOS SOI for High-Efficiency High-Linearity 5G Systems
Umut Kodak, Gabriel M. Rebeiz, University of California, San Diego, USA

A 28-GHz Phased-Array Transceiver with Series-Fed Dual-Vector Distributed Beamforming
Yi-Shin Yeh\textsuperscript{1}, Ed Balboni\textsuperscript{2}, Brian Floyd\textsuperscript{1}
\textsuperscript{1}North Carolina State University, USA \textsuperscript{2}Analog Devices, USA

A 28GHz CMOS Direct Conversion Transceiver with Packaged Antenna Arrays for 5G Cellular System
Hong-Teuk Kim, Byoung-Sun Park, Seung-Min Oh, Seong-Sik Song, Jong-Moon Kim, So-Hyeong Kim, Tak-Su Moon, Seung-Yeon Kim, Ji-Young Chang, Sung-Woong Kim, Woo-Seong Kang, Seung-Yoon Jung, Geum-Young Tak, Jin-Kyoung Du, Yu-Suhk Suh, Yo-Chul Ho, LG Electronics, Korea

An Ultra-Low-Cost 32-Element 28GHz Phased-Array Transceiver with 41dBm EIRP and 1.0–1.6Gbps 16-QAM Link at 300 Meters
Kerim Kibaroglu, Mustafa Sayginer, Gabriel M. Rebeiz, University of California, San Diego, USA
RMO1B: Advanced Technologies for Optical, Millimeter-Wave and Radio Frequency Applications
Chair: Freek van Straten, Ampleon — Co-Chair: Richard Chan, QORVO
HCC Room 313A, Time 08:00 – 09:20, Monday 5th June 2017

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Sub-THz Source Integrated in Low-Cost Silicon Photonic Technology Targeting 40Gb/s Wireless Links
Elsa Lacombe 1, Frederic Gianesello 1, Cedric Durand 1, Guillaume Ducournau 2, Cyril Luxey 3, Daniel Gloria 1
1STMicroelectronics, France ； 2IEMN, France ； 3EpOC-UNS, France

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RF NMOS Switch with Dedicated Sinks for Reduced Leakage Current
M.S.M. Al-Sa’di, J.J.T.M. Donkers, P.H.C. Magnée, I. Brunets, J.W. Slotboom, NXP Semiconductors, The Netherlands

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RF-pFET in Fully Depleted SOI Demonstrates 420GHz Ft
Josef Watts 1, Kumaran Sundaram 2, Kok Wai Johnny Chew 2, Steffen Lehmann 3, Shih Ni Ong 4, Wai Hock Chan 2, Jerome Mazurier 4, Christoph Schwan 2, Yogadissen Andee 3, Thomas Feudel 2, Luca Pirro 4, Elke Erben 3, Edward Nowak 1, Elliot Smith 3, El Mehd Bazizi 1, Thorsten Kammler 1, Richard Taylor III 1, Bryan Rice 3, David Harame 3
1GLOBALFOUNDRIES, USA ； 2GLOBALFOUNDRIES, Singapore ； 3GLOBALFOUNDRIES, Germany ； 4CEA-LETI, France

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Validation of a Functional Principle for a Broadband Millimeter-Wave Power Detection Structure in a Recent BiCMOS Technology
F. Trenz 1, R. Weigel 1, Dietmar Kissinger 2
1FAU Erlangen-Nürnberg, Germany ； 2IHP, Germany

RMO1D: High-Performance Frequency Synthesizers
Chair: Jeyanandh Paramesh, Carnegie Mellon University — Co-Chair: Jaber Khoja, Rockwell Collins
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A 59-to-276GHz CMOS Signal Generation for Rotational Spectroscopy
Xiaolong Liu 1, Yue Chao 2, Howard C. Luong 1
1HKUST, China ； 2Qualcomm, USA

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A Fully Integrated 75–83GHz FMCW Synthesizer for Automotive Radar Applications with -97dBc/Hz Phase Noise at 1MHz Offset and 100GHz/mSec Maximal Chirp Rate
Jakob Vovnoboy, Run Levinger, Nadav Mazor, Danny Elad, ON Semiconductor, Israel

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A Subharmonically Injection-Locked PLL with 130fs RMS Jitter at 24GHz Using Synchronous Reference Pulse Injection from Nonlinear VCO Envelope Feedback
Dongseok Shin, Shinwoong Park, Sanjay Raman, Kwang-Jin Koh, Virginia Tech, USA

