MO1B: Passives and MEMS

Chair: Xun Gong, University of Central Florida, USA
Co-Chair: Mehmet Kaynak, IHP Microelectronics, Germany
Venue: Baycliff, 08:00 - 09:40, Monday 20 January 2014

Recent Advances in Monolithic Integration of Diverse Technologies with Si CMOS (Invited Paper)
(Tahir Hussain, Dana C. Wheeler, Hasan Sharifi, Keisuke Shinohara, Zhiwei Xu, James C. Li, Pamela R. Patterson, Kenneth R. Elliott, Wonill Ha, Yakov Royter, Peter D. Brewer)

Non-Linear Characteristics of Passive Elements on Trap-Rich High-Resistivity Si Substrates

High Linearity 1-Ohm RF Switches with Phase-Change Materials
(Jeong-sun Moon, H.-C. Seo, Dustin Le)

Low Loss 67-GHz Coplanar Waveguides and Spiral Inductors on 100kΩcm Gold-Doped High Resistivity Cz-Silicon
(A. Abuelgasim, N. Hashim, H.M.C. Chong, P. Ashburn, C.H. de Groot)

MO2B: ADC and Amplifier

Chair: Jae-Sung Rieh, Korea University, South Korea
Venue: Baycliff, 10:10 - 11:50, Monday 20 January 2014

Stacked Si MOSFET Strategies for Microwave and mm-Wave Power Amplifiers (Invited Paper)
(Peter Asbeck)

A Process-Technology-Scaling-Tolerant Pipelined ADC Architecture Achieving 6-Bit and 4GS/s ADC in 45nm CMOS
(M.W. Chen, L.R. Carley, D.S. Ricketts)

A 65nm CMOS 0.1-2.1GHz Linear-in-dB VGA with Active-Inductor Bandwidth Extension for the Square Kilometer Array
(Ge Wu, Leonid Belostotski, James W. Haslett)

A Switchable-Core SiGe HBT Low-Noise Amplifier for Millimeter-Wave Radiometer Applications
(A. Çağrı Ulusoy, Robert L. Schmid, Christopher Coen, John D. Cressler)
MO3B: Advanced Transceiver Technologies I (RWS-SiRF Joint Session)
Chair: Vijay Nair, Intel Corporation, USA

MO4B: Applications and Wireless Architectures I
Chair: Donald Lie, Texas Tech University, USA
Venue: Baycliff, 15:40 – 17:00, Monday 20 January 2014
TU1C: Transmitter and Receiver
Chair: Pierre Blondy, University of Limoges, France
Venue: Baycliff, 08:00 - 09:40, Tuesday 21 January 2014

PAGE 44
TU1C-1
08:00
Latest Development of Near-Field Communication (NFC) on Handsets Application
(Invited Paper)
(M. Wiklund, M. Mofidi, R. Gaethke, A. Wong, M. Kohlmann)

PAGE 47
TU1C-2
08:40
9.9-mA 5-6GHz CMOS Sub-Harmonic Direct-Conversion Receiver Using Deep N-Well BJT
(Wei-Ling Chang, Chin-Chun Meng, Jin-Siang Syu, Chia-Ling Wang, Guo-Wei Huang)

PAGE 50
TU1C-3
09:00
A Low-Power, Low-Noise, Highly-Linear Receiver for 122GHz Applications in a SiGe BiCMOS Technology
(Abhiram Chakraborty, Saverio Trotta, Klaus Aufinger, Rudolf Lachner, Robert Weigel)

PAGE 53
TU1C-4
09:20
A 90-nm CMOS Multi-Standard GNSS Receiver Front-End
(Chi-Wei Cheng, Yi-Jan Emery Chen)

TU3C: Applications and Wireless Architectures II
Chair: Hasan Sharifi, HRL Laboratories, USA
Venue: Baycliff, 13:30 - 14:50, Tuesday 21 January 2014

PAGE 56
TU3C-1
13:30
A 80-95GHz Direct Quadrature Modulator in SiGe Technology
(Morteza Abbasi, Sona Carpenter, Herbert Zirath, Franz Dielacher)

PAGE 59
TU3C-2
13:50
Integrated 60-GHz CMOS Variable-Gain Low-Noise Amplifier and Full 360° Phase Shifter for Phased-Array RF Receiving System
(Chun-Han Yu, Pei-Hua Lo, Jhin-Ying Lyu, Hsin-Chih Kuo, Huey-Ru Chuang)

PAGE 62
TU3C-3
14:10
An X-Band 6-Bit Active Phase Shifter
(Kerim Kibarovgolu, Emre Ozeren, Ilker Kalyoncu, Can Caliskan, Hüseyin Kayahan, Yasar Gurbuz)

PAGE 65
TU3C-4
14:30
An Inductorless RC-Based Quadrature Phase Generator and its Application to Vector-Sum Phase Shifter
(Tzu-Chao Yan, Wei-Zhen Lin, Chien-Nan Kuo)
**WE1C: Power Amplifier**

*Chair: Chiennan Kuo, National Chiao Tung University, Taiwan*

*Venue: Baycliff, 08:00 – 09:40, Wednesday 22 January 2014*

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**PAGE 68**

**WE1C-1** 08:00

<table>
<thead>
<tr>
<th>Article Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF Performance Limits of Ballistic Si Field-Effect Transistors (Invited Paper)</td>
<td>Andrew Pan, Chi On Chui</td>
</tr>
</tbody>
</table>

