2012 IEEE International Symposium on Circuits and Systems

(ISCAS 2012)

Seoul, South Korea
20 – 23 May 2012

Pages 1-821

IEEE Catalog Number: CFP12ISC-PRT
ISBN: 978-1-4673-0218-0

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Place Room 308C
Chair(s) Abdelali El Aroudi, *Universitat Rovira i Virgili*
Tsorng-Juu Liang, *National Cheng Kung University*

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Time Monday, May 21, 2012 (13:40 - 17:00)
Place Poster Area
Chair(s) Jongsun Park, *Korea University*
Kyoungrok Cho, *Chungbuk National University*

A4P-P **Live Demos 2**

Time Monday, May 21, 2012 (13:40 - 17:00)
Place Poster Area
Chair(s) Jongsun Park, *Korea University*
Kyoungrok Cho, *Chungbuk National University*

A4P-Q **Live Demos 3**

Time Monday, May 21, 2012 (13:40 - 17:00)
Place Poster Area
Chair(s) Tobi Delbruck, *University of Zurich and ETH Zürich*
Jongsun Park, *Korea University*

A4P-R **Live Demos 4**

Time Monday, May 21, 2012 (13:40 - 17:00)
Place Poster Area
Chair(s) Tobi Delbruck, *University of Zurich and ETH Zürich*
Jongsun Park, *Korea University*

B1L-A **Connectivity and Convergence in Consumer Electronics**

Time Tuesday, May 22, 2012 (09:40 - 11:10)
Place Room 300
Chair(s) KyungHo Kim, *Hanyang University*

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Chair(s) Koushik Maharatna, *University of Southampton*
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Weixing Zheng, *University of Western Sydney*

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B1L-D Pipelined Data Converters

Time: Tuesday, May 22, 2012 (09:40 - 11:10)
Place: Room E3
Chair(s): Shahriar Mirabbasi, *University of British Columbia*

09:40
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Chair(s) Tokunbo Ogunfunmi, *Santa Clara University*
Lan-Da Van, *National Chiao Tung University*

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Time Tuesday, May 22, 2012 (09:40 - 11:10)
Place Room E7
Chair(s) Tim Constandinou, *Imperial College London*
Robert Newcomb, *University of Maryland*

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Time: Tuesday, May 22, 2012 (09:40 - 11:10)
Place: Room 307A
Chair(s): Jianfei Cai, *Nanyang Technological University*
Lap-Pui Chau, *Nanyang Technological University*

B1L-H High Efficiency Video Coding (HEVC)

Time: Tuesday, May 22, 2012 (09:40 - 11:10)
Place: Room 307B
Chair(s): Wan-Chi Siu, *Hong Kong Polytechnic University*
Chia-Wen Lin, *National Tsing Hua University*

B1L-J Complex Networks and Nonlinear Dynamics

Time: Tuesday, May 22, 2012 (09:40 - 11:10)
Place: Room 307C
Chair(s): Chi K. Michael Tse, *The Hong Kong Polytechnic University*
Ljiljana Trajkovic, *Simon Fraser University*

B1L-K Vision, Range, and Network Sensors

Time: Tuesday, May 22, 2012 (09:40 - 11:10)
Place: Room 308A
Chair(s): Christoph Posch, *Austia Inst. of Technology*

B1L-L Advance Circuit Theory

Time Tuesday, May 22, 2012 (09:40 - 11:10)
Place Room 308B
Chair(s) Gabor Temes, *Oregon State University*

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Time Tuesday, May 22, 2012 (09:40 - 11:10)
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Chair(s) Hirotaka Koizumi, *Tokyo University of Science*
Ke-Horng Chen, *National Chiao Tung University*

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Time Tuesday, May 22, 2012 (11:30 - 13:00)
Place Room 300
Chair(s) Jaesup Lee, *Samsung Advanced Institute of Technology*
Dejan Markovic, *University of California, Los Angeles*