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A Highly Reconfigurable RF-DPLL Phase Modulator for Polar Transmitters in Multi-Band/Multi-Standard Cellular RFICs
T. Buckel 1, T. Mayer 2, T. Bauernfeind 2, S. Tertinek 2, C. Wicpakel 2, A. Springer 1, R. Weigel 3, T. Ussmueller 4
1Johannes Kepler Universität Linz, Austria ； 2DMCE, Austria ； 3FAU Erlangen-Nürnberg, Germany ； 4Universität Innsbruck, Austria

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A Low-Noise Inductor-Less Fractional-N Sub-Sampling PLL with Multi-Ring Oscillator
Dongyi Liao, Ruixin Wang, Fa Foster Dai, Auburn University, USA
### RMO2A: Radio Building Blocks for 5G Systems

*Chair: Walid Ali-Ahmad, Qualcomm — Co-Chair: Bodhisatwa Sadhu, IBM T.J. Watson Research Center*

**HCC Room 312, Time 10:00 – 11:20, Monday 5th June 2017**

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<td>A 25–30GHz 8-Antenna 2-Stream Hybrid Beamforming Receiver for MIMO Communication</td>
<td>Susnata Mondal, Rahul Singh, Ahmed I. Hussein, Jeyanandh Paramesh, Carnegie Mellon University, USA</td>
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<td>116</td>
<td>10:20</td>
<td>A 29-to-57GHz AM-PM Compensated Class-AB Power Amplifier for 5G Phased Arrays in 0.9V 28nm Bulk CMOS</td>
<td>Marco Vigilante, Patrick Reynaert, Katholieke Universiteit Leuven, Belgium</td>
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| 120  | 10:40| A Quad Channel 11-bit 1GS/s 40mW Collaborative ADC Based Enabling Digital Beamforming for 5G Wireless | Aurangozeb¹, Farshid Aryanfar², Masum Hossain¹  
¹University of Alberta, Canada; ²Straight Path Communications, USA |
| 124  | 11:00| A 16-Element 4-Beam 1GHz-IF 100MHz-Bandwidth Interleaved Bit-Stream Digital Beamformer in 40nm CMOS | Sunmin Jang¹, Jaehun Jeong², Rundao Lu¹, Michael P. Flynn¹  
¹University of Michigan, USA; ²Broadcom, USA |

### RMO2B: Modeling and Characterization for Emerging High Frequency and RF Front-End Applications

*Chair: Tzung-Yin Lee, Skyworks Solutions — Co-Chair: Edward Preisler, TowerJazz*

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<td>Fadoua Gacim, Philippe Descamps, CRISMAT, France</td>
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<td>A Simplified CMOS FET Model Using Surface Potential Equations for Inter-Modulation Simulations of Passive-Mixer-Like Circuits</td>
<td>Mahmood Baraani Dastjerdi, Harish Krishnaswamy, Columbia University, USA</td>
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<td>Broadband Effect of Linear Tapered Transitions Between Probe Pads and GCPW Signal Lines On-Chip</td>
<td>Tinus Stander, University of Pretoria, South Africa</td>
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<td>Accurate EM Simulation of SMT Components in RF Designs</td>
<td>Weimin Sun, Skyworks Solutions, USA</td>
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<td>144</td>
<td>11:20</td>
<td>Variation of Intrinsic Components from Small-Signal Model of AlGaN/GaN HEMTs in Linear and Saturation Regions After Off-State Bias</td>
<td>Yue-ming Hsin, Yi-Nan Zhong, Zhen-Wei Liu, National Central University, Taiwan</td>
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### RMO2D: Millimeter-Wave and THz Sources

**Chair:** Mohyee Mikhemar, Broadcom — **Co-Chair:** Ehsan Afshari, University of Michigan  
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<td>An 8-Element Common-Mode-Coupled 106GHz Fundamental Oscillator with -111 dBc/Hz Phase Noise at 1MHz Offset</td>
<td>Alireza Imani, Hossein Hashemi, University of Southern California, USA</td>
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| 152  | 10:20| A 195GHz Single-Transistor Fundamental VCO with 15.3% DC-to-RF Efficiency, 4.5mW Output Power, Phase Noise FoM of -197dBc/Hz and 1.1% Tuning Range in a 55nm SiGe Process | Hamid Khatibi1, Somayeh Khiyabani1, Andreia Cathelin2, Ehsan Afshari3  
1Cornell University, USA 2STMicroelectronics, France 3University of Michigan, USA |
| 156  | 10:40| Energy Efficient Distributed-Oscillators at 134 and 202GHz with Phase-Noise Optimization through Body-Bias Control in 28nm CMOS FDSOI Technology | Raphaël Guillaume1, François Rivet2, Andreia Cathelin1, Yann Deval2  
1STMicroelectronics, France 2IMS (UMR 5218), France |
| 160  | 11:00| A Lens-Integrated 430GHz SiGe HBT Source with up to -6.3dBm Radiated Power | Philipp Hillger1, Janusz Gryziñ1, Stefan Malz1, Bernd Heinemann2, Ulrich Pfeiffer1  
1Bergische Universität Wuppertal, Germany 2HII, Germany |
| 164  | 11:20| An Ultra-Wideband Harmonic Radiator with a Tuning Range of 62GHz (28.3%) at 220GHz | Ali Mostajeran, Ehsan Afshari, Cornell University, USA |

