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EuMIC01 : Characterization and Modeling of GaN Microwave Devices

Chair: Angel Mediavilla, University of Cantabria, Spain — Co-Chair: Giorgio Leuzzi, Universita' dell Aquila, Italy
Venue: Charter 1, 08:30 - 10:10, Monday 10th October 2011

EuMIC02 : Integrated Transceiver and Measurement Systems

Chair: Herbert Zirath, Chalmers University, Sweden — Co-Chair: Massimo Comparini, Thales Alenia Space, Italy
Venue: Charter 2, 08:30 - 10:10, Monday 10th October 2011

EuMIC03 : Physics-Based Modeling and Characterization

Chair: Giovanni Ghione, Politecnico di Torino, Italy — Co-Chair: Frederic Aniel, IEF Universite Paris Sud, France
Venue: Charter 3, 08:30 - 10:10, Monday 10th October 2011

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[1] *University of Surrey, UK;* [2] *Freescale Semiconductor Inc., USA*

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[1] *Lahore University of Management Sciences, Pakistan;* [2] *University of Manchester, UK*

53 C **Comparison of Low-Frequency and Microwave Frequency Capacitance Determination Techniques for mm-Wave Schottky Diodes**
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[1] *Aalto University, Finland;* [2] *ESA, The Netherlands*

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[1] *Cascade Microtech, Germany;* [2] *STMicroelectronics, France;* [3] *Technische Universität Dresden, Germany*

EuMIC04 : Wide-Bandgap Based Circuits

Chair: Christophe Gaquiere, IEMN, France — Co-Chair: Derek Smith, OMMIC, France
Venue: Charter 6, 08:30 - 10:10, Monday 10th October 2011

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[1] *Sumitomo Electric Device Innovations Inc., Japan;* [2] *Sumitomo Electric Industries Ltd., Japan*

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[1] *Cassidian Electronics, Germany;* [2] *Fraunhofer IAF, Germany*

73 C **The Impact of Uniaxial Strain on Flicker Noise and Random Telegraph Noise of SiC Strained nMOSFETs in 40nm CMOS Technology**
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EuMIC05 : EuMIC Opening Session

Chair: Ali Rezazadeh, University of Mancester, UK — Co-Chair: John Atherton, WIN Semiconductors, UK
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[1] *Tohoku University, Japan;* [2] *Ruhr-Universität Bochum, Germany*

EuMIC06 : Characterization and Modeling of Microwave Devices and Circuits

Chair: Teresa M. Martin-Guerrero, Universidad de Malaga, Spain — Co-Chair: Fabio Filicori, Universita' di Bologna, Italy
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[1] *IEMN, France;* [2] *STMicroelectronics, France*

85 C **Active Fixture with Passive Tuners for Full-Range Load-Pull Measurements**
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[1] *RF Micro Devices, USA;* [2] *Lehigh University, USA*

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[1] *Technische Universität Darmstadt, Germany;* [2] *ACST GmbH, Germany*

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[1] *Katholieke Universiteit Leuven, Belgium;* [2] *Università di Ferrara, Italy;* [3] *Università di Messina, Italy*

EuMIC07: MMICs for 100 GHz and Above

Chair: Izzat Darwazeh, University College London, UK — Co-Chair: John Atherton, WIN Semiconductors, UK
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[1]Fraunhofer IAF, Germany; [2]KIT, Germany

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Mikko Varonen, Mikko Kärkkäinen, Dan Sandström, Kari A.I. Halonen, Aalto University, Finland

108 **C** **Compact Broadband MMIC Schottky Frequency Tripler for 75–140GHz**
Tero Kiuru[1], Juha Mallat[1], Antti V. Räisänen[1], Tapani Närhi[2]
[1]Aalto University, Finland; [2]ESA, The Netherlands

EuMIC08: Doherty and Switch Mode Amplifiers

Chair: Buman Kim, POSTECH, Korea — Co-Chair: Paolo Colantonio, Università di Roma "Tor Vergata", Italy
Venue: Charter 3, 13:40 - 15:00, Monday 10th October 2011

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D. Gruner, Khaled Bathich, Ahmed Al Tanany, Georg Boeck, Technische Universität Berlin, Germany

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EuMIC09: Gallium Nitride-Based Power Devices

Chair: Dimitris Pavlidis, Technische Universitat Darmstadt, Germany — Co-Chair: Frank Van Vliet, TNO, The Netherlands
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EuMIC10: Non-linear Microwave Circuit Design Tools

Chair: C. Camacho-Penalosa, Universidad de Malaga, Spain — Co-Chair: Alberto Santarelli, Universita di Bologna, Italy
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EuMIC11: Reconfigurable and Tuneable RF Circuits

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Venue: Charter 2, 15:40 - 17:00, Monday 10th October 2011

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R. Malmqvist[1], C. Samuelsson[1], W. Simon[2], D. Smith[3], P. Rantakari[4], T. Vähä-Heikkilä[4], S. Reyaz[5], J. Varis[4], R. Baggen[2]
[1]FOI, Sweden; [2]IMST GmbH, Germany; [3]OMMIC, France; [4]VTT Technical Research Centre of Finland, Finland; [5]Uppsala University, Sweden

