



## 2014 IEEE CSICS Interactive Advance Program

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**SESSION A: PLENARY SESSION**  
**20<sup>th</sup> October 2014: 9:00 a.m. – 11:45 a.m.**  
**Aventine A,B,C – Hyatt Regency La Jolla**

**Chairpersons:**

**Harris Moyer, *HRL Laboratories***

**Jim Carroll, *NI-AWR Group***

**9:00 a.m.**

**A.1 Evolution of Multi-Gigabit Wireline Transceivers in CMOS (Invited)**

I. Fujimori, *Broadcom Corporation, Irvine, United States,*

**9:30 a.m.**

**A.2 FD-SOI Technology Development and Key Device Characteristics for Fast, Power Efficient, Low Voltage SoCs (Invited)**

J. Hartmann, *ST Microelectronics, Crolles, France*

**10:00 a.m. - 10:15 a.m.**

**Coffee Break**

**10:15 a.m.**

**A.3 Materials and Integration Strategies for Modern RF Integrated Circuits (Invited)**

D.S. Green, *DARPA, Arlington, United States*

**10:45 a.m.**

**A.4 Future of GaN RF Technology in Europe (Invited)**

H. Blanck, *United Monolithic Semiconductors, Ulm, Germany*

**11:15 a.m.**

**A.5 GaN for Next Generation Electronics (Invited)**

P. Saunier, *TriQuint, Richardson, United States*

**12:00 p.m. – 1:30 p.m.**

**Break for Lunch**



**SESSION B: Advanced Low Noise and Mixer Technology**  
**20<sup>th</sup> October 2014: 1:30 p.m. – 2:50 p.m.**  
**Aventine A,B,C – Hyatt Regency La Jolla**

**Chairpersons:**

**Gilberto A. De la Rosa, ANADIGICS**

**Tomoya Kaneko, NEC**

**1:30 p.m.**

**B.1 An InP MMIC Process Optimized for Low Noise at Cryo**

P. Nilsson<sup>1</sup>, J. Schlee<sup>2</sup>, N. Wadefalk<sup>2</sup>, P. Starski<sup>1</sup>, G. Alestig<sup>1</sup>, J. Halonen<sup>1</sup>, B. Nilsson<sup>1</sup>, H. Zirath<sup>1</sup>,  
J. Grahn<sup>1</sup>, <sup>1</sup>*Chalmers University, Göteborg, Sweden*, <sup>2</sup>*Low Noise Factory AB, Mölndal, Sweden*

**1:50 p.m.**

**B.2 Single Chip RF Variable Gain Low Noise Amplifier**

B. Hou, Y. Zhao, E. Newman, S. Zhang, *Analog Devices, Wilmington, United States*

**2:10 p.m.**

**B.3 A 0.05-26 GHz Direct Conversion I/Q Modulator MMIC**

E. Iverson, M. Feng, *University of Illinois at Urbana-Champaign, Urbana, United States*

**2:30 p.m.**

**B.4 A up to 100 GHz Broadband Mixer with Cascaded Distributed Amplifier**

Y. Li<sup>1,2</sup>, Y. Xiong<sup>2</sup>, W. Goh<sup>1</sup>,

<sup>1</sup>*Nanyang Technological University, Singapore*, <sup>2</sup>*Terahertz Research Center, CAEP, Chengdu, China.*

**3:00 p.m. - 3:30 p.m.**

**Coffee Break**



**SESSION C: Thermal Management of GaN Devices**  
**20<sup>th</sup> October 2014: 1:30 p.m. – 3:10 p.m.**  
**Aventine D,E – Hyatt Regency La Jolla**

**Chairpersons:**

**Hooman Kazemi, Nuvotronics**

**Avinash Kane, Booz Allen Hamilton**

**1:30 p.m.**

**C.1 Optimizing GaN-on-Diamond Transistor Geometry for Maximum Output Power**

J. J.W. Pomeroy and M. H.H. Wills, *University of Bristol, Bristol, United Kingdom*

**1:50 p.m.**

**C.2 Progress on Phase Separation Microfluidics**

D. D. Agonafer, J. Palko, Y. Won, K. Lopez, T. Dusseault, J. Gires, M. Asheghi, J. G. Santiago, K. E. Goodson, *Stanford University, Stanford, United States*

