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EuMIC01 : Si-Based Transceiver Building Blocks

Chair: Noriharu Suematsu, Tohoku University

Co-Chair: Andrea Suriani, Thales Alenia

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Chair: Franco Giannini, University of Rome Tor Vergata

Co-Chair: Frank van Vliet, TNO

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Co-Chair: Raymond Quéré, University of Limoges

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¹Politecnico di Torino, Italy; ²Università di Roma "Tor Vergata", Italy; ³Cardiff University, UK; ⁴TTI Norte, Spain; ⁵ESA, The Netherlands

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Chair: Frank E. van Vliet, TNO

Co-Chair: Didier Floriot, UMS

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Co-Chair: Didier Belot, CEA-LETI

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¹Jet Propulsion Laboratory, USA; ²University of Manchester, UK; ³Northrop Grumman, USA; ⁴Aalto University, Finland; ⁵Caltech, USA

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Co-Chair: Mehmet Kaynak, IHP

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Co-Chair: Noriharu Suematsu, Tohoku University

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Co-Chair: Marc van Heijningen, TNO

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Co-Chair: Christopher Duff, The University of Manchester

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¹Macquarie University, Australia; ²M/A-COM Technology Solutions, Australia

EuMIC11: Graphene & III-V Devices

Chair: Giovanni Ghione, Politecnico di Torino, DET

Co-Chair: Ingmar Kallfass, University of Stuttgart

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Co-Chair: Eric Tournier, University of Toulouse - LAAS/CNRS

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¹Tokyo Institute of Technology, Japan; ²SHIEL, Japan

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Chair: Frank van den Bogaart, TNO

Co-Chair: Ernesto Limiti, University of Rome Tor Vergata

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¹Ericsson, Sweden; ²Fraunhofer IAF, Germany

EuMIC15: Device Modelling of Microwave FETs

Chair: Teresa M. Martin-Guerrero, Universidad de Malaga

Co-Chair: Jean-Christophe Nallatamby, University of Limoges

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Chair: Eric Kerherve, IMS Bordeaux

Co-Chair: Patrick Schuh, Airbus EDS

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Chair: Rob Sloan, University of Manchester

Co-Chair: Edouard Ngoya, University of Limoges

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Chair: Massimo C. Comparini, Telespazio

Co-Chair: Georg Böck, TU Berlin

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¹Thales Systèmes Aéroportés, France; ²SaaB, Sweden; ³Thales Air Systems, France; ⁴Thales Nederland, The Netherlands; ⁵Airbus Defence & Space, Germany; ⁶Selex ES, UK; ⁷Thales UK, UK
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EuMIC19: Millimetre-Wave Signal Generation

Chair: Michael Schlechtweg, Fraunhofer IAF

Co-Chair: Shmuel Auster, Elta Systems Ltd.

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¹Universität der Bundeswehr München, Germany; ²Infineon Technologies, Germany
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EuMICPoster01 : EuMIC Poster Session

Chair: Alaa Abunjaileh, Airbus Defence and Space

Conference Centre, Time 13:00–14:20, Monday 3rd October 2016

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Yoshiki Satoh, Hideyuki Hanawa, Kazushige Horio, Shibaura Institute of Technology, Japan
- 345 **Nonlinear GaAs pHEMT Model with Trapping Effect for Small Signal and Dynamic Large Signal Design**
A. Olomo, Infineon Technologies, Austria
- 349 **A Surface Potential Large Signal Model for AlGaIn/GaN HEMTs**
Qingzhi Wu¹, Yuehang Xu¹, Zhang Wen¹, Yan Wang², Ruimin Xu¹
¹UESTC, China; ²Tsinghua University, China
- 353 **Characterization and Modelling of 40nm mHEMT Process up to 110GHz**
R. Cleriti¹, Walter Ciccognani¹, Sergio Colangeli¹, Ernesto Limiti¹, P. Frijlink², M. Renvoise²
¹Università di Roma "Tor Vergata", Italy; ²OMMIC, France

