RFIC RECEPTION, JOINT INDUSTRY SHOWCASE & INTERACTIVE FORUM

19:30–21:30 | Sunday, 4 June 2017
Hilton Hawaiian Village Waikiki Beach Resort, Coral Lounge

**Chair:** Brian Floyd, *North Carolina State University*

The Industry Showcase Session, held concurrently with the plenary reception and the Interactive Forum, will highlight 10 selected papers submitted by authors from industry. Authors of these papers will be present to discuss their innovative work, summarized in poster format, and some will also show a demonstration. The media will cover this event, making it an excellent opportunity to announce the latest RFIC developments and breakthroughs. The Best Industry Paper Award will be awarded to the author of one selected paper among these. This year’s Industry Showcase papers are listed below.

**A 28GHz CMOS Direct Conversion Transceiver with Packaged Antenna Arrays for 5G Cellular System (RMO1A-3)**
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-Young Du, Yu-Suhk Suh, Yo-Chuol Ho; *LG Electronics, Korea*

**A 73GHz PA for 5G Phased Arrays in 14nm FinFET CMOS (RTU2D-5)**
Steven Callender, Stefano Pellerano, Christopher Hull; *Intel, USA*

**A Fully Integrated 75–83GHz FMCW Synthesizer for Automotive Radar Applications with -97dBc/Hz Phase Noise at 1MHz Offset and 100GHz/μSec Maximal Chirp Rate (RMO1D-2)**
Jakob Vovnoboy, Run Levinger, Nadav Mazor, Danny Elad; *ON Semiconductor, Israel*

**A 200μm × 200μm × 100μm, 63nW, 2.4GHz Injectable Fully-Monolithic Wireless Bio-Sensing System (RMO4B-3)**
S. O’Driscoll¹, S. Korhummel¹, P. Cong¹, Y. Zou¹, K. Sankaragomathi¹, J. Zhu², T. Deyle³, A. Dastgheib⁴, B. Lu¹, M. Tierney¹, J. Shao¹, C. Gutierrez¹, S. Jones¹, H. Yao¹; ¹Verily, USA, ²Google, USA, ³Cobalt Robotics, USA

**A 95μW 802.11g/n Compliant Fully-Integrated Wake-Up Receiver with -72dBm Sensitivity in 14nm FinFET CMOS (RMO3A-2)**
Erkan Alpman¹, Ahmad Khairi², Minyoung Park¹, V. Srinivasa Somayazulu¹, Jeffrey R. Foerster¹, Ashoke Ravi¹, Stefano Pellerano¹; ¹Intel, USA, ²Carnegie Mellon University, USA

**A 4mW-RX 7mW-TX IEEE 802.11ah Fully-Integrated RF Transceiver (RMO4A-2)**
Ao Ba, Kia Salimi, Paul Mateman, Pepijn Boer, Johan van den Heuvel, Joryd Gloudehans, Johan Dijkhuis, Ming Ding, Yao-Hong Liu, Christian Bachmann, Guido Dolmans, Kathleen Philips; *Holst Centre, The Netherlands*

**A Wideband SiGe BiCMOS Transceiver Chip-Set for High-Performance Microwave Links in the 5.6–43.5GHz Range (RTU2B-3)**
Y. Baeyens¹, S. Shahraramian¹, B. Jalali¹, P. Roux¹, J. Weiner¹, A. Singh¹, M. Moretto², P. Boutet², P. Lopez²; ¹Nokia Bell Labs, USA, ²Nokia, France

**A 12-b, 1-GS/s 6.1mW Current-Steering DAC in 14nm FinFET with 80dB SFDR for 2G/3G/4G Cellular Application (RMO4B-1)**
Jaekwon Kim, Woojin Jang, Yangyun Lee, Seunghyun Oh, Jongwoo Lee, Thomas Byunghak Cho; *Samsung, Korea*

**RF-pFET in Fully Depleted SOI Demonstrates 420GHz FT (RMO1B-3)**
Josef Watts¹, Kumaran Sundaram², Kok Wai Johnny Chew², Steffen Lehmann², Shih Ni Ong², Wai Heng Chow², Lye Hock Chan³, Jerome Mazurier³, Christoph Schwan³, Yogadissen Andee⁴, Thomas Feudel⁴, Luca Pirro⁴, Elke Erben⁴, Edward Nowak¹, Elliot Smith³, El Mehdi Bazizi³, Thorsten Kammler³, Richard Taylor III³, Bryan Rice³, Thorsten Kammler³, Richard Taylor III³, Bryan Rice³, David Harame³; ¹GLOBALFOUNDRIES, USA, ²GLOBALFOUNDRIES, Singapore, ³GLOBALFOUNDRIES, Germany, ⁴CEA-LETI, France