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B2L-B **DSP Circuit Design II**

Time Tuesday, May 22, 2012 (11:30 - 13:00)
Place Room E1
Chair(s) Oscar Gustafsson, *Linköping University*
Pramod Kumar Meher, *A-STAR, Institute for Infocomm Research*

11:30
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Time Tuesday, May 22, 2012 (11:30 - 13:00)
Place Room E2
Chair(s) Yoshikazu Miyanaga, *Hokkaido University*
Tokunbo Ogunfunmi, *Santa Clara University*

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B2L-D **Calibration Techniques for Data Converters I**

Time Tuesday, May 22, 2012 (11:30 - 13:00)
Place Room E3
Chair(s) Joao Goes, *Universidade Nova de Lisboa / UNINOVA-CTS, FCT*

11:30
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Matthias Voelker, Johann Hauer, *Fraunhofer Institute for Integrated Circuits IIS*

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B2L-E **Millimeter-Wave & Optical Communications Circuits**

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Place Room E4
Chair(s) Byunghoo Jung, *Purdue University*
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B2L-F **Circuits for Biomedical Systems II**

Time Tuesday, May 22, 2012 (11:30 - 13:00)
Place Room E7
Chair(s) Wouter Serdijn, *Delft University of Technology*
Philipp Häfliger, *University of Oslo*

11:30
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B2L-G **Resource Allocation for Media Processing and Streaming**

Time Tuesday, May 22, 2012 (11:30 - 13:00)
Place Room 307A
Chair(s) JongWon Kim, *Gwangju Institute of Science and Technology*
Zixiang Xiong, *Texas A&M University*

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12:06
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Time Tuesday, May 22, 2012 (11:30 - 13:00)
Place Room 307B
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Yap-Peng Tan, *Nanyang Technological University*

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B2L-J Analog Circuits and Systems

Time: Tuesday, May 22, 2012 (11:30 - 13:00)
Place: Room 307C
Chair(s): Yoshifumi Nishio, *Tokushima University*
Henry Leung, *University of Calgary*

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Korea Advanced Institute of Science and Technology

B2L-K Auditory, Chemical & Strain Sensors

Time: Tuesday, May 22, 2012 (11:30 - 13:00)
Place: Room 308A
Chair(s): John Harris, *University of Florida*
Mohamad Sawan, *École Polytechnique de Montréal*

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M. Newton, L. Smith, *University of Stirling*

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Nathan Schemm, *Texas Instruments Inc*.

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B2L-K.5 **A Self-Powered Static-Strain Sensor Based on Differential Linear Piezo-Floating-Gate Injectors ……1167**
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Place Room 308B
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J. Ceballos, J.M. de la Rosa, *Universidad de Sevilla / IMSE-CNM-CSIC*

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B2L-M **Power and Energy Circuits and Systems**

Time Tuesday, May 22, 2012 (11:30 - 13:00)
Place Room 308C
Chair(s) Anthony Deese, *The College of New Jersey*
Chika Nwankpa, *Drexel University*

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Ke-Horng Chen, *National Chiao Tung University*

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Chika O. Nwankpa, Juan Jimenez, Jonathan Berardino, Jesse Hill, *Drexel University*

B3L-A **Image Processing and Vision for Intelligent Vehicles**

Time Tuesday, May 22, 2012 (14:30 - 16:00)
Place Room 300
Chair(s) Hyunchul Shin, *Hanyang University*
Taechan Kim, *Samsung Electronics*

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B3L-B **Arithmetic Circuits**

Time Tuesday, May 22, 2012 (14:30 - 16:00)
Place Room E1
Chair(s) Vojin G. Oklobdzija, *New Mexico State University*
Lan-Da Van, *National Chiao Tung University*

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B3L-C **DSP for Communications**