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[1]Thales Alenia Space, France; [2]XLIM, France

168 **High Dynamic Range Bandpass Filters Design Based on Active Inductor**
Vincenzo Stornelli, Giorgio Leuzzi, Leonardo Pantoli, Stefano Del Re, Università dell'Aquila, Italy

172 **High-Linearity Reconfigurable Microstrip UWB Bandpass Filters**
K. Rabbi[1], L. Athukorala[1], C.J. Panagamuwa[2], J.C. Vardaxoglou[2], D. Budimir[1]
[1]University of Westminster, UK; [2]Loughborough University, UK

EuMIC12: Advanced Amplifier Solutions

Chair: Massimo Comparini, Thales Alenia Space, Italy — Co-Chair: Dominique Schreurs, K.U. Leuven, Belgium
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176 **Probe Based Simulation Technique for Modeling Saturated Power Amplifiers**
Charles F. Campbell, TriQuint Semiconductor, USA

180 **An Enhanced Modulated Waveform Measurement System for the Robust Characterization of Microwave Devices Under Modulated Excitation**
M. Akmal[1], J. Lees[1], Jiangtao Su[1], V. Carrubba[1], Z. Yusoff[1], S. Woodington[1], Johannes Benedikt[1], Paul J. Tasker[1], S. Bensmida[2], Kevin A. Morris[2], M. Beach[2], J.P. McGeehan[2]
[1]Cardiff University, UK; [2]University of Bristol, UK

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188 **A Highly Efficient Octave Bandwidth High Power Amplifier in GaN Technology**
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[1]Università di Roma "Tor Vergata", Italy; [2]Elettronica S.p.A., Italy

EuMIC13: Mixed-Signal Building Blocks for Wireless Transceivers

Chair: Wolfgang Bosch, TU Graz, Austria — Co-Chair: Ian Robertson, University of Leeds, UK
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196 **Low Phase Noise 77-GHz Fractional-N PLL with DLL-Based Reference Frequency Multiplier for FMCW Radars**
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[1]*Johannes Kepler Universität Linz, Austria;* [2]*DICE GmbH & Co KG, Austria*

200 **A Novel Low Cost High Performance Synthesizer**
Ajay K. Poddar[1], *Ulrich L. Rohde*[2]
[1]*Synergy Microwave Corporation, USA;* [2]*Brandenburgische Technische Universität Cottbus, Germany*

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Yasuaki Takeuchi, Kenichi Okada, Akira Matsuzawa, Tokyo Institute of Technology, Japan

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Venue: Charter 6, 15:40–17:00, Monday 10th October 2011

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Chih-Chun Shen, Hong-Yeh Chang, National Central University, Taiwan

212 **Ionization Effect on SiGe HBT Power Limitation in the Millimeter Wave Frequency Range**
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[1]*IEMN, France;* [2]*STMicroelectronics, France*

216 **24.8dBm Power Handling 60GHz Transmit/Receive Switch Using Series and Shunt FETs in 90nm Si-CMOS Process**
Shoichi Tanifuji, Noriharu Suematsu, Suguru Kameda, Tadashi Takagi, Kazuo Tsubouchi, Tohoku University, Japan

220 **A 130W LDMOS for 2.7–3.5GHz Broadband Radar Applications**
G. Formicone, B. Battaglia, J. Burger, R. Keshishian, J. Titizian, W. Veitschegger, Integra Technologies Inc., USA

EuMIC15: Silicon and III-V Based Technologies for Advanced Sub-mm Wave Applications

Chair: Gilles Dambrine, IEMN, France — Co-Chair: Michael Schlechtweg, Fraunhofer Institute IAF, Germany
Venue: Charter 2, 13:40 - 15:00, Tuesday 11th October 2011

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Yanfei Mao, K. Schmalz, J. Borngräber, J. Christoph Scheytt, IHP GmbH, Germany

228 **Design of Antenna-on-Chip, Antenna-on-Package and Detectors from RF, Microwave to THz Frequency Range in SiGe-C Technology**
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[1]NXP Semiconductors, France; [2]TNO, The Netherlands

232 **Schottky-Based THz-MIC-s**
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[1]ACST GmbH, Germany; [2]RPG Radiometer Physics GmbH, Germany

236 **300GHz Active Frequency-Tripler MMICs**
U.J. Lewark[1], Axel Tessmann[2], H. Massler[2], S. Wagner[2], A. Leuther[2], I. Kallfass[2]
[1]KIT, Germany; [2]Fraunhofer IAF, Germany

EuMIC16: EuMIC Closing Session

Chair: Ali Rezazadeh, University of Mancester, UK — Co-Chair: John Atherton, WIN Semiconductors, UK
Venue: Charter 8, 15:40 - 17:45, Tuesday 11th October 2011