**2:10 p.m.**

**C.3 High Resolution Thermal Characterization of Power GaN HEMTs Using Ultra-fast Transient Thermoreflectance Imaging and Micro-Raman Thermography**

K. Maize<sup>1</sup>, S. Choi<sup>2</sup>, L. Yates<sup>2</sup>, D. Kendig<sup>3</sup>, S. Graham<sup>2</sup>, A. Shakouril,

<sup>1</sup>*Purdue University, West Lafayette, United States*, <sup>2</sup>*Georgia Institute of Technology, Atlanta, United States*,

<sup>3</sup>*Microsanj Inc., San Jose, United States*

**2:30 p.m.**

**C.4 Thermal Interface Resistance Measurements for GaN-on-Diamond Composite Substrates**

J. Cho<sup>1</sup>, Y. Won<sup>1</sup>, D. Francis<sup>2</sup>, M. Asheghi<sup>1</sup>, and K. E. Goodson<sup>1</sup>,

<sup>1</sup>*Stanford University, Stanford, United States*, <sup>2</sup>*Element Six Technologies, Santa Clara, United States*

**2:50 p.m.**

**C.5 Microfluidics Heat Exchangers for High Power Density GaN on SiC**

Y. Won, F. Houshmand, D. Agonafer, M. Asheghi, K. E. Goodson,  
*Stanford University, Stanford, United States*

**3:00 p.m. - 3:30 p.m.**

**Coffee Break**

**SESSION D: mm-Wave & THz Amplifiers**  
**20<sup>th</sup> October 2014: 3:30 p.m. – 4:50 p.m.**  
**Aventine A,B,C– Hyatt Regency La Jolla**



**Chairpersons:**

**Arun Natarajan, Oregon State University**  
**Hooman Kazemi, Nuvotronics LLC**

**3:30 p.m.**

**D.1 A 23.2dBm at 210GHz to 21.0dBm at 235GHz 16-way PA-cell combined InP HBT SSPA MMIC**  
Z. Griffith, M. Urteaga, P. Rowell, R. Pierson,  
*Teledyne Scientific Company, Thousand Oaks, United States*

**3:50 p.m.**

**D.2 Backside Process Free Broadband Amplifier MMICs at D-Band and H-Band in 20 nm mHEMT Technology**  
T. Merkle<sup>1</sup>, A. Leuther<sup>1</sup>, S. Koch<sup>3</sup>, I. Kallfass<sup>1,2</sup>, A. Tessmann<sup>1</sup>, S. Wagner<sup>1</sup>, H. Massler<sup>1</sup>,  
M. Schlechtweg<sup>1</sup>, O. Ambacher<sup>1</sup>,  
<sup>1</sup>*Fraunhofer Institute for Applied Solid State Physics (IAF), Freiburg, Germany,*  
<sup>2</sup>*University of Stuttgart, Stuttgart, Germany,* <sup>3</sup>*Independent Scholar, Oppenweiler, Germany*

**4:10 p.m.**

**D.3 A Broadband 220-320 GHz Medium Power Amplifier Module**  
A. Tessmann, A. Leuther, V. Hurm, H. Massler, S. Wagner, M. Kuri, M. Zink,  
M. Riessle, H. Stulz, M. Schlechtweg, O. Ambacher,  
*Fraunhofer IAF, Freiburg, Germany*

**4:30 p.m.**

**D.4 A 200mW SSPA from 76-94GHz, with peak 28.9% PAE at 86GHz**  
Z. Griffith, M. Urteaga, P. Rowell, R. Pierson,  
*Teledyne Scientific Company, Thousand Oaks, United States*



**SESSION E: Advanced Optical Modulators**  
**20<sup>th</sup> October 2014: 3:30 p.m. – 5:20 p.m.**  
**Aventine D, E – Hyatt Regency La Jolla**