Time Tuesday, May 22, 2012 (14:30 - 16:00)
Place Room E2
Chair(s) Xinping Huang, *Communication Research Center, Ottawa*
Hakan Johansson, *Linköping University*

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Chiao-En Chen, Hang Su, *National Chung Cheng University;*
Chun-Fu Liao, Yuang-Hao Huang, *National Tsing-Hua University*

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Wenwen Wang, Saman S. Abeysekera, *Nanyang Technological University*

15:24
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Tao Xu, Hao Lu, Rene van Leuken, *Delft University of Technology;*
Zijian Tang, *TNO Defence Security and Safety*

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B3L-D **Calibration Techniques for Data Converters II**

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Chair(s) Sameer Sonkusale, *Tufts University*

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Masood Karimian, Saeid Hashemi, Ali Naderi, Mohamad Sawan,
École Polytechnique de Montréal

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B3L-E Advanced Wireless Receiver

Time: Tuesday, May 22, 2012 (14:30 - 16:00)
Place: Room E4
Chair(s): Franklin Bien, *Ulsan National Institute of Science & Technology*
Jaehyouk Choi, *Ulsan National Institute of Science & Technology*

B3L-F Circuits for Biomedical Systems III

Time: Tuesday, May 22, 2012 (14:30 - 16:00)
Place: Room E7
Chair(s): Yong Lian, *National University of Singapore*
Guoxing Wang, *Shanghai Jiao Tong University*

B3L-G Architecture Designs for Multimedia Computing

Time: Tuesday, May 22, 2012 (14:30 - 16:00)
Place: Room 307A
Chair(s): Shao-Yi Chien, *National Taiwan University*
Tian-Sheuan Chang, *National Chiao Tung University*

B3L-H Nanodevices and Circuits

Time: Tuesday, May 22, 2012 (14:30 - 16:00)
Place: Room 307B
Chair(s): Ming-Dou Ker, *National Chiao Tung University*
Shyh-Jye Jou, *National Chiao Tung University*

B3L-J Analog and Mixed Mode Circuits and Systems

Time: Tuesday, May 22, 2012 (14:30 - 16:00)
Place: Room 307C
Chair(s): Gianluca Setti, *University of Ferrara*
Zbigniew Galias, *AGH University of Science and Technology*

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Bo Zhao, Huazhong Yang, Hui Wang, *Tsinghua University*

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B3L-J.2 **A 5-10GHz Low Power Bang-Bang All Digital PLL Based on Programmable Digital Loop Filter 1371**
Sally Safwat, Amr Lotfy, Maged Ghoneima, Yehea Ismail, *Nile University*

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Sankaran Aniruddhan, *Indian Institute of Technology Madras*

15:24
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Vahideh Sadat Sadeghi, Hossein Miar Naimi, *Babol University of Tehnology;*
Michael Peter Kennedy, *University College Cork*

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B3L-J.5 **A Transformer-Based Filtering Technique to Lower LC-Oscillator Phase Noise 1383**
Qing Jin, Weidong Geng, *Nankai University*; Kaiyuan Yang, Chunyuan Zhou, Dongxu Yang, Lei Zhang, Yan Wang, Zhiping Yu, *Tsinghua University*

B3L-K Sensor Devices

Time: Tuesday, May 22, 2012 (14:30 - 16:00)
Place: Room 308A
Chair(s): Milutin Stanecevic, *SUNY, Stonybrooke*
Jennifer Olson Hasler, *Georgia Tech*

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Jung-Chuan Chou, Po-Hao Shih, *National Yunlin University of Science and Technology*

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Jaber Hassan J Al Yamani, Farid Boussaid, *The University of Western Australia;*
Amine Bermak, *Hong Kong University of Science and Technology*

15:06
B3L-K.3 **A Programmable Mutual Capacitance Sensing Circuit for a Large-Sized Touch Panel 1395**
Hyun Kyu Ouh, Jungwoo Lee, Sangyun Han, Hyunjip Kim, Insik Yoon, Soonwon Hong, *Test Laboratories International, Inc.*

