7th International Conference on Design & Technology of Integrated Systems in Nanoscale Era

(DTIS 2012)

Tunis, Tunisia
16 – 18 May 2012
Technical Program Contents

Keynote 1 Session
Towards Green Circuits and Systems  N/A
Pr. Magdi Bayoumi

Invited Talk
EMC in Integrated Circuits  N/A
Pr. Mohamed Ramdani

Embedded Tutorial- Part 1
Practices in Analog, Mixed Signal and High Speed I/O Testing  N/A
Dr. Salem Abdennadher

Normal Session A-1
Network on Chip, Embedded systems, 3D-test
On Optimizing Test Cost for Wafer-to-Wafer 3D-Stacked Ics 1
Mottaqiallah Taouil, Said Hamdioui
A Novel Architecture to Reduce Test Time in March-based SRAM Tests 7
I. Voyiatzis, C. Efstatthiou, Y. Tsiatouhas, H. Antonopoulou, C. Sgouropoulou
A Mesochronous Outfit for Network-on-Chip’s Interconnects Retiming 13
Mounir Zid, Rached Tourki, Alberto Scandurra, Carlo Pistritto
Investigating The Use of The AFDX Protocol As a Network-On-Chip 19
Ahmed Ben Achballah, Slim Ben Saoud

Normal Session B-1
Analog, Mixed Signal and RF systems, testing
Improving IO Test and System Evaluation via Data Sharing 25
Salem Abdennadher, Anne Meixner
A 250 μW 0.194 nV/rtHz Chopper-Stabilized Instrumentation Amplifier for MEMS Gas Sensor
Jamel Nebhen, Stéphane Meillère, Mohamed Masmoudi, Jean-Luc Seguin, Hervé Barthelemy, Khalifa Aguir
A CMOS 0.35-um, 3.3-V PLL Synthesizer for Bluetooth Transmitter 36
Sehmi Saâd, Mongia Mhiri, Kamel Besbes
A Novel Design of Two-stage CMOS Amplifier Used For ΣΔ Analog to Digital Converter 41
Radwene Laajimi, Naoufel Gueddah, Mohamed Masmoudi
Ultra Low Power LNA Design for 2.4 GHz WSNs Applications 47
Amina Msolli, Mohsen Nasri, Abdelhamid Helali & Hassen Maaref
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poster Session 1</td>
<td></td>
</tr>
<tr>
<td>The Realization of a Neural Network Controller for Vehicle-Type Mobile Robot Navigation</td>
<td>51</td>
</tr>
<tr>
<td>Hanene Rouabah, Chokri Abdelmoula, Mohamed Masmoudi</td>
<td></td>
</tr>
<tr>
<td>A Compact 32-Bit AES Design for Embedded System</td>
<td>55</td>
</tr>
<tr>
<td>Benhadjyoussef Noura, Elhadjyoussef wajih, Machhout Mohsen, Tourki Rached</td>
<td></td>
</tr>
<tr>
<td>Mobile Radio Communications into the Aquatic Environment</td>
<td>59</td>
</tr>
<tr>
<td>Mouna Aoun, Mohamed Amine Ben Farah, Abdennaceur Kachouri, Mounir Samet</td>
<td></td>
</tr>
<tr>
<td>A CMOS 2.4 GHz Tunnable RF Bandpass Filter in 0.35um Technology</td>
<td>64</td>
</tr>
<tr>
<td>Aymen Ben Hammadi, Mongia Mhiri, Kamel Besbes</td>
<td></td>
</tr>
<tr>
<td>Test Set Embedding into Low-power Sequences Based on a Traveling Salesman Problem Formulation</td>
<td>69</td>
</tr>
<tr>
<td>I. Voyiatzis, D. Magos, C. Efstathiou, H. Antonopoulou, C. Sgouropoulou</td>
<td></td>
</tr>
<tr>
<td>Test Vector Embedding in Accumulators with Stored Carry in O(1) time</td>
<td>75</td>
</tr>
<tr>
<td>I. Voyiatzis, C. Efstathiou, H. Antonopoulou, C. Sgouropoulou</td>
<td></td>
</tr>
<tr>
<td>Performance Analysis of ZF and MMSE Equalizers for MIMO Sysytems</td>
<td>81</td>
</tr>
<tr>
<td>Abdessalem Trimeche, Nesrine Boukid, Anis Sakly, Abdellatif Mtibaa</td>
<td></td>
</tr>
<tr>
<td>Failure Analysis of Hot-Electron Effect on power RF N-LDMOS Transistors</td>
<td>87</td>
</tr>
<tr>
<td>M. A Belaid, M. Garesb, K. Daoudc, Ph. Eudeline</td>
<td></td>
</tr>
<tr>
<td>Embedded Tutorial- Part 2</td>
<td>N/A</td>
</tr>
<tr>
<td>Practices in Analog, Mixed Signal and High Speed I/O Testing</td>
<td></td>
</tr>
<tr>
<td>Dr. Salem Abdennadher</td>
<td></td>
</tr>
<tr>
<td>Keynote 2 Session</td>
<td></td>
</tr>
<tr>
<td>Nanoelectronics: From Silicon to Carbon</td>
<td>N/A</td>
</tr>
<tr>
<td>Pr. Udo Schwalke</td>
<td></td>
</tr>
<tr>
<td>Special Session</td>
<td></td>
</tr>
<tr>
<td>Nanoelectronics</td>
<td></td>
</tr>
<tr>
<td>On/Off-Current Ratios of Transfer-Free Bilayer Graphene FETs as a Function of Temperature</td>
<td>93</td>
</tr>
<tr>
<td>P. J. Wessely, F. Wessely, E. Birinci, B. Riedinger, U. Schwalke</td>
<td></td>
</tr>
<tr>
<td>Nanoelectronics: From Silicon to Graphene</td>
<td>96</td>
</tr>
<tr>
<td>Udo Schwalke, Juliane Wessely, Frank Wessely, Martin Keyn, Lorraine Rispal</td>
<td>99</td>
</tr>
<tr>
<td>Dopant-free CMOS: A new device concept</td>
<td></td>
</tr>
<tr>
<td>Frank Wessely, Tillmann Krauss, Udo Schwalke</td>
<td></td>
</tr>
</tbody>
</table>
IEEE Session