(NA) **Foundry Panel Session**
Liam M. Devlin, Plextek Ltd., UK

EuMIC Poster01 : EuMIC Poster Session I

Chair: Zhipeng Wu, University of Manchester, UK

Venue: Foyer, 15:00 – 18:00, Monday 10th October 2011

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244 **S-Band Internally Harmonic Matched GaN FET with 330W Output Power and 62% PAE**
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Khaled Bathich, D. Gruner, Georg Boeck, Technische Universität Berlin, Germany

252 **A Broadband 200W GaN Push-Pull Power Amplifier Enhanced Second Harmonic Suppression with Point-Symmetric 2-Stage Baluns**
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260 **>41% Efficient 10W Envelope Modulated LTE Downlink Power Amplifier**
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[1] *Toshiba Research Europe Ltd., UK;* [2] *University of Bristol, UK*

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[1] *Thales Systèmes Aéroportés, France;* [2] *XLIM, France*

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[1] *Fraunhofer IIS, Germany;* [2] *Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany*

276 **Dynamic Extended Hammerstein Model of RF Power Amplifiers for Digital Predistortion**
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280 **Up-Converted Dual-Envelope Injection Enhanced Digital Predistortion for Inverse Class-E Power Amplifier Linearization**
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[1] *Tsinghua University, China;* [2] *CAEP, China*

284 **High Linearity MMIC Amplifiers for On-Board Satellite S-DMB Converters**
Yolanda Jato, Amparo Herrera, Universidad de Cantabria, Spain

288 **Low-Frequency Waveform Engineering Technique for Class-F Microwave Power Amplifier Design**
Sergio Di Falco[1], Antonio Raffo[1], Giorgio Vannini[1], Valeria Vadalà[2]
[1]Università di Ferrara, Italy; [2]MEC s.r.l, Italy

292 **A Power Amplifier Envelope Distortion Model Using Direct Calculation of Polynomial Parameters and Delay Taps**
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[1]University of Bristol, UK; [2]Cardiff University, UK

300 **Dual-Band Switching Doherty Power Amplifier Using Phase Shifter Composed of PIN Diode**
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[1]Yonsei University, Korea; [2]Ace Technologies Corp., Korea

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308 **Efficiency and Linearity Enhancements with Envelope Shaping Control in Dual-Band Envelope Tracking GaAs PA**
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[1]Università di Firenze, Italy; [2]Nujira Ltd., UK

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[1]Arizona State University, USA; [2]University of Waterloo, Canada

320 **Noise Shaped Pulse Position Modulation for RF Switch-Mode Power Amplifiers**
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[1]University of British Columbia, Canada; [2]PWRF Inc., USA

324 **Using the Best Linear Approximation to Model the Nonlinear Behavior of Supply Modulated Amplifiers**
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[1]Chalmers University of Technology, Sweden; [2]NMDG NV, Belgium; [3]Vrije Universiteit Brussel, Belgium

EuMIC Poster02 : EuMIC Poster Session II

Chair: Zhipeng Wu, University of Manchester, UK

Venue: Exhibition Hall, 12:30 – 18:00, Tuesday 11th October 2011

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[1] *Sumitomo Electric Industries Ltd., Japan;* [2] *Sumitomo Electric Device Innovations Inc., Japan*

332 **An Improved Large-Signal Model of GaN MISHEMT**
Lin-Sheng Liu, Fan He, Ericsson (China) Communications Co. Ltd., China

336 **Manga: Manufacturable GaN**
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[1] *Fraunhofer IAF, Germany;* [2] *SiCrystal AG, Germany;* [3] *Norstel AB, Sweden;* [4] *Alcatel-Thales III-V Lab, France;* [5] *Linköping University, Sweden;* [6] *Università di Padova, Italy;* [7] *Bristol University, UK*

340 **Small Signal and Pulse Characteristics of AlN/GaN MOS-HEMTs**
D. MacFarlane[1], *S. Taking*[1], *S.K. Murad*[2], *E. Wasige*[1]
[1] *University of Glasgow, UK;* [2] *NXP Semiconductors, The Netherlands*

344 **Low Noise Performances of Scalable Sub-Quarter-Micron GaN HEMT with Field Plate Technology**
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[1] *SELEX Sistemi Integrati S.p.A., Italy;* [2] *CNR-IFN, Italy;* [3] *Università di Roma "Tor Vergata", Italy*

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[1] *Saab AB, Sweden;* [2] *Chalmers University of Technology, Sweden*

352 **Thermal Stability of Gold Free Fully Cu/Ge Metalized GaAs pHEMT**
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[1] *Micran, Russia;* [2] *Submicron technologies Co. Ltd., Russia*

358 **A New GaAs Multi-Chip MMIC C-Band Variable Gain Amplifier for Point to Point Wireless Communication Systems**
Diana Zhang, James Tajadod, M/A-COM Technology Solutions, USA

362 **Nonlinearity Study of Double and Single Channel GaAs HEMTs**
Mayahsa Mohammed-Ali, Peter B.K. Kyabaggu, Emerson Sinulingga, Ali A. Rezazadeh, University of Manchester, UK