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Andrea Ajbl, Marc Pastre, Maher Kayal, *École Polytechnique Fédérale de Lausanne*

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Evripides Kyriakides, Constantinos Hadjistassou, Julius Georgiou, *University of Cyprus*

B3L-M **Information Security Related Circuits & Systems**

Time Tuesday, May 22, 2012 (14:30 - 16:00)
Place Room 308C
Chair(s) John McCanny, *Queen's University Belfast*

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B4L-A **VLSI for Image & Video Systems**

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Place Room 300
Chair(s) Tian-Sheuan Chang, *National Chiao Tung University*
Vasily Moshnyaga, *Fukuoka University*

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University Burgundy

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Huibo Zhong, Yibo Fan, Xiaoyang Zeng, *Fudan University*

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Hao-Wei Li, Chung-Hung Tsai, *Mediatek Inc.*

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Virendra Singh, *Indian Institute of Science*

B4L-B **Cryptographic Engine Design**

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Place Room E1
Chair(s) Hsie Chia Chang, *National Chiao Tung University*
Xinmiao Zhang, *Case Western Reserve University*

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Subhamoy Maitra, Shashwat Raizada, *Indian Statistical Institute*

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B4L-C **DSP Implementation and Embedded Systems**

Time Tuesday, May 22, 2012 (16:20 - 17:50)
Place Room E2
Chair(s) Oscar Gustafsson, *Linköping University*
Mohsin M. Jamali, *University of Toledo*

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Renato J. Cintra, *Universidade Federal de Pernambuco;*
Vassil S. Dimitrov, *University of Calgary*

B4L-D **Low-Power Wireless Circuits**

Time Tuesday, May 22, 2012 (16:20 - 17:50)
Place Room E3
Chair(s) Mohamad Sawan, *Ecole Polytechnique de Montreal*

16:20
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National Chung-Cheng University

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Holst Centre/imec;
Maarten Lont, Dusan Milosevic, *Eindhoven University of Technology*

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A. Baschirotto, *University of Milano Bicocca;*
M. Sabatini, *Pirelli Tyre Spa*

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B4L-D.5 **A 3.3μW Dual-Modulus Frequency Divider with 189% Locking Range for MICS Band Applications ……1504**
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B4L-E **MIMO System**

Time Tuesday, May 22, 2012 (16:20 - 17:50)
Place Room E4
Chair(s) Tokunbo Ogunfunmi, *Santa Clara University*
Lan-Da Van, *National Chiao Tung University*

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National Chung Hsing University

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Jyun-Yu Lee, Hsin-De Lin, Tzu-Hsien Sang, *National Chiao-Tung University*

B4L-F **Biomedical & Live Science Systems I**

Time Tuesday, May 22, 2012 (16:20 - 17:50)
Place Room E7
Chair(s) Pantelis Georgiou, *Imperial College London*
Basu Sanakar, *National Science Foundation, USA*

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Shanghai Jiao Tong University

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B4L-G **Efficient Implementations of Media Coding Systems**

Time Tuesday, May 22, 2012 (16:20 - 17:50)
Place Room 307A
Chair(s) Oscar Au, *Hong Kong University of Science & Technology*
Feng Wu, *Microsoft Research Asia, China*

16:20
B4L-G.1 **Joint Rate-Distortion Optimization for H.264/AVC Intra Coding Based on Cluster Computing ……1548**
Wei Xiao, Guangming Shi, *Xidian University;*
Jizheng Xu, Feng Wu, *Microsoft Research Asia*

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Jin Wook Baek, *Samsung Electronics;*
Jin Wook Burm, *Sogang University*

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University of Science and Technology

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B4L-H **Design Technology for Enhancing Circuit Reliability**