**PAGE 71**

**WE1C-2** 08:40

<table>
<thead>
<tr>
<th>Article Title</th>
<th>Authors</th>
</tr>
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<tbody>
<tr>
<td>A 28-GHz Class-J Power Amplifier with 18-dBm Output Power and 35% Peak PAE in 120-nm SiGe BiCMOS</td>
<td>Anirban Sarkar, Brian Floyd</td>
</tr>
</tbody>
</table>

**PAGE 74**

**WE1C-3** 09:00

<table>
<thead>
<tr>
<th>Article Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>An X to Kα-Band Fully-Integrated Stacked Power Amplifier in 45nm CMOS SOI Technology</td>
<td>Sultan R. Helmi, Jing-Hwa Chen, Saeed Mohammadi</td>
</tr>
</tbody>
</table>

**PAGE 77**

**WE1C-4** 09:20

<table>
<thead>
<tr>
<th>Article Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 69–81GHz Power Amplifier Using 90nm CMOS Technology</td>
<td>Jeng-Han Tsai, Ruei-An Chang, Ji-Yang Lin</td>
</tr>
</tbody>
</table>

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**WE2C: Technology, Devices, and Modeling**

*Chair: Mehmet Kaynak, IHP Microelectronics, Germany*

*Co-Chair: Julio Costa, RFMD, USA*

*Venue: Baycliff, 10:10 – 11:50, Wednesday 22 January 2014*

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**PAGE 80**

**WE2C-1** 10:10

<table>
<thead>
<tr>
<th>Article Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCAD-Based Roadmap for High-Speed SiGe HBTs</td>
<td>M. Schroter, T. Rosenbaum, S.P. Voinigescu, P. Chevalier</td>
</tr>
</tbody>
</table>

**PAGE 83**

**WE2C-2** 10:30

<table>
<thead>
<tr>
<th>Article Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modeling and Optimization of BiCMOS Embedded Through-Silicon Vias for RF-Grounding</td>
<td>M. Wietstruck, M. Kaynak, S. Marschmeyer, C. Wipf, I. Tekin, K. Zoschke, B. Tillack</td>
</tr>
</tbody>
</table>

**PAGE 86**

**WE2C-3** 10:50

<table>
<thead>
<tr>
<th>Article Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>An Investigation of the Temperature Dependent Linearity of Weakly-Saturated, Electrically-Matched SiGe NPN and PNP HBTs</td>
<td>Seungwoo Jung, Peter Song, Ickhyun Song, Robert L. Schmid, John D. Cressler, Jeff A. Babcock</td>
</tr>
</tbody>
</table>

**PAGE 89**

**WE2C-4** 11:10

<table>
<thead>
<tr>
<th>Article Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integration of a 50V BVCEO SiGe:C HBT into a 0.25μm SiGe:C BiCMOS Platform</td>
<td>R. Sorge, J. Schmidt, C. Wipf, F. Korndörfer, R. Pliquett, K. Schulz, R. Barth</td>
</tr>
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</table>

**PAGE 92**

**WE2C-5** 11:30

<table>
<thead>
<tr>
<th>Article Title</th>
<th>Authors</th>
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<tbody>
<tr>
<td>The Analysis of Transit-Time Effect of Bipolar Base Collector Junction Breakdown</td>
<td>Xiaochuan Bi, Django Trombley, Tracey Krakowski, Doug Weiser</td>
</tr>
</tbody>
</table>
WE3P: Transceivers and Front-end Technologies SOC and SiP
(Joint RWW Interactive Poster Session)
Venue: Newport Coast Ballroom, 12:50 - 14:40, Wednesday 22 January 2014

A K-Band BiCMOS Low Duty-Cycle Resistive Mixer
(Alessandro Magnani, Christophe Viallon, Ioan Burciu, Thomas Epert, Mattia Borgarino, Thierry Parra)

Charging Mechanisms in Nanostructured Dielectrics for MEMS Capacitive Switches
(G. Papaioannou, L. Michalas, M. Koutsoureli, S. Bansropun, A. Gantis, A. Ziae)

WE4C: Signal Source
Chair: Hermann Schumacher, University of Ulm, Germany
Venue: Baycliff, 15:40 - 17:00, Wednesday 22 January 2014

Novel Frequency Quadrupler Design Covering the Entire V-Band in 0.13-μm SiGe Process
(Shuai Yuan, Hermann Schumacher)

A 20GHz VCO and Frequency Doubler for W-Band FMCW Radar Applications
(Weihu Wang, Yohsuke Takeda, Yi-shin Yeh, Brian Floyd)

2.4GHz / 3.5GHz Dual-Band Wide-Tuning-Range Quadrature VCO Using Harmonic-Injection Coupling Technique
(Muh-Dey Wei, Sheng-Fuh Chang, Ye Zhang, Yung-Jhih Yang, Renato Negra)

K-Band Differential and Quadrature Digitally-Controlled Oscillator Designs in SiGe BiCMOS Technology
(Christopher Maxey, Sanjay Raman)