2020 International Workshop on Integrated Nonlinear Microwave and Millimetre-Wave Circuits (INMMiC 2020)

Cardiff, United Kingdom 16-17 July 2020



IEEE Catalog Number: CFP2
ISBN: 978-1

CFP2094A-POD 978-1-7281-2646-3

Copyright © 2020 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:
 CFP2094A-POD

 ISBN (Print-On-Demand):
 978-1-7281-2646-3

 ISBN (Online):
 978-1-7281-2645-6

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



2020 International Workshop on Integrated Nonlinear Microwave and Millimetre-Wave Circuits (INMMiC)



TABLE OF CONTENT

Technical Session THA – Characterisation – Thursday July, 16th, 2020

- THA-01 Transient Pulsed S-Parameters for Trapping Characterization.........1
- THA-02 Power Measurement Setup Development for On-Wafer Characterization at 185-191GHz......4
- THA-03 Dual Approach for the Characterization of the Thermal Resistance Impedance
 Using 30mega and Thermoreflectance Methods.............7
- THA-04 Characterising the Baseband Impedance of Supply Modulators Using Simple Modulated Signals........

Technical Session THB – Modelling – Thursday July, 16th, 2020

- THB-01 Nonlinear FET Modeling from a Single NVNA Measurement by Nonlinear Function Sampling.......13
- THB-02 Impact of the Location of Iron Buffer Doping on Trap Signatures in GaN HEMTs.......16
- THB-03 On the Delay Implementation in FET Large Signal Models......19
- THB-04 Evaluation of Thermal Impedance by 3Ω Method for Power Amplifier Behavioral Modeling.......22

Technical Session THC – Power Amplifiers I – Thursday July, 16th, 2020

- THC-01 A Load Modulated Balanced Amplifier with Linear Gain Response and Wide High-Efficiency Output Power Back-Off Region......25
- THC-02 Harmonic-Injection Class-EM/F3 Power Amplifier with Finite DC-Feed Inductance......28
- THC-03 D-Band Balanced PA with Wideband Performance in BiCMOS Technology......31
- THC-04 Design Strategy of a 2.8-3.6 GHz 20 W GaN Doherty Power Amplifier......34

Technical Session THD – Power Amplifiers II – Thursday July, 16th, 2020

- THD-01 Electro-magnetic Crosstalk Effects in a Millimeter-wave MMIC Stacked Cell......37
- THD-02 Power Combining Techniques for Space-Borne GaN SSPA in Ka-Band.......40
- THD-03 Efficiency Enhancement of A Broadband Sequential Power Amplifier Using Envelope Tracking......43
- THD-04 GaN Doherty MMIC Power Amplifiers for Satellite Ka-band Downlink......46

Technical Session FRA – Power Amplifiers III – Friday July, 17th, 2020

- FRA-01 Load-Pull Measurements Oriented to Harmonically-Tuned Power Amplifier Design.......49
- FRA-02 Solution for the Large-Signal Matching Problem: Maximizing the Efficiency Using X-parameters........52
- FRA-03 PA Design and Statistical Analysis Through X-par Driven Load-Pull and EM Simulations.......55
- FRA-04 A New Analytical Formulation for the Class F Mode........58

Technical Session FRB – IC Design – Friday July, 17th, 2020

- FRB-01 SiGe Sub-THz VCOs Design Approach for Imaging Applications...........61
- FRB-02 Design of a Ka-Band Single-Chip Front-End Based on a 100 nm GaN-on-Si Technology......64
- FRB-03 Gain Enhancement Technique for Monolithically Integrated Antennas.......67
- FRB-04 Low Power GaAs Digital and Analog Functionalities for Microwave Signal Conditioning in AESA Systems......70

Technical Session FRC – System Level Techniques – Friday July, 17th, 2020

- FRC-01 Sample Pruning Based on Leverage for Digital Pre-Distortion...........73
- FRC-02 Prediction of the Optimal Phase Shift Between Control Signals in Dual-Input Power Amplifiers......76
- FRC-03 Clipping-and-inverse-filtering Technique for Concurrent Multiband Transmitters.....79
- FRC-04 Optimising Linearity of Envelope Tracking Power Amplifier Using Baseband Linearisation Approach..........82