**Chairpersons:**

**Craig Steinbeiser, *TriQuint Semiconductor***

**Munehiko Nagatani, *NTT Photonics Laboratories***

**3:30 p.m.**

- E.1 Linear Optical Modulator for DAC-based Coherent Fiber Communications Systems (Invited)**  
H. Yamazaki, *NTT Photonics Laboratories, Atsugi, Kanagawa, Japan*

**4:00 p.m.**

- E.2 A Compact Low-Power 224-Gb/s DP-16QAM Modulator Module with InP-based Modulator and Linear Driver ICs (Invited)**  
N. Itabashi, T. Tatsumi, T. Ikagawa, N. Kono, M. Seki, K. Tanaka, K. Yamaji, Y. Fujimura, K. Uesaka, T. Nakabayashi, H. Shoji, S. Ogita,  
*Sumitomo Electric Industries, Yokohama, Kanagawa, Japan*

**4:30 p.m.**

- E.3 Silicon Photonic Modulator based on a MOS-Capacitor and a CMOS Driver (Invited)**  
M. Webster, C. Appel, P. Gothoskar, S. Sunder, B. Dama, K. Shastri,  
*Cisco Systems, Allentown, United States*

**5:00 p.m.**

- E.4 Gallium Arsenide Electro-Optic Modulators**  
R. G. Walker<sup>1</sup>, M. F. O'Keefe<sup>1</sup>, N. Cameron<sup>1</sup>, H. Ereifej<sup>2</sup>, T. Brast<sup>3</sup>,  
<sup>1</sup>*Finisar UK Ltd., Sedgefield, U.K.*, <sup>2</sup>*Finisar Inc., Horsham, United States*,  
<sup>3</sup>*Finisar Germany GmbH, Berlin, Germany*



**SESSION F: mm-Wave & THz Arrays**  
**21<sup>st</sup> October 2014: 8:30 a.m. – 9:40 a.m.**  
**Aventine A,B,C– Hyatt Regency La Jolla**

**Chairpersons:**

**Shahriar Shahramian, *Bell Laboratories***

**Kazuya Yamamoto, *Mitsubishi Electric***

**8:30 a.m.**

**F.1 Wafer-Scale Millimeter-Wave Phased-Array RFICs (Invited)**

*G. M. Rebeiz, UCSD, La Jolla, United States*

**9:00 a.m.**

**F.2 245 GHz SiGe Transmitter Array for Gas Spectroscopy**

*K. Schmalz<sup>1</sup>, J. Borngräber<sup>1</sup>, W. Debski<sup>2</sup>, M. Elkhoully<sup>1</sup>, R. Wang<sup>1</sup>, P. Neumaier<sup>3</sup>, H. Hübers<sup>3,4</sup>,*

*<sup>1</sup>IHP, Frankfurt (Oder), Germany, <sup>2</sup>Silicon Radar, Frankfurt (Oder), Germany,*

*<sup>3</sup>Deutsches Zentrum für Luft- und Raumfahrt (DLR), Berlin, Germany,*

*<sup>4</sup>Technische Universität Berlin, Berlin, Germany*

**9:20 a.m.**

**F.3 A Compact 340 GHz 2x4 Patch Array with Integrated Subharmonic Gilbert Core Mixer as a Building Block for Multi-Pixel Imaging Frontends**

*Y. B. Karandikar, Y. Yan, V. Vassilev, H. Zirath,*

*Chalmers University of Technology, Gothenberg, Sweden*

**10:00 a.m. - 10:30 a.m.**

**Coffee Break**





**SESSION G: Emerging Technologies and Devices**  
**21<sup>st</sup> October 2014: 8:30 a.m. – 10:00 a.m.**  
**Aventine D,E – Hyatt Regency La Jolla**

**Chairpersons:**

**Paul Rosenthal, *Boeing***

**Han Wui Then, *Intel Corp***

**8:30 a.m.**

**G.1 Diverse Accessible Heterogeneous Integration (DAHI) at Northrop Grumman Aerospace Systems (NGAS) (Invited)**

A. Gutierrez-Aitken, K. Hennig, D. Scott, K. Sato, W. Chan, B. Poust, X. Zeng, K. Thai, E. Nakamura, E. Kaneshiro, C. Monier, I. Smorchkova, B. Oyama, A. Oki, R. Kagiwada, G. Chao,  
*NGAS, Redondo Beach, United States*