Time Tuesday, May 22, 2012 (16:20 - 17:50)
Place Room 307B
Chair(s) Chua-Chin Wang, *National Sun Yat-sen University*
Wai-Chi Fang, *National Chiao Tung University*

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B4L-H.1 **A Framework to Study Time-Dependent Variability in Circuits at Sub-35nm Technology Nodes ……1568**
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Alan F.Murray, *University of Edinburgh;*
Binjie Cheng, Asen Asenov, *University of Glasgow*

16:38
B4L-H.2 **Soft Error Tolerant Latch Design with Low Cost for Nanoelectronic Systems ……1572**
Haiqing Nan, Ken Choi, *Illinois Institute of Technology*

16:56
B4L-H.3 **A Simple Keeper Topology to Reduce Delay Variations in Nanometer Domino Logic ……....1576**
Massimo Alioto, *Università di Siena;*
Gaetano Palumbo, Melita Pennisi, *Università di Catania*

17:14
B4L-H.4 **Design of Ring Oscillator Structures for Measuring Isolated NBTI and PBTI ……..1580**
Tony T. Kim, *VIRTUS Nanyang Technological University;*
Pong-Fei Lu, *IBM T. J. Watson Research Center;*
Chris H. Kim, *University of Minnesota*

17:32
B4L-H.5 **Modeling and Characterization of CNT-Based TSV for High Frequency Applications ……1584**
Sukeshwar Kannan, Bruce Kim, Anurag Gupta, *The University of Alabama;*
Li Li, *Cisco System Inc.;*
Seok-Ho Noh, *Andong National University;*
Sang-Bock Cho, *University of Ulsan*

B4L-J **Memristors and Memristive Circuits**

Time Tuesday, May 22, 2012 (16:20 - 17:50)
Place Room 307C
Chair(s) Ronald Tetzlaff, *TU Dresden*

16:20
B4L-J.1 **Memristors and Memristive Circuits - An Overview ……1590**
Ronald Tetzlaff, Torsten Schmidt, *Technische Universität Dresden*

16:38
B4L-J.2 **Recent Progress in Redox-Based Resistive Switching ……..1596**
Rainer Waser, *Forschungszentrum Jülich & RWTH Aachen University;*
Stephan Menzel, *RWTH Aachen University;*
Vikas Rana, *Forschungszentrum Jülich*

16:56
B4L-J.3 **Modeling Dynamics of Memristive Nano-Structures ……...1600**
Fernando Corinto, Alon Ascoli, Marco Gilli, *Politecnico di Torino*

17:14
B4L-J.4 **Memristor Circuit for Artificial Synaptic Weighting of Pulse Inputs ……...1604**
Maheshwar Pd. Sah, Changju Yang, Hyongsuk Kim, *Chonbuk National University;*
Leon O Chua, *University of California, Berkeley*

17:32
B4L-J.5 **Memristive Computing- Multiplication and Correlation ……..1608**
Sangho Shin, Kyungmin Kim, Sung-Mo “Steve” Kang, *University of California, Santa Cruz*

B4L-K **Image and Vision Sensors**

Time Tuesday, May 22, 2012 (16:20 - 17:50)
Place Room 308A
Chair(s) Alex Fish, *Ben-Gurion University*

16:20
B4L-K.1 **A Real-Time Motion-Feature-Extraction Image Processor Employing Digital-Pixel-Sensor-Based Parallel Architecture ……1612**
Hongbo Zhu, Tadashi Shibata, *The University of Tokyo*

16:38
B4L-K.2 **A 148dB Focal-Plane Tone-Mapping QCIF Imager ……...1616**
S. Vargas-Sierra, G. Liñán-Cembrano, A. Rodríguez-Vázquez,
Universidad de Sevilla / IMSE-CNM-CSIC

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B4L-K.3 **New FPN Correction Method for PD-Storage Dual-Capture CMOS Image Sensor Using a Nonfully Depleted Pinned Photodiode ……1620**
Jiwon Lee, Inkyu Baek, Kyounghoon Yang, *Korea Advanced Institute of Science and Technology*