- 357 **Load-Pull Circles Analysis Method for Applying the Outphasing Technique in Power Amplifier Design**
Yolanda Jato¹, Amparo Herrera¹, Francis C. Huin²
¹Universidad de Cantabria, Spain; ²ACCO Semiconductors, France
- 361 **Common-Denominator Modelling for Stability Analysis of Electronic Circuits**
Adam Cooman¹, Francesco Ferranti¹, Yves Rolain¹, Gerd Vandersteen¹, Ebrahim Louarroudi²
¹Vrije Universiteit Brussel, Belgium; ²Universiteit Antwerpen, Belgium
- 365 **Accurate FEM Base nMOS Switch Modelling Technique for RF Applications**
Fadoua Gacim¹, Philippe Descamps², Nathalie Jourdan¹
¹NXP Semiconductors, France; ²LaMIPS, France
- 369 **Controlling the Characteristics of Nanomechanical Resonators**
Anastasiia Y. Nimets¹, Klaus Schuenemann¹, Dmytro M. Vavriv²
¹Technische Universität Hamburg-Harburg, Germany; ²NASU, Ukraine
- 373 **A Low-Cost 180nm BiCMOS Technology with Horizontal Current Bipolar Transistor (HCBT) for Wireless Communication ICs**
Josip Žilak¹, Marko Koričić¹, Tomislav Suligoj¹, Hidenori Mochizuki², So-ichi Morita²
¹University of Zagreb, Croatia; ²Asahi Kasei Microdevices, Japan
- 377 **A K-Band High-Gain Down-Converter Mixer Using Cross Couple Pair Active Load**
Yu-Teng Chang, Hsin-Yu Wu, Hsin-Chia Lu, National Taiwan University, Taiwan
- 381 **A 6–46GHz, High Output Power Distributed Frequency Doubler Using Stacked FETs in 0.25μm GaAs pHEMT**
Thuy Nguyen¹, Duy P. Nguyen¹, Kohei Fujii², Anh-Vu Pham¹
¹University of California at Davis, USA; ²M/A-COM Technology Solutions, USA

- 385 **Results from a Prototype 6GSPS Digital to Analogue Converter with Greater Than 7GHz Analogue Bandwidth**
A. Glascott-Jones, M. Wingender, F. Bore, M. Stackler, N. Chantier, K. Salmi, P. Coquille, M. Martin, V. Monier, G. Wagner, E. Savasta, D. Bellin, R. Pilard, J. Duvernay, e2v, France
- 389 **0.61THz Radiating Source with On-Chip Antenna on 65nm CMOS**
Bassam Khamaisi, Samuel Jameson, Eran Socher, Tel Aviv University, Israel
- 393 **A 154-165GHz LNA and Receiver in CMOS 65nm Technology**
Jenia Elkind, Eran Socher, Tel Aviv University, Israel
- 397 **A 49-to-64GHz Frequency Doubler Using Active CS-Based *G_m*-Boosted Technique in 90nm CMOS Process**
Guan-Yu Chen, Hong-Yeh Chang, Yu-Cheng Liu, Shou-Hsien Weng, Yue-Ming Hsin, National Central University, Taiwan
- 401 **Miniature Fully-Integrated 2.5 and 3.5GHz LDMOS Power Amplifiers in 40-nm CMOS Technology**
Ming-Hang Wu¹, Tien-Tzu Chang¹, Jen-Hao Cheng¹, Tian-Wei Huang¹, Jeng-Han Tsai²
¹National Taiwan University, Taiwan; ²National Taiwan Normal University, Taiwan
- 405 **NARMA Based Novel Closed Loop Digital Predistortion Using Moore-Penrose Inverse Technique**
Deepak Nair M.V., Rocco Giofr , Paolo Colantonio, Franco Giannini, Universit  di Roma "Tor Vergata", Italy
- 409 **A 21dBm 60GHz SiGe Power Amplifier Using Modified Wilkinson Combiner**
Roe Ben Yishay, Danny Elad, IBM Haifa Research Lab, Israel
- 413 **Highly Linear Fully Integrated Class-O Power Amplifier in Standard 65nm CMOS Technology**
Muh-Dey Wei, Renato Negra, RWTH Aachen University, Germany