**9:00 a.m.**

**G.2 Enabling Power-Efficient Designs with III-V Tunnel FETs (Invited)**

M. S. Kim, H. Liu, K. Swaminathan, X. Li, S. Datta, V. Narayanan,  
*Pennsylvania State University, University Park, United States*

**9:30 a.m.**

**G.3 Device Perspective on 2D Materials (Invited)**

P. D. Ye, *Purdue University, West Lafayette, United States*

**10:00 a.m. - 10:30 a.m.**

**Coffee Break**





**SESSION H: High-Speed Optical Communication Components**  
**21<sup>st</sup> October 2014: 1:30 a.m. – 3:10 p.m.**  
**Aventine A,B,C – Hyatt Regency La Jolla**

**Chairpersons:**

**The'Linh Nguyen, *Finisar***

**Yuriy Greshishchev, *Ciena Corp.***

**1:30 p.m.**

**H.1 Hybrid III-V Silicon Lasers: Heterogeneous 200mm-Wafer-Level Integration for WDM Dense Optical Interconnects (Invited)**

S.Menezo, H.Duprez, A.Descos, D.Bordel, L.Sanchez, P.Brianceau, V.Carron, B.Ben Bakir,  
*CEA-Leti, Grenoble, France*

**2:00 p.m.**

**H.2 Optical Phase- Locking and Wavelength Synthesis (Invited)**

M.J.W. Rodwell<sup>1</sup>, H.C. Park<sup>1</sup>, M.Piels<sup>1</sup>, M. Lu<sup>1</sup>, A. Sivananthan<sup>1</sup>, E.Bloch<sup>1</sup>, Z.Griffith<sup>2</sup>, M.Urteaga<sup>2</sup>,  
L. Johansson<sup>1</sup>, J.E.Bowers<sup>1</sup>, L.A.Coldren<sup>1</sup>,

<sup>1</sup>*University of California, Santa Barbara, United States,*

<sup>2</sup>*Teledyne Scientific, Thousand Oaks, United States*

**2:30 p.m.**

**H.3 InP DHBT Mux-Drivers for Very High Symbol Rate Optical Communications**

J. Godin, J.-Y.Dupuy, F.Jorge, F.Blache, M.Riet, V.Nodjiadjim, P.Berdaguer, B.Duval, A.Konczykowska,  
*III-V Lab, Joint Marcoussis, France*

**2:50 p.m.**

**H.4 A 25Gb/s Common Cathode VCSEL Driver**

Kwan Ting Ng, Yeung Bun Choi, Keh Chung Wang,  
*Hong-Kong Applied Science and Technology Research Institute, Hong-Kong*

**3:00 p.m. - 3:30 p.m.**

**Coffee Break**



**SESSION I: HIGH EFFICIENCY POWER AMPLIFIER ARCHITECTURES**  
**21<sup>st</sup> October 2014: 1:30 p.m. – 3:00 p.m.**  
**Aventine D,E – Hyatt Regency La Jolla**

**Chairpersons:**

**David W. Runton, *M/A-COM Technology Solutions Inc***

**Rik Jos, *NXP Semiconductors***

**1:30 p.m.**

**I.1 Power Amplifier Design Optimized for Envelope Tracking (Invited)**

*G. Collins, **MaXentric Technologies, La Jolla, United States***

**2:00 p.m.**

**I.2 GaN Technology in Base Stations – Why and When?**

*E. Higham, **Strategy Analytics, Newton, United States***

**2:20 p.m.**

**I.3 Development of High-Efficiency X-band Outphasing Transmitter**

*C. Xie, D. Cripe, D. Landt, A. Walker, **Rockwell Collins, Cedar Rapids, United States***

**2:40 p.m.**

**I.4 Broadband Doherty Alternative with Filter Design Considerations**

*J. Jones, B. Noori, J. Frei, E. Krvavac, **Freescale Semiconductor, Tempe, United States***

**3:00 p.m. - 3:30 p.m.**

**Coffee Break**



## SESSION J: GAN MODELING

22<sup>nd</sup> October 2014: 8:30 a.m. – 10:00 a.m.