366 **Low Noise Room Temperature LNAs for the SKA**
E.E.M. Woestenburg, R.H. Witvers, L. Bakker, ASTRON, The Netherlands

370 **A Novel Small PHEMT LNA That Integrates Active Matching for 1 to 20GHz and 1.1dB NF Performance**
Henrik Morkner, Wayne Kennan, Tony Niedzwiecki, Tim Galla, M/A-COM Technology Solutions, USA

374 **Scalable Distributed Small-Signal Millimeter-Wave HEMT Model**
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[1] *Macquarie University, Australia;* [2] *Macom Technology Solutions, Australia*

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[1]*RWTH Aachen University, Germany;* [2]*National Chung Cheng University, Taiwan*

382 **2-Channel RF Front-End Design for K-Band Automotive Multi-Channel Radar in 0.18μm CMOS Technology**
Sung-Sun Choi, Han-Yeol Yu, Yong-Hoon Kim, GIST, Korea

386 **Bias Point Optimization for Low Power / Low Noise Applications of Advanced SiGe HBT**
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[1]*IEMN, France;* [2]*Infineon Technologies AG, Germany*

390 **A New Resonant Circuit for 2.45GHz LC VCO with Linear Frequency Tuning**
Samet Zihir, Ferhat Tasdemir, Tolga Dinc, Yasar Gurbuz, Sabanci University, Turkey

394 **Deep Level Impurity Engineered Semi-Insulating Cz-Silicon as Microwave Substrates**
K. Mallik[1], *A. Abuelgasim*[1], *P. Ashburn*[1], *C.H. de Groot*[1], *P.R. Wilshaw*[2]
[1]*University of Southampton, UK;* [2]*University of Oxford, UK*

398 **Influence of Beam Geometry on the Dielectric Charging of RF MEMS Switches**
Francesco Solazzi[1], *Giuseppe Resta*[1], *Viviana Mulloni*[1], *Benno Margesin*[1], *Paola Farinelli*[2]
[1]*FBK, Italy;* [2]*RF Microtech, Italy*

402 **Figures of Merit and Performance Measurements for RF and Microwave Tunable Matching Networks**
César Sánchez-Pérez, Jesús de Mingo, Paloma García-Dúcar, Pedro L. Carro, Antonio Valdovinos, Universidad de Zaragoza, Spain

EuMIC Poster Session II continued …

406 **A 38-GHz Down-Converter with Low Noise Variable Gain Amplifier Having 24dB Dynamic Range in SMT Package**
Khanhtran Phan, Avago Technologies, USA

410 **A Compact *L*-Band Broadband 6-Bit MMIC Phase Shifter with Low Phase Error**
Qun Xiao, M/A-COM Technology Solutions, USA

414 **Multi-Carrier Wideband Nonlinear Behavioral Modeling for Cognitive Radio Receivers**
Pedro Miguel Cruz, Nuno Borges Carvalho, Universidade de Aveiro, Portugal

418 **A Fractional-N PLL Spur and Phase Noise Simulator**
Andreas Lauer, Rüdiger Follmann, Matthias Quibeldey, Dietmar Köther, IMST GmbH, Germany

422 **Comparative Study of Space-Mapping-Based Optimization Techniques for Microwave Design**
Slawomir Koziel[1], *Qingsha S. Cheng*[2], *John W. Bandler*[2]
[1]*Reykjavik University, Iceland;* [2]*McMaster University, Canada*

426 **Nonlinear Behavior of AlN in BAW and CRF Devices for High RF Electric Field**
Walaa Sahyoun, Jean-Marc Duchamp, Philippe Benech, IMEP-LAHC, France

430 **Design and Analysis of Two Modified Colpitts VCOs With and Without Transformer Feedback**
Yuan-Ta Chiu, Chi-Hsien Lin, Hong-Yeh Chang, National Central University, Taiwan

434 **Design, Fabrication and Measurements of Reliable Low Voltage RF-MEMS Switched Varactors**
J. Gauvin[1], *Fabien Barrière*[1], *David Mardivirin*[1], *Arnaud Pothier*[1], *Aurélian Crunteanu*[1], *Pierre Blondy*[1], *O. Vendier*[2], *J.-L. Cazaux*[2]
[1]*XLIM, France;* [2]*Thales Alenia Space, France*

EuMIC Poster Session II continued …

438 **I-DLTS, Electrical Lag and Low Frequency Noise Measurements of Trapping Effects in AlGaN/GaN HEMT for Reliability Studies**
J.G. Tartarin[1], *S. Karboyan*[1], *F. Olivié*[1], *G. Astre*[1], *L. Bary*[1], *B. Lambert*[2]
[1]*LAAS, France;* [2]*UMS, France*

442 **A New Type of SiGe 3D Coplanar Strip and its Application to the Design of Low Loss ECPW and TFMS Series/Shunt Stubs**
K. Hettak[1], *T. Ross*[2], *J. Wight*[2], *G.A. Morin*[3]
[1]*Communications Research Centre Canada, Canada;* [2]*Carleton University, Canada;* [3]*Defence R&D Canada, Canada*