### RMO3A: Ultra-Low Power Wake-Up Receivers

**Chair:** David Wentzloff, University of Michigan — **Co-Chair:** Arun Natarajan, Oregon State University  
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<td>A 2.4GHz BLE-Compliant Fully-Integrated Wakeup Receiver for Latency-Critical IoT Applications Using a 2-Dimensional Wakeup Pattern in 90nm CMOS</td>
<td>Ming Ding, Peng Zhang, Chuang Lu, Yan Zhang, Stefano Traferro, Gert-Jan van Schalk, Yao-Hong Liu, Jarlko Huijts, Christian Bachmann, Guido Dolmans, Kathleen Philips, Holst Centre, The Netherlands</td>
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| 172  | 13:50| 95μW 802.11g/n Compliant Fully-Integrated Wake-Up Receiver with -72dBm Sensitivity in 14nm FinFET CMOS | Erkan Alpman1, Ahmad Khairi2, Minyoung Park1, V. Srinivasa Somayazulu1, Jeffrey R. Foerster1, Ashoke Ravi1, Stefano Pellerano1  
1Intel, USA 2Carnegie Mellon University, USA |
| 176  | 14:10| A 335μW -72dBm Receiver for FSK Back-Channel Embedded in 5.8GHz Wi-Fi OFDM Packets | Jaeho Im, Hun-Soek Kim, David D. Wentzloff, University of Michigan, USA |
| 180  | 14:30| A 365nW -61.5dBm Sensitivity, 1.875cm² 2.4GHz Wake-Up Receiver with Rectifier-Antenna Co-Design for Passive Gain | Kamala Raghavan Sadagopan1, Jian Kang1, Sanket Jain1, Yogesh Ramadass2, Arun Natarajan1  
1Oregon State University, USA 2Texas Instruments, USA |
| 184  | 14:50| A 64μW, 23dB Gain, 8dB NF, 2.4GHz RF Front-End for Ultra-Low Power Internet-of-Things Transceivers | Anjana Dissanayake, Hyun-Gi Seok, Oh-Yong Jung, Sok-Kyun Han, Sang-Gug Lee, KAIST, Korea |
# RMO3B: Next Generation Transmitters and Receivers for Cellular and Wireless Connectivity

*Chair: Julian Tham, Cypress Semiconductor — Co-Chair: Yuan-Hung Chung, MediaTek*

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<td>A Wideband Linear Direct Digital RF Modulator Using Harmonic Rejection and I/Q-Interleaving RF DACs</td>
<td>Mehrpoo, Hashemi, Shen, van Leuken, Alavi, de Vreede</td>
<td>TU Delft, Netherlands</td>
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<td>192</td>
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<td>A Dual Core Power Combining Digital Power Amplifier for 802.11b/g/n with +26.8dBm Linear Output Power in 28nm CMOS</td>
<td>Wong, Godoy, Carnu, Li, Zhao, Olyaei, Ghaffari, Tam, Winoto, Tsang</td>
<td>Marvell Semiconductor, USA</td>
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<td>A Fully-Integrated Digital-Intensive Polar Doherty Transmitter</td>
<td>Shen, Mehrpoo, Hashemi, Polushkin, Zhou, Acar, van Leuken, Alavi, de Vreede</td>
<td>TU Delft, Netherlands; Ampleon, Netherlands</td>
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<td>A 2×2 802.11ac WiFi Transceiver Supporting Per Channel 160MHz Operation in 28nm CMOS</td>
<td>Li, Chan, Tsai, Liu, Chang, Lai, Chiang, Lin, Wu, Huang, Yeh, Chen, Hsu, Wu, Yu, Chang, Yang, Sun, Hsu, Chuan, Chang, Korea</td>
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<td>204</td>
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<td>A Current-Efficient Wideband Cellular RF Receiver for Multi-Band Inter- and Intra-Band Carrier Aggregation Using 14nm FinFET CMOS</td>
<td>Kim, Jang, Jin, Lee, Shin, Ahn, Bae, Han, Heo, Cho</td>
<td>Samsung, Korea</td>
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RMO3D: X Band PAs and Beyond
Chair: Jeffrey Walling, University of Utah — Co-Chair: Ranjit Gharpurey, University of Texas at Austin
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1 Fully Integrated CMOS X-Band Power Amplifier Quad with Current Reuse and Dynamic Digital Feedback (DDF) Capabilities
Florian Bohn, Behrooz Abiri, Ali Hajimiri, Caltech, USA