Aventine A,B,C – Hyatt Regency La Jolla

### Chairpersons:

Faramarz Kharabi, *RFMD*

Kenneth K. Chu, *BAE Systems*

8:30 a.m.

J.1 **Status of the GaN HEMT Standardization Effort at the Compact Model Coalition (Invited)**

S. D. Mertens, *Agilent, EEsof EDA, Santa Clara, United States*

9:00 a.m.

J.2 **Symmetrical Modeling of GaN HEMTs**

A. Prasad<sup>1</sup>, C. Fager<sup>1</sup>, M. Thorsell<sup>1</sup>, C. M. Andersson<sup>2</sup> and K. Yhland<sup>3</sup>

<sup>1</sup>*Chalmers University of Technology, Göteborg, Sweden*

<sup>2</sup>*SP Technical Research Institute of Sweden, Borås, Sweden*

<sup>3</sup>*Mitsubishi Electric Corporation, Kamakura, Japan*

9:20 a.m.

J.3 **First Pass Multi Cell Modeling Strategy for GaN Package Devices**

S. Halder, J. McMacken, J. Gering, *RFMD, Greensboro, United States*

9:40 a.m.

J.4 **Model Development for Monolithically-Integrated E/D-Mode Millimeter-Wave InAlN/AlN/GaN HEMTs**

J. Ren<sup>1</sup>, B. Song<sup>1</sup>, H. G. Xing<sup>1</sup>, S. Chen<sup>2</sup>, A. Ketterson<sup>2</sup>, E. Beam<sup>2</sup>, T. M. Chou<sup>2</sup>, M. Pilla<sup>2</sup>,  
H. Q. Tserng<sup>2</sup>, X. Gao<sup>3</sup>, P. Saunier<sup>2</sup>, P. Fay<sup>1</sup>

<sup>1</sup>*University of Notre Dame, Notre Dame, United States*

<sup>2</sup>*TriQuint Semiconductor, Richardson, United States*

<sup>3</sup>*IQE RF, Somerset, United States*

10:00 a.m. - 10:30 a.m.

Coffee Break



**SESSION K: mm-Wave & THz Subsystems**  
**22<sup>nd</sup> October 2014: 8:30 a.m. – 10:00 a.m.**  
**Aventine D,E – Hyatt Regency La Jolla**

**Chairpersons:**

**Frank E. van Vliet, TNO**

**Marc Rocchi, OMMIC**

**8:30 a.m.**

**K.1 SiGe Transmitter and Receiver Circuits for Emerging Terahertz Applications (Invited)**

U. R. Pfeiffer<sup>1</sup>, J. Grzyb<sup>1</sup>, R. Al Hadi<sup>1</sup>, N. Sarmah<sup>1</sup>, K. Statnikov<sup>1</sup>, S. Malz<sup>1</sup>, B. Heinemann<sup>2</sup>,

<sup>1</sup>University of Wuppertal, Wuppertal, Germany, <sup>2</sup>IHP GmbH, Frankfurt (Oder), Germany

**9:00 a.m.**

**K.2 Silicon Wireless Systems for 60-GHz Consumer and Infrastructure Applications (Invited)**

A. Tomkins, A. Poon, E. Juntunen, A. El-Gabaly, G. Temkine, Y. To, C. Farnsworth, A. Tabibiazar,

M. Fakharzadeh, S. Jafarlou, H. Tawfik, B. Lynch, M. Tazlauanu, R. Glibbery,

*Peraso Technologies Inc., Toronto, Canada*

**9:30 a.m.**

**K.3 An Active Double-Balanced Down-Conversion Mixer in InP/Si BiCMOS  
Operating from 70-100 GHz**

J. J. McCue<sup>1</sup>, M. Casto<sup>1,2</sup>, J. C. Li<sup>3</sup>, P. Watson<sup>2</sup>, W. Khalil<sup>1</sup>,

<sup>1</sup>The Ohio State University, Columbus, United States,

<sup>2</sup>The Air Force Research Laboratory, Wright-Patterson AFB, United States,

<sup>3</sup>HRL Laboratories, LLC, Malibu, United States

**10:00 a.m. - 10:30 a.m.**

**Coffee Break**



## SESSION L: Evaluation and Modeling of High-Power and High-Speed Devices

22<sup>nd</sup> October 2014: 10:30 a.m. – 11:50 a.m.