446 **Analysis of the Unbalanced Feeding Effect on Discrete Device with Large Die Size**
Qianli Mu, Howard Bartlow, Matthew Poulton, TriQuint Semiconductor, USA

450 **The Discharge Current Through the Dielectric Film in MEMS Capacitive Switches**
M. Kouteoureli, G. Papaioannou, University of Athens, Greece

454 **Wideband Time-Delay Circuit**
Yao-Wei Chang, Tzu-Chao Yan, Chien-Nan Kuo, National Chiao Tung University, Taiwan

458 **GaAs Resistor Model Predicting Harmonic, Transient and Breakdown**
Yu Zhu, Cejun Wei, Oleksiy Klimashov, Hong Yin, Cindy Zhang, Dylan Bartle, Skyworks Solutions Inc., USA

462 **Complex Loads for Millimeter-Wave Digital Phase Shifter Design**
Alexander Stark, Arne F. Jacob, Technische Universität Hamburg-Harburg, Germany

EuMIC Poster Session II continued …

466 **Capacitive Monitoring of Electrostatic MEMS Tunable Evanescent-Mode Cavity Resonators**
Xiaoguang Liu[1], *Adam Fruehling*[1], *Linda P.B. Katehi*[2], *William J. Chappell*[1], *Dimitrios Peroulis*[1]
[1]*Purdue University, USA;* [2]*University of California at Davis, USA*

470 **Effects of Inter-Chip and Intra-Chip Electromagnetic Interferences on PLL Frequency Pulling and Spurs**
Manohiaina Ranaivoniarivo, Sidina Wane, NXP Semiconductors, France

474 **Design and Verification of Built-in-Self-Test (BIST) for RF, and Microwave Applications**
Bilal Elkassir, Sidina Wane, NXP Semiconductors, France

478 **Nanoscale Characterization of Different Stiction Mechanisms in Electrostatic RF-MEMS Switches**
U. Zaghloul[1], *B. Bhushan*[2], *Patrick Pons*[1], *G. Papaioannou*[3], *F. Coccetti*[1], *R. Plana*[1]
[1]*LAAS, France;* [2]*Ohio State University, USA;* [3]*University of Athens, Greece*

482 **Systematic Pruning of Volterra Series Using Wiener G-Functionals for Power Amplifier and Predistorter Modeling**
Farouk Mkadem[1], *Slim Boumaiza*[1], *Joseph Staudinger*[2], *John Wood*[2]
[1]*University of Waterloo, Canada;* [2]*Freescale Semiconductor Inc., USA*

486 **Behavioral Modeling of MIMO Transmitters Exhibiting Nonlinear Distortion and Hardware Impairments**
D. Saffar[1], *N. Boulejfen*[2], *F. Ghannouchi*[3], *Mohamed Helaoui*[3], *A. Gharssalah*[1]
[1]*Faculté des Sciences de Tunis, Tunisia;* [2]*University of Ha'il, Saudi Arabia;* [3]*University of Calgary, Canada*

490 **S-Functions Mixer Modeling for Linearization Purposes**
Gian Piero Gibiino[1], *Alberto Santarelli*[1], *Saeed Farsi*[2], *Maciej Myslinski*[2], *G. Avolio*[2], *Dominique Schreurs*[2]
[1] *Università di Bologna, Italy;* [2] *Katholieke Universiteit Leuven, Belgium*

494 **Methods for Improving the Tuning Efficiency of Liquid Crystal Based Tunable Phase Shifters**
Onur Hamza Karabey, Braulio Gomez Saavedra, Carsten Fritzsch, Sebastian Strunck, Alexander Gaebler, Rolf Jakoby, Technische Universität Darmstadt, Germany

EuMC/EuMIC01 : Tuneable Filters and Phase Shifters

Chair: Klaus Beilenhoff, United Monolithic Semiconductors GmbH, Germany
Co-Chair: Frank van den Bogaart, TNO, The Netherlands
Venue: Charter 1, 08:30 – 10:10, Tuesday 11th October 2011

498 **A Novel Tunable Multimodal Bandpass Filter**
Adrián Contreras[1], *Lluís Pradell*[1], *Miquel Ribó*[2]
[1] *Universitat Politècnica de Catalunya, Spain;* [2] *Universitat Ramon Llull, Spain*

502 **Compact Tunable UHF Bandstop Resonator Filter Using Varactor-Loaded CPW Bottom-Side Meander Line**
Jiang Hu[1], *Benjamin Lacroix*[2], *John Papapolymerou*[2]
[1] *UESTC, China;* [2] *Georgia Institute of Technology, USA*

506 **A New Design of a Tunable WLAN-Band Pass Filter Using a Combination of Varactor Device, RF-Choke and Hairpin-Defected Ground Structure**
A. Boutejdar, A. Omar, M. Senst, E.P. Burte, A. Batmanov, R. Mikuta, OvG Universität Magdeburg, Germany