3rd edition IEEE TN CEDA's ENG-OPTIM' Contest

"Parameters Estimation of sigma Delta Modulators Models Using a Combined Optimization Algorithm in MATLAB Environment"

Raja Maghrebi, Mohamed Masmoudi

Simulation-Based Multi-Objective Optimization of Current Conveyors: Performance Evaluations

A. Sallem, B. Benhala, M. Kotti, M. Fakhfakh, A. Ahaitouf, M. Loulou

On the Optimal Design of CC-Based Active Filters

A. Sallem, M. Fakhfakh, E. Tlelo-Cuautle, M. Loulou

Poster Session 2

Feasibility Study On In Situ CCVD Grown CNTs for Field-Effect Power Device Applications

Martin Keyn, Pia Juliane Wessely, Frank Wessely, Lorraine Rispal, Johannes Palm, Udo Schwalke

Design of a Zero Crossing BFSK Demodulator for a Wireless Sensor

Amel Neifar, Hatem Trabelsi, Ghazi Bouzid, Mohamed Masmoudi

ALU Based Address Generation for RAMs

I. Voyiatzis, C. Efstathiou, H. Antonopoulou, S. Hamdioui, C. Sgouropoulou

Architecture and HW/SW Validation of Nonlinear Border-Preserving Interpolator

Anis Boudabous, Ahmed Ben Atitallah, Lazhar Khriji, Nouri Masmoudi

Modeling and Design of a Folded Cascode Bulk Driven OTA

Toihria Intissar, Tixier Tierry

Petri Nets Framework for Analysing the Communication Behavior of TLM Modules

Imed Bennour

Panel Session

Will R&D in North Africa and Middle East also have a Revolution?

Dr. Said Hamdioui

Keynote 3 Session

Opportunities and Challenges for Through-Silicon-Vias 3D Stacked Ics

Dr. Said Hamdioui
### Normal Session A-2

**Embedded systems**

- Virtual Reality Adaptative System on Embedded Platforms  
  *Tarek Frikha, Nader Ben Amor, Kais Loukil, Mohamed Abid*

- Impact of Operating Point Effects on DVFS Power Management  
  *Jabran Khan, Sébastien Bilavarn, Cécile Belleudy*

- Performances of the AES Design in 0.18μm CMOS Technology  
  *Hassen Mestiri, Mohsen Machhout, Rached Tourki*

- Realistic energy modeling of scheduling, interprocess-communication and context switch routines  
  *Bassem Ouni, Cécile Belleudy, Eric Senn*

### Normal Session B-2

**Device modeling, Simulation, Validation and Verification**

- New Digital Pulse-Mode Neural Network based Image Denoising  
  *Amir Gargouri, Mohamed Krid, Dorra Sellami Masmoudi*

- Combiners Based on CMOS Inverters and Application in RF Transmitter for Wireless Sensors  
  *Hanen Thabet, Stéphane Meillère, Mohamed Masmoudi, Jean-Luc Seguin, Hervé Barthelemy, Khalifa Aguir*

- Analytical Dynamic Power Model for LUT based Components  
  *Chalbi Najoua, Boubaker Mohamed, Bedoui Mohamed Hedi*

- Design of Pass Band Filter in Hybrid Architecture Planar/Nrd Waveguide Integration Technology  
  *Harizi Hanen, Gharssallah Ali*

### Normal Session A-3

**Wireless systems, SOC, SIP design**

- Exploring SoPC Technology and RTOS Issues for Industrial Motor Control  
  *Ahmed Karim Ben Salem, Slim Ben Othman, Moktar Bouoin, Slim Ben Saoud*

- ADS Implementation of a New Memristor Based UWB Chaotic Generator  
  *Nada Rebhi, Abdennaceur Kachouri, Mounir Samet*

- New Concentric Circular Design of ESPAR Antenna for DoAs Estimation of Highly Correlated Signals  
  *Salem Akkar, Ferid Harabi, Ali Gharsallah*

- Towards Non-Uniformly Controlled Charge Domain Sample and Hold for SDR Receiver Baseband Stage  
  *Manel Ben-Romdhane, Oussama Rebai, Mohamed Masmoudi, Chiheb Rebai*

### Normal Session B-3

**Multiprocessor systems, Memory testing, MEMS, Material characterization**

- A Logic Sharing Synthesis Tool for Mutually Exclusive Applications  
  *Alp Kilic, Lied Marrakchi, Matthieu Tuna, Habib Mehrez*

- Behavior Control of a Mobile Robot Based on Fuzzy Logic and Neuro Fuzzy Approaches for Monitoring Wall  
  *Hanene Rouabah, Chokri Abdelmoula, Mohamed Masmoudi*

- Efficiency Modeling of a CMOS Mems Convective Accelerometer  
  *B. Mezghani, A.A.Rekik, F. Tounsi, F. Mailly, M. Masmoudi, P. Nouet*