EuMIC/EuMC01 : ARMMS RF and Microwave Society Selected Papers

Chair: Dominic Fitzpatrick, PoweRFul Microwave

Co-Chair: Steve Nightingale, Cobham Antenna Systems

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- 417 **Submillimetre Rectangular Waveguides Based on SU-8 Photoresist Micromachining Technology**
David Glynn, Tianhao He, Jeff Powell, Yingtao Tian, Xiaobang Shang, Michael J. Lancaster, University of Birmingham, UK
- 421 **Challenges of Wearable Antenna Design**
Sema Dumanli, Toshiba Research Europe, UK
- 424 **Broadband Push-Pull Power Amplifier Design at Microwave Frequencies**
R.M.H. Smith¹, S.C. Cripps²
¹Plextek RFI, UK; ²Cardiff University, UK
- 428 **Understanding the 3 Level Doherty**
Michael James Roberts, Slipstream Engineering Design, UK
- 433 **Beyond RF Ablation: Other Uses for RF Within the Body**
Olive Murphy¹, Mohammad Reza Bahmanyar², Christopher N. McLeod², Christofer Toumazou², Magdi Yacoub³
¹Analog Devices, Ireland; ²Imperial College London, UK; ³Harefield Hospital, UK

EuMIC/EuMC02 : RF MEMS Components and Packaging

Chair: Stepan Lucyszyn, Imperial College London

Co-Chair: Kamal K Samanta, AMWT Ltd

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- 436 **High-Q Tunable Filter with a Novel Tuning Structure**
J. Jiang, Raafat R. Mansour, University of Waterloo, Canada
- 440 **Advances in MEMS Switches for RF Test Applications**
Tamir Moran¹, Chris Keimel², Todd Miller³
¹National Instruments, USA; ²Menlo Microsystems, USA; ³GE Global Research, USA
- 444 **Development of a DC to K-Band Ultra Long On-Life RF MEMS Switch with Integrated Driver Circuitry**
Eric Carty, Padraig Fitzgerald, Padraig McDaid, Bernard Stenson, Raymond Goggin, Analog Devices, Ireland
- 448 **High Q Zero Level Packaged RF-MEMS Switched Capacitor Arrays**
Kevin Nadaud¹, Fabien Roubeau¹, Arnaud Pothier¹, Pierre Blondy¹, Lin-Yang Zhang², Romain Stefanini²
¹XLIM, France; ²AirMems, France
- 452 **Thin Film Wafer Level Encapsulated RF-MEMS Switch for D-Band Applications**
S. Tolunay Wipf, A. Göritz, M. Wietstruck, C. Wipf, B. Tillack, Andreas Mai, Mehmet Kaynak, IHP, Germany