510 **Integrated Resistive Bias Network for Tunable Devices on Ferroelectric Ceramics**
Mohsen Sazegar, Arshad Mehmood, Yuliang Zheng, Holger Maune, Rolf Jakoby, Technische Universität Darmstadt, Germany

514 **RF-MEMS Tunable Evanescent Mode Cavity Filter in LTCC Technology at Ku-Band**
Benedikt Schulte[1], *Volker Ziegler*[1], *Bernhard Schoenlinner*[1], *Ulrich Prechtel*[1], *Hermann Schumacher*[2]
[1] *EADS Deutschland GmbH, Germany;* [2] *Universität Ulm, Germany*

EuMC/EuMIC02 : RF MEMS Phase Shifters and Tuneable Filters

Chair: Stepan Lucyszyn, Imperial College London, UK — Co-Chair: George Papaioannou, University of Athens, Greece
Venue: Charter 2, 08:30 - 10:10, Tuesday 11th October 2011

518 **Novel Millimeter-Wave Slow-Wave Phase Shifter Using MEMS Technology**
Maher Bakri-Kassem, Raafat R. Mansour, Safieddin Safavi-Naeini, University of Waterloo, Canada

522 **Continuously Tunable W-Band Phase Shifter Based on Liquid Crystals and MEMS Technology**
Carsten Fritzsch[1], Flavio Giacomozzi[2], Onur Hamza Karabey[1], Felix Goelden[1], Alexander Moessinger[1], Saygin Bildik[1], Sabrina Colpo[2], Rolf Jakoby[1]
[1]Technische Universität Darmstadt, Germany; [2]FBK, Italy

526 **Basic Concepts of Moving-Sidewall Tuneable Capacitors for RF MEMS Reconfigurable Filters**
U. Shah, M. Sterner, J. Oberhammer, KTH, Sweden

530 **A 2 Pole 9.6–11.7GHz Band Stop Filter Using Analog Tuning RF MEMS Varactors**
David Mardivirin, Fabien Barrière, Arnaud Pothier, Aurélian Crunteanu, Pierre Blondy, XLIM, France

534 **Design of Millimeter-Wave Reconfigurable Bandstop Filter Using CMOS-MEMS Technology**
Sheng-Chi Hsieh, Chien-Hsun Chen, Chun-Chi Lin, Chia-Chan Chang, National Chung Cheng University, Taiwan

EuMC/EuMIC03 : High Efficiency Power Amplifiers

Chair: Franco Giannini, Università di Roma "Tor Vergata", Italy — Co-Chair: Iltcho Angelov, Chalmers University, Sweden
Venue: Charter 3, 08:30 - 10:10, Tuesday 11th October 2011

538 **High Efficiency, Wide Band 50 Watt, 28V InGaP/GaAs HBT MMIC**
Wenlong Ma, Xiaopeng Sun, Philip Lam, Peter Hu, Jingshi Yao, Louis Liu, Frank Chau, Xiangkun Zhang, Barry Lin, TriQuint Semiconductor, USA

546 **A Compact 65W 1.7–2.3GHz Class-E GaN Power Amplifier for Base Stations**
Kanjun Shi[1], David A. Calvillo-Cortes[1], Leo C.N. de Vreede[1], Fred van Rijs[2]
[1]Technische Universiteit Delft, The Netherlands; [2]NXP Semiconductors, The Netherlands

550 **Effects of Gate Bias Voltage and Compression Level on a X-Band MMIC Class F^{-1} PA**
Elisa Cipriani, Paolo Colantonio, Franco Giannini, Rocco Giofrè, Università di Roma "Tor Vergata", Italy

542 **Harmonic Control in Package of Power GaN Transistors for High Efficiency and Wideband Performances in S-Band**
J. Chéron[1], M. Campovecchio[1], D. Barataud[1], T. Reveyrand[1], M. Stanislawiak[2], P. Eudeline[2], D. Floriot[3], W. Demenitroux[4]
[1]XLIM, France; [2]Thales Air Systems, France; [3]UMS, France; [4]AMCAD Engineering, France

554 **A 60GHz CMOS Power Amplifier Using Capacitive Cross-Coupling Neutralization with 16% PAE**
Hiroki Asada, Kota Matsushita, Keigo Bunsen, Kenichi Okada, Akira Matsuzawa, Tokyo Institute of Technology, Japan

EuMC/EuMIC04 : Silicon Microwave Circuits

Chair: Frank van Vliet, TNO, The Netherlands — Co-Chair: Ernesto Limiti, Università di Roma "Tor Vergata", Italy
Venue: Charter 6, 08:30 – 10:10, Tuesday 11th October 2011

558 **Compact Wideband Differential SiGe BiCMOS Low Noise Amplifier for Application in Digital Beam-Forming Receivers**
S. Chartier[1], *M. Epp*[1], *M. Böck*[1], *Martin Oppermann*[1], *P. Lohmiller*[2], *Hermann Schumacher*[2]
[1] *Cassidian Electronics, Germany;* [2] *Universität Ulm, Germany*