**A Precision 140MHz Relaxation Oscillator in 40nm CMOS with 28ppm/°C Frequency Stability for Automotive SoC Applications (RSUIF-15)**
Dmytro Cherniak, Roberto Nonis, Fabio Padovan; *Infineon Technologies, Austria*
An FTNC Receiver with +32.5dBm Effective OB-IIP3 Using Baseband IM3 Cancellation (RSUIF-1)
Yudong Zhang, Jianxun Zhu, Peter R. Kinget; Columbia University, USA

Envelope Time-Domain Characterizations to Assess In-Band Linearity Performances of Pre-Matched MASMOS Power Amplifier (RSUIF-2)
F. Simbélé1, V. Gillet1, S. Laurent1, P. Médrel1, Y. Creveuil2, M. Régis2, M. Prigent1, R. Quéré1; 1XLIM, France, 2ACCO Semiconductor, France

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

A Fully-Integrated SOI CMOS Complex-Impedance Detector for Matching Network Tuning in LTE Power Amplifier (RSUIF-4)
D. Nicolas1, A. Serhan1, A. Giry1, T. Parra2, E. Mercier3; 1CEA-LETI, France, 2LAAS, France

V-Band Flip-Chip pHEMT Balanced Power Amplifier with CPWG-MS-CPWG Topology and CPWG Lange Couplers (RSUIF-5)
Wei-Ling Chang1, Jen-Yi Su1, Chinchun Meng1, Chia-Hung Chang2, Guo-Wei Huang2; 1National Chiao Tung University, Taiwan, 2National Nano Device Laboratories, Taiwan

Multi-Standard 5Gbps to 28.2Gbps Adaptive, Single Voltage SerDes Transceiver with Analog FIR and 2-Tap Unrolled DFE in 28nm CMOS (RSUIF-6)
Mohammad Mahani1, Rod Zavari1, Su-Tarn Lim1, David Hong1, Karl Scheffer1, Peter Graumann1, Hans Ransijn2, Tomas Dusatko2, Stanley Ho3, Philip Snyder3, Jomy Joy4, Suresh Nalluri4, Tony Zortea2; 1Microsemi, Canada, 2Multiphy, USA, 3Inphi, Canada, 4Texas Instruments, India

A Harmonic-Selective Wireless Full-Band-Capture Receiver with Digital Harmonic Rejection Calibration (RSUIF-7)
Hao Wu, David Murphy, Hooman Darabi; Broadcom, USA

A 40GHz PLL with -92.5dBc/Hz In-Band Phase Noise and 104fs-RMS-Jitter (RSUIF-8)
Ying Chen1, Louis Praamsma1, Nikola Ivanisevic2, Domine M.W. Leenaerts1; 1NXP Semiconductors, The Netherlands, 2KTH, Sweden

A High-Efficiency Linear Power Amplifier for 28GHz Mobile Communications in 40nm CMOS (RSUIF-9)
Yang Zhang, Patrick Reynaert; Katholieke Universiteit Leuven, Belgium

An Analysis of Phase Noise Requirements for Ultra-Low-Power FSK Radios (RSUIF-10)
Xing Chen, Hun-Seok Kim, David D. Wentzloff; University of Michigan, USA

A Ka-Band 4-Ch Bi-Directional CMOS T/R Chipset for 5G Beamforming System (RSUIF-11)
JangHoon Han, JinHyun Kim, Jeongsso Park, JeongGuen Kim; Kwangwoon University, Korea

A 32GHz 20dBm-PSAT Transformer-Based Doherty Power Amplifier for Multi-Gb/s 5G Applications in 28nm Bulk CMOS (RSUIF-12)
Paramartha Indirayanti, Patrick Reynaert; Katholieke Universiteit Leuven, Belgium

A 10–40GHz Frequency Quadrupler Source with Switchable Bandpass Filters and >30dBc Harmonic Rejection (RSUIF-13)
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 (RSUIF-14)
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 (RSUIF-15)
Dmytro Cherniak, Roberto Nonis, Fabio Padovan; Infineon Technologies, Austria