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2 A 42–46.4% PAE Continuous Class-F Power Amplifier with Cgd Neutralization at 26–34GHz in 65nm CMOS for 5G Applications
Sheikh Nijam Ali1, Pawan Agarwal1, Shahriar Mirabbasi2, Deukhyoun Heo1
1Washington State University, USA ; 2University of British Columbia, Canada

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3 Waveform Engineering in a mm-Wave Stacked-HBT Switching Power Amplifier
Kunal Datta, Hossein Hashemi, University of Southern California, USA

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4 Linear CMOS Power Amplifier at Ka-Band with Ultra-Wide Video Bandwidth
Daechul Jeong1, Kyunghoon Moon1, Seokwon Lee1, Byungjoon Park2, Jihoon Kim2, Juho Son2, Bumman Kim1
1POSTECH, Korea ; 2Samsung, Korea

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5 Adaptive Gain and Phase Adjustment for Local Linearization of Power Amplifiers of Micro/mm-Wave Phase Arrays
Farid Shirinfar1, Reza Roufougaran2, Sudhakar Pamarti1
1University of California, Los Angeles, USA ; 2Movandi, USA

RMO4A: Low-Power Transceivers
Chair: Gernot Hueber, NXP Semiconductors — Co-Chair: Yao-Hong Liu, imec
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6 Crystal-Free Narrow-Band Radios for Low-Cost IoT
Brad Wheeler, Filip Maksimovic, Nima Baniasadi, Sahar Mesri, Osama Khan, David Burnett, Ali Niknejad, Kris Pister, University of California, Berkeley, USA

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7 A 4mW-RX 7mW-TX IEEE 802.11ah Fully-Integrated RF Transceiver
Ao Ba, Kia Salimi, Paul Mateman, Pepijn Boer, Johan van den Heuvel, Jordy Gloumemans, Johan Dijkhuis, Ming Ding, Yao-Hong Liu, Christian Bachmann, Guido Dolmans, Kathleen Philips, Holst Centre, The Netherlands

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8 A Sub-1V, 2.8dB NF, 475μW Coupled LNA for Internet of Things Employing Dual-Path Noise and Nonlinearity Cancellation
Mustafijur Rahman, Ramesh Harjani, University of Minnesota, USA

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9 A Fully Integrated Reconfigurable Low-Power Sub-GHz Transceiver for 802.11ah in 65nm CMOS
Meng Wei, Zheng Song, Pelyi Li, Jianfu Lin, Junfeng Zhang, Jiachen Hao, Baoyong Chi, Tsinghua University, China

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10 A 3.4Mbps NFC Card Emulator Supporting 40mm2 Loop Antenna
Tieng Ying Choke1, Ying Chow Tan1, Chin Heng Leow1, Junmin Cao1, Liming Jin1, Huajiang Zhang1, Hon Cheong Hor1, Eng Chuan Low1, Weimin Shu1, Osama Shama’a2
1MediaTek, Singapore ; 2MediaTek, USA
A 12-b, 1-GS/s 6.1mW Current-Steering DAC in 14nm FinFET with 80dB SFDR for 2G/3G/4G Cellular Application
Jaekwon Kim, Woojin Jang, Yanghun Lee, Seunghyun Oh, Jongwoo Lee, Thomas Byunghak Cho, Samsung, Korea

CMOS Integrated Galvanically Isolated RF Chip-to-Chip Communication Utilizing Lateral Resonant Coupling
Mahdi Javid\(^1\), Richard Burton\(^2\), Karel Ptacek\(^3\), Jennifer Kitchen\(^1\)
\(^1\)Arizona State University, USA; \(^2\)Atomera, USA; \(^3\)ON Semiconductor, Czech Republic