562 **A 10GHz Integrated Single Sideband Upconverter in 0.25μm BiCMOS Technology**
Lex de Boer[1], *Marien Rodenburg*[1], *Raymond van Dijk*[1], *Frank E. van Vliet*[1], *Marcel Geurts*[2]
[1] *TNO, The Netherlands;* [2] *NXP Semiconductors, The Netherlands*

566 **A High Power Handling Capability CMOS T/R Switch for X-Band Phased Array Antenna Systems**
Tolga Dinc, Samet Zihir, Ferhat Tasdemir, Yasar Gurbuz, Sabanci University, Turkey

569 **A Low Power 9.75/10.6GHz PLL in SiGe:C BiCMOS for Ku-Band Satellite LNBs**
P. Philippe[1], *Serge Bardy*[1], *Sidina Wane*[1], *F. Moreau*[1], *E. Thomas*[1], *L. Praamsma*[2]
[1] *NXP Semiconductors, France;* [2] *NXP Semiconductors, The Netherlands*

573 **A Variable Gain Distributed Amplifier with Low Voltage and Low Power in 0.18-μm CMOS Technology**
Ping Chen, Ze-Yu Liao, Che-Chung Kuo, Huei Wang, National Taiwan University, Taiwan

EuMC/EuMIC05 : Advances of Nanoelectronics in Radio Frequency Technology

Chair: Luca Pierantoni, Universita Politecnica delle Marche, Italy — Co-Chair: Fabio Conccetti, LAAS-CNRS, France
Venue: Charter 8, 08:30 – 10:10, Tuesday 11th October 2011

577 **Graphene Nano Ribbon Field Effect Transistor for High Frequency Applications**
H. Happy, N. Meng, R. Fleurier, E. Pichonat, D. Vignaud, G. Dambrine, IEMN, France

581 **Gyrotropic Properties of Graphene and Subsequent Microwave Applications**
Dimitrios L. Sounas, Christophe Caloz, École Polytechnique de Montréal, Canada

585 **Planar Terahertz Nanodevices**
Claudio Balocco[1], *Shahrir R. Kasjoo*[1], *Linqing Q. Zhang*[1], *Yasaman Alimi*[1], *Stephan Winnerl*[2], *Aimin M. Song*[1]
[1] *University of Manchester, UK;* [2] *HZDR, Germany*

589 **Wide Band Gap Self-Switching Nanodevices for THz Applications at Room Temperature**
C. Gaquiere[1], *G. Ducournau*[1], *P. Sangaré*[1], *B. Grimbert*[1], *M. Faucher*[1], *I. Iñiguez-de-la-Torre*[2], *A. Iñiguez-de-la-Torre*[2], *T. González*[2], *J. Mateos*[2]
[1] *IEMN, France;* [2] *Universidad de Salamanca, Spain*

592 **Quantum Circuit Theory**
Johannes A. Russer, Peter Russer, Technische Universität München, Germany

EuMC/EuMIC06 : Interconnects, Packaging , MCMs II

Chair: Dr. Marc van Heijningen, TNO, The Netherlands — Co-Chair: David Linton, Queens University ECIT, UK
Venue: Exchange Room 1, 08:30 - 10:10, Tuesday 11th October 2011

596 **Layout Efficient and High Performance Circular Spiral Inductors for Multilayer Multichip Modules**
K.K. Samanta, Ian D. Robertson, University of Leeds, UK

600 **Antenna-in-Package Solution for Millimeter-Wave Applications Implemented in a Microwave-Compatible Multilayer PCB Technology**
Amin Enayati[1], Walter Deraedt[1], Guy A.E. Vandenbosch[2], Antti V. Räisänen[3]
[1]IMEC, Belgium; [2]Katholieke Universiteit Leuven, Belgium; [3]Aalto University, Finland

604 **Wideband 3D Coplanar Waveguide to Thin-Film Microstrip Transition in Multilayer Technology**
Peter B.K. Kyabaggu, Emerson Sinulingga, Mayahsa M. Ali, Qing Sun, Ali A. Rezazadeh, University of Manchester, UK

608 **Electrical Characterization of Millimeter-Wave Interconnects on Low-k and Low-Loss Oxides for Advanced 3D Silicon Interposers**
B. Reig[1], P. Renaux[1], Henri Sibuet[1], D. Mercier[1], C. Mounet[1], Christine Ferrandon[1], Sylvain Joblot[2], Pierre Bar[2], Perceval Coudrain[2], Jean-François Carpentier[2], T. Lacrevaz[3], B. Flechet[3]
[1]CEA, France; [2]STMicroelectronics, France; [3]IMEP-LAHC, France

612 **A Silicon Platform with Through-Silicon Vias for Heterogeneous RF 3D Modules**
Pierre Bar[1], Sylvain Joblot[1], Perceval Coudrain[1], Jean-François Carpentier[1], B. Reig[2], Christine Fuchs[2], Christine Ferrandon[2], Jean Charbonnier[2], Henri Sibuet[2]
[1]STMicroelectronics, France; [2]CEA, France