EuMIC/EuMC03 : THz Photonics Electronic Components and Systems

Chair: Mohamed Elkhoully, Robert Bosch

Co-Chair: Antti Räisänen, Aalto University

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- 456 **Photonic BiCMOS Technology — Enabler for Si-Based, Monolithically Integrated Transceivers Towards 400 Gbps**
Stefan Lischke, Dieter Knoll, Lars Zimmermann, Pedro Rito, Ahmet Cagri Ulusoy, Ahmet Awny, Despoina Petousi, Iria Garcia Lopez, Christian Mai, Marcel Kroh, Bernd Heinemann, Holger Rücker, Rainer Barth, Jens Katzer, Markus Andreas Schubert, Mehmet Kaynak, Andreas Mai, IHP, Germany
- 460 **GaN Laser Driver Switching 30A in the Sub-Nanosecond Range**
Armin Liero, Andreas Klehr, Thomas Hoffmann, Thomas Prziwarka, Wolfgang Heinrich, FBH, Germany
- 464 **Electronic Stabilization Methods for a Single-Loop Opto-Electronic Oscillator**
Mehmet Alp Ilgaz, Luka Bogataj, Boštjan Batagelj, Matjaž Vidmar, University of Ljubljana, Slovenia
- 468 **High-Conversion-Gain 100-GHz Photoreceiver Integrated with UTC-PD and PHEMT Amplifier for 92-GHz Carrier, 10.7-Gbps Photonic Wireless Communication**
T. Umezawa¹, K. Kashima², A. Kanno¹, P.T. Dat¹, K. Akahane¹, A. Matsumoto¹, N. Yamamoto¹, T. Kawanishi¹
¹NICT, Japan; ²Hitachi Kokusai Electric, Japan
- 472 **Characterization of Sub-THz Detection Array in 0.18 μ m CMOS Technology**
Jixin Chen, Weitian Liu, Pinpin Yan, Chenwei Jia, Debing Hou, Chao Yu, Wei Hong, Southeast University, China

EuMIC/EuMC04 : Components for Receivers

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Co-Chair: Jan Grahn, Chalmers University of Technology

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- 476 **Geodetic VLBI Ultra Low Noise Broad-Band Receiver for 13 Meter VGOS Radiotelescopes**
Pablo García-Carrendó¹, Sonia García-Álvaro¹, José A. López-Pérez¹, María Patino-Esteban¹, José M. Serna¹, Beatriz Vaquero-Jiménez¹, José A. López-Fernández¹, Pablo-Luis López-Espí², Rocío Sánchez-Montero²
¹Instituto Geográfico Nacional, Spain; ²Universidad de Alcalá, Spain
- 480 **Self-Biasing Effects Induced by RF Step-Stress in Ka-Band LNAs Based on InAlN/GaN HEMT Technology**
J.G. Tartarin¹, S.D. Nsele¹, S. Piotrowicz², S.L. Delage²
¹LAAS, France; ²III-V Lab, France
- 484 **A 30–50GHz Reflection-Type Phase Shifter Based on Slow-Wave Coupled Lines in BiCMOS 55nm Technology**
Zyad Iskandar¹, Jose Lugo-Alvarez¹, Alfredo Bautista¹, Emmanuel Pistono¹, Florence Podevin¹, Vincent Puyal², Alexandre Siligaris², Philippe Ferrari¹
¹IMEP-LAHC, France; ²CEA-LETI, France
- 488 **A High Image Rejection E-Band Sub-Harmonic IQ Demodulator with Low Power Consumption in 90-nm CMOS Process**
Yu-Ting Chou, Yu-Hsuan Lin, Huei Wang, National Taiwan University, Taiwan

EuMIC/EuMC05 : Multi-Functional Tuneable Filters for Wireless Applications

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- 492 **A Band-Switchable and Tunable Nested Bandpass Filter With Continuous 0.4–3GHz Coverage**
Keiichi Motoi, Naoki Oshima, Masaki Kitsunezuka, Kazuaki Kunihiro, NEC, Japan
- 496 **Hairpin Bandpass Filter with Tunable Center Frequency and Tunable Bandwidth Based on Screen Printed Ferroelectric Varactors**
Christian Schuster¹, Alex Wiens¹, Martin Schüßler¹, Christian Kohler², Joachim R. Binder², Rolf Jakoby¹
¹Technische Universität Darmstadt, Germany; ²KIT, Germany
- 500 **An Integrated Tunable Electrical-Balance Filter with >60dB Stopband Attenuation and 1.75–3.7GHz Stopband Tuning Range**
Barend van Liempd, Benjamin Hersherberg, Piet Wambacq, Jan Craninckx, imec, Belgium
- 504 **Dual-Mode-Resonator-Based Pseudo-Elliptic Filters with Tunable Response**
Ahmad Bader Alothman Alterkawi, Fabrizio Gentili, Sebastian W. Sattler, Wolfgang Bösch, Technische Universität Graz, Austria