A 200\(\mu\)m \(\times\) 200\(\mu\)m \(\times\) 100\(\mu\)m, 63nW, 2.4GHz Injectable Fully-Monolithic Wireless Bio-Sensing System
S. O’Driscoll\(^1\), S. Korhumel\(^1\), P. Cong\(^1\), Y. Zou\(^1\), K. Sankaragomathi\(^1\), J. Zhu\(^2\), T. Deyle\(^3\), A. Dastgheib\(^1\), B. Lu\(^1\), M. Tierney\(^1\), J. Shao\(^1\), C. Gutierrez\(^1\), S. Jones\(^1\), H. Yao\(^1\)
\(^1\)Verily, USA; \(^2\)Google, USA; \(^3\)Cobalt Robotics, USA

SiGe BiCMOS Linear Modulator Drivers with 4.8-Vpp Differential Output Swing for 120-Gbaud Applications
Robert J.A. Baker\(^1\), James Hoffman\(^1\), Peter Schvan\(^2\), Sorin P. Voinigescu\(^1\)
\(^1\)University of Toronto, Canada; \(^2\)Ciena, Canada

A 32Gbps-NRZ, 15Gbaud/s-PAM4 DFB Laser Driver with Active Back-Termination in 65nm CMOS
Bozhi Yin\(^1\), Nan Qi\(^1\), Jingbo Shi\(^1\), Xi Xiao\(^2\), Daigao Chen\(^2\), Miaofeng Li\(^2\), Zhiyong Li\(^3\), Jiangbing Du\(^4\), Zuyuan He\(^4\), Rui Bai\(^5\), Yi Wang\(^6\), Jun Zheng\(^6\), Fred Chang\(^6\), Huanlin Zhang\(^6\), Patrick Yin Chiang\(^1\)
\(^1\)Fudan University, China; \(^2\)Wuhan Research Institute of Post & Telecommunication, China; \(^3\)Chinese Academy of Sciences, China; \(^4\)Shanghai Jiao Tong University, China; \(^5\)PhotonIC Technology, China; \(^6\)Applied Optoelectronics, USA
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RM04D: Reconfigurable Receiver Front-Ends
Chair: Eric Klumperink, University of Twente — Co-Chair: Ramesh Harjani, University of Minnesota
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A 0.3GHz to 1.4GHz N-Path Mixer-Based Code-Domain RX with TX Self-Interference Rejection
Abhishek Agrawal, Arun Natarajan, Oregon State University, USA

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A 0.7 to 1GHz Switched-LC N-Path LNA Resilient to FDD-LTE Self-Interference at ≥40MHz Offset
Gengzhen Qi1, Barend van Liempd2, Pui-In Mak1, Rui P. Martins1, Jan Craninckx2
1University of Macau, China ; 2imec, Belgium

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A Mixer-First Receiver with Enhanced Selectivity by Capacitive Positive Feedback Achieving +39dBm IIP3 and <3dB Noise Figure for SAW-Less LTE Radio
Yuanching Lien1, Eric Klumperink1, Bernard Tenbroek2, Jon Strange2, Bram Nauta1
1University of Twente, The Netherlands ; 2MediaTek, UK

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A Bi-Directional, X-Band 6-Bit Phase Shifter for Phased Array Antennas Using an Active DPDT Switch
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Laya Mohammadi, Kwang-Jin Koh, Virginia Tech, USA

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1Queen's University, Canada ; 2Huaqiao University, China

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1Fraunhofer FHR, Germany ; 2Airbus Defence & Space, Germany ; 3Infineon Technologies, Germany ; 4Ruhr-Universität Bochum, Germany

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Kerim Kibaroglu, Gabriel M. Rebeiz, University of California, San Diego, USA
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K. Katayama¹, S. Amakawa¹, K. Takano¹, T. Yoshida¹, M. Fujishima¹, K. Hisamitsu², H. Takatsuka²
¹Hiroshima University, Japan ; ²Mie Fujitsu Semiconductor, Japan

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M. Sadegh Dadash¹, Juergen Hasch², Sorin P. Voinigescu¹
¹University of Toronto, Canada ; ²Robert Bosch, Germany

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Wei Gao¹, Handoko Linewih¹, Suh-Fei Lim¹, Jian-Hsing Lee², Sern-Ee Leang¹
¹GLOBALFOUNDRIES, Singapore ; ²GLOBALFOUNDRIES, USA

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Christian v. Vangerow¹, Benjamin Goettel¹, Herman Jalli Ng², Dietmar Kissinger², Thomas Zwick¹
¹KIT, Germany ; ²IHP, Germany

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Jingzhi Zhang, Huihua Liu, Yunqiu Wu, Chenxi Zhao, Kai Kang, UESTC, China

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Jaeyong Ko¹, Sungbo Lee², Sangwook Nam¹
¹Seoul National University, Korea ; ²KETI, Korea
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