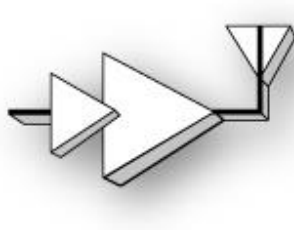
2014 Power Amplifier Symposium
Advance Program



Monday, September 15

7:30 Registration and Continental Breakfast

Welcome Session

8:15 "Welcome & Introduction to the Power Amplifier Symposium"
Paul Draxler, General Chair

Session 1: Millimeter-wave PAs and Transmitters for 5G and Beyond

8:30 "Mobile Communication beyond 6GHz and its Impact on Power Amplifier Requirements" ***(Invited)***
Farshid Aryanfar, Jerry Pi, Hongyu Zhou, Thomas Henige, Gary Xu, Shadi Abu-Surra, Dimitris Psychoudakis and Farooq Khan,
Samsung Research America, Richardson, TX

9:00 "Transmitter Architecture Based on Frequency Quadrupling and Digital Predistortion for Mm-Wave Operation"
Gang Liu, Youjiang Liu, James Buckwalter and Peter Asbeck
University of California, San Diego, La Jolla, CA

9:20 "A 94 GHz Doherty Digital-to-RF Converter in 45 nm SOI CMOS"
Po-Yi Wu, Peter Asbeck, and James Buckwalter
University of California, San Diego, La Jolla, CA

9:40 "Large-Signal Performance of AlInN/GaN-on-Silicon HEMTs at 94 GHz"
D. Marti, S. Tirelli, V. Teppati, L. Lugani, M. Malinverni, J.-F. Carlin, N. Grandjean and **C. R. Bolognesi**,
Eidgenössische Technische Hochschule (ETH), Zurich, Switzerland and Ecole Polytechnique Lausanne, Switzerland

10:10 Coffee break

Session 2: High-Efficiency Techniques for High-Frequency Amplifiers

10:40 "Power Amplifier Classes Based Upon Harmonic Approximation and Lumped-Element Networks" ***(Invited)***
Ramon Beltran,
Skyworks Solutions, Newbury Park, CA

11:10 "The Path to Efficient-yet-Linear Watt-class mmWave CMOS PAs: Device Stacking, Switch-mode Operation, Power Combining and Linearization" ***(Invited)***
Ritesh Bhat, Anandaroop Chakrabarti and **Harish Krishnaswamy**,
Columbia University, New York, New York

11:40 "Joint Circuit and Waveform Optimization for Spectrally Sensitive Power Amplifiers Using the Smith Tube"
Matthew Fellows, **Charles Baylis**, Matthew Flachsbart, Joseph Barkate, Jennifer Barlow, Lawrence Cohen, and Robert J. Marks II
Baylor University, Waco, TX and US Naval Research Laboratory, Washington, DC

12:00 LUNCH

Session 3: Digital Predistortion

1:30 "Concurrent Predistortion Linearization for Multiband Power Amplifiers" ***(Invited)***
Patrick Roblin, N. Naraharisetti, C. Quindroit, and M. Rawat
The Ohio State University, Columbus, OH

2:00 "DSP Predistortion for a High-Efficiency Outphasing Transmitter"
John Reyland, Dave Cripe and Andy Walker,
Rockwell Collins, Cedar Rapids, IA

2:20 "Under-Sampling Restoration Digital Predistortion for High Bandwidth Signals with a Slow ADC"
Youjiang Liu and Peter M. Asbeck,
University of California, San Diego, La Jolla, CA

2:40 "High Data Rate Modulation of Mm-Wave Power Amplifier /Antenna Arrays Using Digital Predistortion"
H. Dabag, B. Hanafi, O. Gurbuz, G. Rebeiz, P. Asbeck and J. Buckwalter
Qualcomm, San Diego, CA and University of California, San Diego, La Jolla, CA

3:00 Coffee Break

Session 4: Techniques for High-Efficiency and Linearization

3:30 "Channelized Active Noise Elimination (CANE) for Bit Stream RF Transmitters" ***(Invited)***
Rui Zhu, Yonghoon Song, and **Yuanxun Ethan Wang**
University of California, Los Angeles, CA

4:00 "30V Integrated Envelope Amplifier for Micro-Basestation Envelope Tracking Power Amplifiers" ***(Invited)***
Paul T. Theilmann, Toshifumi Nakatani, Jonmei J. Yan and Donald F. Kimball
MaXentric Technologies, San Diego, CA

4:20 "Programmable Power Amplifier Design with Digitally Improved Linearity and Efficiency Performances"
J.C. Clifton, A. Lawrenson, and L. Albasha.
Semiconductor and Electronic Solutions Sony, Hampshire, UK and American University of Sharjah, Sharjah, UAE

5:00 Reception

6:30 Banquet

Tuesday, September 16

7:30-8:25 Registration and continental breakfast

Session 5: CMOS Broadband and Doherty PAs

8:30 "Enhancing Doherty Power Amplifier Operation by A Digitally Reconfigurable Architecture" ***(Invited)***
Hua Wang and Song Hu
Georgia Tech, Atlanta, GA

9:00 "Broadband PA Techniques for Efficiency Enhancement" ***(Invited)***
Andrei Grebennikov
Microsemi, Aliso Viejo, CA

9:30 "A Novel Transformer-based Doherty CMOS Power Amplifier"
Boshi Jin, Jing-Hwa Chen, Paul Dicarlo, Steven Sprinkle, Florinel Balteanu, David Whitefield
Skyworks Solutions, Newbury Park, CA

9:50 Coffee break

Session 6: Outphasing Techniques and Thermal Effects

10:20 "A Fully Digital Delta-Sigma-Based Modulator for Switching-Mode Outphasing Power Amplifiers"
Hamed Gheidi, Toshifumi Nakatani, Vincent Leung, James Buckwalter and Peter M. Asbeck
University of California, San Diego, MaXentric, and Qualcomm, San Diego, CA

10:50 "A 1.1-Gbit/s, 10-GHz Outphasing Modulator with 23-dBm Output Power and 60-dB Dynamic Range in 45-nm CMOS SOI"
Mohammad S. Mehrjoo, Samet Zihir, Gabriel M. Rebeiz, and James F. Buckwalter
University of California, San Diego, La Jolla, CA

11:00 "The Impact of Electro-thermal Coupling on RF Power Amplifier Performance"
Matthew Ozalas
Keysight Technologies, Santa Rosa, CA

11:30 Conclusion of Symposium and Laboratory Tour