Aventine A,B,C – Hyatt Regency La Jolla

Chairpersons:

Michael Schröter, *UCSD/TUD*

Rob Jones, *Raytheon*

10:30 a.m.

L.1 **An evaluation of extraction methods for the emitter resistance for InP DHBTs**

T. Nardmann<sup>1</sup>, J. Krause<sup>1</sup>, M. Schröter<sup>2</sup>,

<sup>1</sup>*TU Dresden, Dresden, Germany*, <sup>2</sup>*UC San Diego, La Jolla, United States*

10:50 a.m.

L.2 **The Impact of Electro-thermal Coupling on RF Power Amplifier Performance**

M. Ozalas, *Agilent Technologies, Santa Rosa, United States*

11:10 a.m.

L.3 **Analysis of the Influence of Layout and Technology Parameters on the Thermal Impedance of GaAs HBT/BiFET Using a Highly-Efficient Tool**

A. Magnani<sup>1</sup>, V. d'Alessandro<sup>1</sup>, L. Codecasa<sup>2</sup>, P. J. Zampardi<sup>3</sup>, B. Moser<sup>3</sup>, and N. Rinaldi<sup>1</sup>,

<sup>1</sup>*University of Naples, Naples, Italy*, <sup>2</sup>*Politecnico di Milano, Milano, Italy*,

<sup>3</sup>*RFMD, Greensboro, United States*

11:30 a.m.

L.4 **Evaluation and Modeling of Voltage Stress-Induced Hot Carrier Effects in High-Speed SiGe HBTs**

G. Sasso<sup>1</sup>, C. Maneux<sup>2</sup>, J. Boeck<sup>3</sup>, V. d'Alessandro<sup>1</sup>, K. Aufinger<sup>3</sup>, T. Zimmer<sup>2</sup>, and N. Rinaldi<sup>1</sup>,

<sup>1</sup>*University of Naples, Naples, Italy*, <sup>2</sup>*University Bordeaux, Bordeaux, France*,

<sup>3</sup>*Infineon Technologies, Neubiberg, Germany*



**SESSION M: High Frequency Power Amplifiers**  
**22<sup>nd</sup> October 2014: 10:30 a.m. – 11:50 a.m.**  
**Aventine D,E – Hyatt Regency La Jolla**

**Chairpersons:**

**Simon Wood, *Cree, Inc.***

**Frank van Vliet, *TNO***

**10:30 a.m.**

**M.1 Miniaturization of Ka-band High Power Amplifier by 0.15  $\mu\text{m}$  GaN MMIC Technology**  
K.S. Kong, M-Y Kao, A. Nayak, *TriQuint Semiconductors, Richardson, United States*

**10:50 a.m.**

**M.2 X-Ku wide-bandwidth GaN HEMT MMIC Amplifier with Small Deviation of Output Power and PAE**  
Y. Niida, Y. Kamada, T. Ohki, S. Ozaki, K. Makiyama, N. Okamoto, M. Sato, S. Masuda, K. Watanabe,  
*Fujitsu Laboratories, Atsugi, Kanagawa, Japan*

**11:10 a.m.**

**M.3 A 6-12 GHz Push-Pull GaN Amplifier for Low Harmonic Drive Applications**  
M. Roberg, B. Kim, *TriQuint Semiconductors, Richardson, United States*

**11:30 a.m.**

**M.4 Investigation of various envelope complexity linearity under modulated stimulus using a new envelope formulation approach**  
<sup>1</sup>F.L. Ogboi, <sup>1</sup>P.J. Tasker, <sup>1</sup>M. Akmal, <sup>1</sup>J. Lees, <sup>1</sup>J. Benedikt, <sup>2</sup>S. Bensmida, <sup>2</sup>K. Morris, <sup>2</sup>M. Beach, <sup>2</sup>J. McGeehan,  
<sup>1</sup>*Cardiff University, Cardiff, United Kingdom, <sup>2</sup>University of Bristol, Bristol, United Kingdom*