EuMIC/EuMC06 : Packaged and Integrated High-Power Amplifiers

Chair: Peter Aaen, University of Surrey

Co-Chair: Olof Bengtsson, FBH

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- 508 **A Packaged Hybrid Doherty PA for Microwave Links**
D. Gustafsson, K. Andersson, A. Leidenhed, M. Malmstrom, A. Rhodin, T. Wegeland, Ericsson, Sweden
- 512 **A 2.6-GHz-Band 78-W Doherty Power Amplifier with GaN HEMT Unit-Cell Structure Robust for Layout-Dependent Loop Oscillation**
Shohei Imai, Shinsuke Watanabe, Yuji Komatsuzaki, Hiroyuki Okazaki, Shintaro Shinjo, Koji Yamanaka, Yoshinobu Sasaki, Hideaki Katayama, Akira Inoue, Mitsubishi Electric, Japan
- 516 **Linearity Enhancement in CMOS Power Amplifier Design by Using Varactor-Embedded Output Matching Network**
Chenxi Zhai, Kwok-Keung M. Cheng, Chinese University of Hong Kong, China
- 520 **A 20W and Broadband Two-Stage LDMOS Power Amplifier with High-Q Cu Integrated Passive Device for Multi-Band and Multi-Standard Applications**
Seungkee Min, Jangheon Kim, Margaret Szymanowski, Geoff Tucker, NXP Semiconductors, USA
- 524 **High Performance Plastic Packaged 100W L-Band Quasi-MMIC HPA**
Diane Bouw, Philippe Sin, Marc Camiade, Jean Pierre Viaud, United Monolithic Semiconductors, France

EuMIC/EuMC07 : Packaging and Multichip Modules

Chair: Pierre Blondy, XLIM CNRS Université de Limoges

Co-Chair: Fabio Coccetti, LAAS-CNRS

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- 528 **Dielectric Material Characterization of High Frequency Printed Circuit Board Laminates and an Analysis of their Transmission Line High Frequency Losses**
Brian Curran¹, Christian Tschoban¹, Ivan Ndip¹, Klaus-Dieter Lang¹, Helmut Kroener², Alexander Ippich²
¹Fraunhofer IZM, Germany; ²Isola, Germany
- 532 **Interposer Based on Metallic-nanowire-Membrane (MnM) for mm-Wave Applications**
M.V. Pelegrini¹, J.M. Pinheiro¹, L.G. Gomes¹, G.P. Rehder¹, A.L.C. Serrano¹, Florence Podevin², Philippe Ferrari²
¹Universidade de São Paulo, Brazil; ²IMEP-LAHC, France
- 536 **Differential Wideband Interconnects for Organic Millimeter Wave Chip Packages: An Effort to Design an All-Purpose RF Chip Package**
Franz Xavier Röhr¹, Johannes Jakob¹, Werner Bogner¹, Daniel Hageneder², Stefan Zorn²
¹Technische Hochschule Deggendorf, Germany; ²Rohde & Schwarz, Germany
- 540 **Low-Cost Antenna-in-Package Solution for 122GHz Radar Module**
Akanksha Bhutani¹, Benjamin Goettel¹, Thomas Streitz¹, Steffen Scherr¹, Wolfgang Winkler², Thomas Zwick¹
¹KIT, Germany; ²Silicon Radar, Germany
- 544 **3D Inkjet Printed Radio Frequency Inductors and Capacitors**
Mohammad Vaseem, Garret McKerricher, Atif Shamim, KAUST, Saudi Arabia

Additional Papers:

- 548 **A 25 to 45 GHz SiGe Receiver MMIC**
L. Milner, J. Harvey, M. Parker, L. Hall, M. Rodriguez, M. Heimlich, S. Mahon
- 552 **150 GHz GaAs Amplifiers in a Commercial 0.1- μ m GaAs PHEMT Process**
A. Bessemoulin, M. Rodriguez, S. Mahon, A. Parker, M. Heimlich
- 556 **A New Current Dependent Gate Charge Model for GaN HFET Devices**
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