

2019 IEEE Topical Conference on RF/Microwave Power Amplifiers for Radio and Wireless Applications (PAWR 2019)

**Orlando, Florida, USA
20-23 January 2019**



**IEEE Catalog Number: CFP19PAR-POD
ISBN: 978-1-5386-5948-9**

**Copyright © 2019 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP19PAR-POD
ISBN (Print-On-Demand):	978-1-5386-5948-9
ISBN (Online):	978-1-5386-5947-2
ISSN:	2164-8751

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

2019 IEEE Topical Conference on RF/Microwave Power Amplifiers for Radio and Wireless Applications (PAWR)

PAWR I - Power Amplifier Modeling & Design

<i>Power Amplifiers in Cable Access Network</i>	
Zhixiong Ren (Huawei, P.R. China), Xiaoshu Si (Huawei, P.R. China), Tao Ouyang (Huawei, P.R. China)	1
<i>Cardiff Behavioural Model Analysis using a Two-Tone Stimulus</i>	
Azam Al-Rawachy (Cardiff University, United Kingdom (Great Britain) & Mosul University, Iraq), Thoalfukar Husseini (Technical Institute of Karbala, Al-Furat Al-Awsat Technical University, United Kingdom (Great Britain)), Johannes Benedikt (Cardiff University, United Kingdom (Great Britain)), Paul J Tasker (Cardiff University, United Kingdom (Great Britain)), James Joseph Watson Bell (Cardiff University, United Kingdom (Great Britain))	5
<i>Evidence for the Self-Enhanced Class J PA Operating Mode From Harmonic Load-Pull Measurements</i>	
Frederik Vanaverbeke (NXP Semiconductors, USA), Kevin Kim (RF Power, NXP Semiconductors, Chandler, AZ, USA), Philip Saint-erne (NXP Semiconductors, USA)	9
<i>Automatic Algorithm for the Direct Design of Asymmetric Doherty Power Amplifiers</i>	
Chenyu Liang (The Ohio State University, USA), Patrick Roblin (The Ohio State University, USA), Yunsik Hahn (The Ohio State University, USA)	13
<i>Simplified analysis of the effect of load variation in common Doherty power amplifier architectures</i>	
Roberto Quadria (Cardiff University, United Kingdom (Great Britain)), Jonathan Lees (Cardiff University, United Kingdom (Great Britain))	17

PAWR II High-Efficiency RF Power Amplifiers

<i>A Ka-Band Asymmetric Dual Input CMOS SOI Doherty Power Amplifier with 25 dBm Output Power and High Back-Off Efficiency</i>	
Narek Rostomyan (University of California San Diego, USA), Mustafa Ozen (University of California San Diego, USA), Peter Asbeck (University of California, San Diego, USA)	41
<i>A 40-MHz Bandwidth Pulse-Modulated Polar Transmitter for Mobile Applications</i>	
You-Huei Chen (National Taiwan University, Taiwan), Tzu-Han Wang (National Taiwan University, Taiwan), Shu-Chen Lin (National Taiwan University, Taiwan), Jau-Horng Chen (National Taiwan University, Taiwan), Yi-Jan Emery Chen (National Taiwan University, Taiwan)	45
<i>Design of a 110 W Wideband Inverse Class-F GaN HEMT Power Amplifier with 65% Efficiency over 100-1000 MHz Bandwidth</i>	
Adnan Raza (Qorvo, USA), Jeff Gengler (Qorvo, USA)	48