EuMC/EuMIC07 : Frequency Synthesis and Millimeter-Wave Receivers

Chair: Patrice Gamand, NXP Semiconductors, France — Co-Chair: Chafik Meliani, Ferdinand-Braun-Institut, Germany
Venue: Charter 1, 13:40 - 15:00, Tuesday 11th October 2011

616 **A New Approach in Low Noise Direct Digital Synthesis Based on a Fractional-N Frequency Divider**
Robert Storch, Thomas Musch, Ruhr-Universität Bochum, Germany

620 **The Ka-Band Receiver for the QUIJOTE Experiment**
Juan L. Cano[1], Enrique Villa[1], Beatriz Aja[1], Luisa de la Fuente[1], Eduardo Artal[1], Robert Watson[2], Edward Blackhurst[2], John Edgley[2], Colin Baines[2]
[1]Universidad de Cantabria, Spain; [2]University of Manchester, UK

624 **Broadband, Highly Integrated Receiver Frontend up to 67GHz**
Michael Sterns, Robert Rehner, Dirk Schneiderbanger, Siegfried Martius, Lorenz-Peter Schmidt, Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany

628 **A 120GHz/140GHz Dual-Channel ASK Receiver Using Standard 65nm CMOS Technology**
Ryuichi Fujimoto[1], Mizuki Motoyoshi[2], Kyoya Takano[2], Minoru Fujishima[2]
[1]STARC, Japan; [2]Hiroshima University, Japan

EuMC/EuMIC08: Envelope Tracking Techniques

Chair: Paul Tasker, Cardiff University, UK — Co-Chair: Angus McLachlan, SELEX Galileo Ltd., UK
Venue: Charter 3, 13:40 - 15:00, Tuesday 11th October 2011

632 **Effects of Even-Order Terms on Behavior Model of Envelope Tracking Transmitters**
Junghwan Moon, Juyeon Lee, Junghwan Son, Jungjoon Kim, Seunghoon Jee, Seungchan Kim, Bumman Kim, POSTECH, Korea

636 **Highly Efficient Envelope Tracking Transmitter by Utilizing Sinking Current**
Jungjoon Kim[1], Junghwan Moon[1], Junghwan Son[1], Seunghoon Jee[1], Juyeon Lee[1], Jeonghyeon Cha[2], Ildu Kim[2], Bumman Kim[1]
[1]POSTECH, Korea; [2]Samsung Electronics Co. Ltd., Korea

640 **Linearity Improvement of Envelope Tracking Power Amplifier Using Gain Compensated Predistortion**
Dongsu Kim, Daehyun Kang, Jooseung Kim, Yunsung Cho, Bumman Kim, POSTECH, Korea

644 **Envelope-Tracking Two-Stage Power Amplifiers**
Daehyun Kang, Dongsu Kim, Jooseung Kim, Yunsung Cho, Byungjoon Park, Chenxi Zhao, Bumman Kim, POSTECH, Korea

EuMC/EuMIC09: Millimeterwave Integrated Circuits

Chair: Andreas Thiede, Universität Paderborn, Germany — Co-Chair: Marc van Heijningen, TNO, The Netherlands
Venue: Charter 6, 13:40 - 15:00, Tuesday 11th October 2011

648 **A Fully Integrated Low Phase Noise, Fast Locking, 31 to 34.9GHz Dual-Loop PLL**
Xiaolei Gai, Andreas Trasser, Hermann Schumacher, Universität Ulm, Germany

652 **Broadband 31–65GHz Inductorless Active BALUN with 12.4dB Gain in 0.13μm SiGe:C BiCMOS Technology**
A. Awny[1], Christian Wipf[1], J. Christoph Scheytt[1], Andreas Thiede[2]
[1]IHP GmbH, Germany; [2]Universität Paderborn, Germany

656 **A 56–65GHz High-Power Amplifier MMIC Using 100nm AlGaN/GaN Dual-Gate HEMTs**
D. Schwantusche, C. Haupt, R. Kiefer, P. Brückner, M. Seelmann-Eggebert, Michael Mikulla, I. Kallfass, R. Quay, Fraunhofer IAF, Germany

660 **A High Selectivity, Low Insertion Loss 60GHz-Band On-Chip 4-Pole Band Pass Filter for Millimeter Wave CMOS SoC**
Ramesh K. Pokharel, Xin Liu, R. Dong, A.B.A. Dayang, Haruichi Kanaya, Keiji Yoshida, Kyushu University, Japan

EuMC/EuMIC10: RF MEMS

Chair: Derek Smith, OMMIC, France — Co-Chair: Harrie Tilmans, IMEC, Belgium
Venue: Charter 8, 13:40 - 15:00, Tuesday 11th October 2011

EuMC/EuMIC11: Microwave Photonics

Chair: Stavros Iezekiel, University of Cyprus, Cyprus
Co-Chair: Tibor Berceli, Budapest University of Technology and Economics, Hungary
Venue: Exchange Room 1, 13:40 - 15:00, Tuesday 11th October 2011