**SESSION N: APPLICATIONS OF NEXT GENERATION TECHNOLOGIES**  
**22<sup>nd</sup> October 2014: 1:30 p.m. – 3:00 p.m.**  
**Aventine A,B,C – Hyatt Regency La Jolla**



**Chairpersons:**

**Steve Huettner, Nuvotronics LLC**

**Jim Carroll, NI-AWR Group**

**1:30 p.m.**

**N.1 W-band GaN Receiver Components Utilizing Highly Scaled, Next Generation GaN Device Technology (Invited)**

A Margomenos, A. Kurdoghlian, M. Micovic, K. Shinohara, H. Moyer, D. C. Regan, R. M. Grabar, C. McGuire, M. D. Wetzal, D. H. Chow,  
*HRL Laboratories, LLC, Malibu, United States*

**2:00 p.m.**

**N.2 Ka band chip-set for Electronically Steerable Antennas**

Rémy Leblanc, Noelia Santos Ibeas, Ahmed Gasmi, Joël Moron  
*OMMIC SAS, Limeil Brévannes, France*

**2:20 p.m.**

**N.3 12.5 THz Fco GeTe Inline Phase-Change Switch (IPCS) Technology for Reconfigurable RF and Switching Applications**

Nabil El-Hinnawy, Pavel Borodulin, Evan B. Jones, Brian P. Wagner, Matthew R. King, John S. Mason Jr., Jeyanandh Paramesh, James A. Bain, Robert S. Howell, Michael J. Lee, and Robert M. Young,  
*Northrop Grumman Electronic Systems, Linthicum, United States*

**2:40 p.m.**

**N.4 Low Loss, High Performance 1-18 GHz SPDT Based on the Novel Super-Lattice Castellated Field Effect Transistor (SLCFET)**

Robert S. Howell, Eric J. Stewart, Ron Freitag, Justin Parke, Bettina Nechay, Harlan Cramer, Matthew King, Shalini Gupta, Jeff Hartman, Pavel Borodulin, Megan Snook, Ishan Wathuthanthri, Parrish Ralston, Karen Renaldo, H. George Henry,  
*Northrop Grumman Electronic Systems, Linthicum, United States*

**3:00 p.m. - 3:30 p.m.**

**Coffee Break**





**SESSION O: Mixed Signal Circuits**  
**22<sup>nd</sup> October 2014: 1.30 p.m.- 2.30 p.m.**  
**Aventine D, E – Hyatt Regency La Jolla**

**Chairpersons:**

**James Buckwalter, *UC San Diego, San Diego***

**Hui Pan, *Broadcom, Irvine***

**1.30 p.m.**

**O.1 1700 pixels per inch (PPI) Passive-Matrix Micro-LED Display Powered by ASIC**

W. Chong<sup>1</sup>, W. Cho<sup>1</sup>, Z. Liu<sup>1</sup>, C. Wang<sup>2</sup>, K. Lau<sup>1</sup>,

<sup>1</sup>*Hong Kong University of Science and Technology, Hong Kong*, <sup>2</sup>*3C Limited, Hong Kong*

**1:50 p.m.**

**O.2 Programmable Active Clock Spine for 100Gb/200Gb Coherent Optical Receiver Chip in 32nm CMOS**

N. Ben-Hamida, C. Kurowski, R. Gibbins, J. Weng, T. Wong, J. Lindsay, H. Mah, S. Aouini, A. McCarthy,  
*Ciena Corp., Ottawa, Canada*

**2:10 p.m.**

**O.3 A 7-8 GHz Serrrodyne Modulator in SiGe for MIMO Signal Generation**

J. Withagen<sup>1</sup>, A. Annema<sup>1</sup>, B. Nauta<sup>1</sup>, F. van Vliet<sup>2</sup>,

<sup>1</sup>*University of Twente, Enschede, The Netherlands*, <sup>2</sup>*TNO, The Hague, The Netherlands*

**3:00 p.m. - 3:30 p.m.**

**Coffee Break**