PAWR III RF Power Amplifier Technology

<i>Ka-Band 3-Stack Power Amplifier with 18.8 dBm Psat and 23.4 % PAE Using 22nm CMOS FDSOI Technology</i>	
Janne P Aikio (University of Oulu, Finland), Timo Rahkonen (University of Oulu, Finland), Aarno Pärssinen (University of Oulu, Finland), Nuutti Tervo (University of Oulu, Finland), Mikko Hietanen (University of Oulu, Finland)	79
<i>Ka-Band GaN-on-Si 4W MMIC High Power Amplifier for Millimetre-wave Radar</i>	
Elisa Cipriani (University of Rome Tor Vergata, Italy), Paolo Colantonio (University of Roma Tor Vergata, Italy), Franco Giannini (University of Tor Vergata, Rome, Italy)	82
<i>A 2-GHz Sampled Line Impedance Sensor for Power Amplifier Applications with Varying Load Impedance</i>	
Devon Donahue (University of Colorado, USA), Taylor Barton (University of Colorado, Boulder, USA)	85
<i>A Concurrent 2.2/3.9-GHz Dual-Band GaN Power Amplifier</i>	
Philip Zurek (University of Colorado at Boulder, USA), Tommaso Cappello (University of Colorado at Boulder, USA), Zoya Popović (University of Colorado at Boulder, USA)	88
<i>A Linearity Enhanced Power Recycling Pulse-Modulated Polar Transmitter Using Aliasing-Free Digital Pulsewidth Modulation</i>	
Tzu-Han Wang (National Taiwan University, Taiwan), You-Huei Chen (National Taiwan University, Taiwan), Shu-Chen Lin (National Taiwan University, Taiwan), Jau-Horng Chen (National Taiwan University, Taiwan)	92

PAWR IV Distortion Modeling and Reduction Techniques in RF Power Amplifiers

<i>Fixed Point Considerations for Digital Predistortion of a RF Power Amplifier Using Recursive Least Square (RLS) Estimation</i>	125
R. Neil Braithwaite (Consultant, Orange 92867 USA, USA)	
<i>A Reduced-Complexity Doubly Orthogonal Matching Pursuit Algorithm for Power Amplifier Sparse Behavioral Modeling</i>	128
Juan A. Becerra (Universidad de Sevilla, Spain & University of Delaware, USA), Maria J. Madero-Ayora (Universidad de Sevilla, Spain), Javier Reina-Tosina (Universidad de Sevilla, Spain), Carlos Crespo-Cadenas (Universidad de Sevilla, Spain), Javier Garcia-Frias (University of Delaware, USA), Gonzalo Arce (University of Delaware, USA)	
<i>Dynamic Selection and Update of Digital Predistorter Coefficients for Power Amplifier Linearization</i>	131
Quynh Anh Pham (Universitat Politècnica de Catalunya, Spain), David López-Bueno (Centre Tecnològic de Telecommunications de Catalunya (CTTC/CERCA), Spain), Gabriel Montoro (Universitat Politècnica de Catalunya, Spain), Pere Gilabert (Universitat Politècnica de Catalunya, Spain)	
<i>Characterization of Power Amplifiers under Multi-Tone Excitation for Wide-Bandwidth Carrier Aggregation Applications</i>	135
Kevin Chuang (NanoSemi, Inc., USA)	
<i>A Versatile Wideband Linearizer/Driver Amplifier for Use with Multiple Millimeter-wave TWTAs</i>	139
Allen Katz (The College of New Jersey, USA), Robert Gray (Linearizer Technology, Inc, USA), Roger Dorval (Linearizer Technology, Inc, USA)	

RWW Poster I

<i>Wideband High Efficiency Power Amplifier Design Using Precise High Frequency Parasitics Modeling/Compensation for GaN-HEMTs</i>	224
Ahmed Sayed (Military Technical College & MTC, Egypt), Hesham Ahmed (Military Technical College, Egypt)	
<i>Broadband Parallel Doherty Power Amplifier in GaN for 5G Applications</i>	228
Jennifer Kitchen (ASU, USA), Sumit Bhardwaj (Arizona State University, USA)	
<i>An Efficient Linear Power Amplifier with 2nd Harmonic Injection</i>	231
Sushia Rahimizadeh (University of Colorado Boulder, USA), Tommaso Cappello (University of Colorado at Boulder, USA), Zoya Popović (University of Colorado at Boulder, USA)	
<i>Gate Leakage Current Effects on the Linearity of 28GHz CMOS SOI Power Amplifiers</i>	235
Baqher Rabet (University of California San Dieqo, USA), Narek Rostomyan (University of California San Diego, USA), Peter Asbeck (University of California, San Diego, USA)	
<i>A 19-43 GHz Linear Power Amplifier in 28nm Bulk CMOS for 5G Phased Array</i>	239
Mohamed Moussa Esmael (Analog Devices, Egypt), Mohamed Abdalla (Cairo University, Egypt), Islam Eshrah (Cairo University, Egypt)	