17:14
B4L-K.4 **A Time-Delay-Integration CMOS Image Sensor with Pipelined Charge Transfer Architecture ……...1624**
Hang Yu, Xinyuan Qian, Shoushun Chen, Kay Soon Low, *Nanyang Technological University*

17:32
B4L-K.5 **A Hybrid-Readout and Dynamic-Resolution Motion Detection Image Sensor for Object Tracking ……..1628**
Xiangyu Zhang, Shoushun Chen, *Nanyang Technological University*

B4L-M **Complex Systems and Networks: Nexus of All Realities in Circuits and Systems**

Time Tuesday, May 22, 2012 (16:20 - 17:50)
Place Room 308C
Chair(s) Guanrong Chen, *City University of Hong Kong*
Jinhu Lu, *RMIT University*

16:20
B4L-M.1 **Complex Network Approach to Communication Network Performance Analysis …..1632**
Jiajing Wu, Chi K. Tse, Francis C.M. Lau, Ivan W.H. Ho, *The Hong Kong Polytechnic University*

16:38
B4L-M.2 **Contingency Constrained Optimal Power Flow Solutions in Complex Network Power Grids ……1636**
Baha Alzalg, *Washington State University;*
Catalina Anghel, Mustazee Rahman, *University of Toronto;*
Wenying Gan, *UCLA;*
Qing Huang, *Arizona State University;*
Alex Shum, *University of Waterloo;*
Chai Wah Wu, *IBM T. J. Watson Res. Center*

16:56
B4L-M.3 **On Adaptive Bounded Synchronization in Power Network Models ……1640**
P. DeLellis, M. di Bernardo, *Università degli Studi di Napoli Federico II*

17:14
B4L-M.4 **Red-F Routing Protocol for Complex Networks ……...1644**
Wilson Wang-Kit Thong, Guanrong Chen, *City University of Hong Kong;*
Ljiljana Trajković, *Simon Fraser University*

B5P-N **Interconnection & Clock Design I**

Time Tuesday, May 22, 2012 (09:40 - 11:10)
Place Poster Area
Chair(s) Paul K. Ampadu, *Massachusetts Institute of Technology*
An-Yeu Wu, *National Taiwan University*

B5P-P **Interconnection & Clock Design II**

Time Tuesday, May 22, 2012 (09:40 - 11:10)
Place Poster Area
Chair(s) Masud Chowdhury, *University of Illinois at Chicago*
Volkan Kursun, *Hong Kong University of Science & Technology*

B5P-Q Image Analysis & Processing II

Time: Tuesday, May 22, 2012 (09:40 - 11:10)
Place: Poster Area
Chair(s): Mohsin M. Jamali, *University of Toledo*
Wan-Chi Siu, *Hong Kong Polytechnic University*

B5P-R Circuits and Systems for Media Processing

Time: Tuesday, May 22, 2012 (09:40 - 11:10)
Place: Poster Area
Chair(s): Gwo-Giun Lee, *National Cheng Kung University*
Chia-Wen Lin, *National Tsing Hua University*

B5P-S **Quality Assurance for Media Processing and Communication**

Time Tuesday, May 22, 2012 (09:40 - 11:10)
Place Poster Area
Chair(s) Joern Ostermann, *Leibniz University Hannover*
Wen-Hsiao Peng, *National Chiao Tung University*

B5P-T **Design of Optical Receiver and Amplifier**

Time Tuesday, May 22, 2012 (09:40 - 11:10)
Place Poster Area
Chair(s) Byunghoo Jung, *Purdue University*
Sau-Gee Chen, *National Chiao Tung University*

B5P-U Wireless Communication Circuit and Scheme

Time: Tuesday, May 22, 2012 (09:40 - 11:10)
Place: Poster Area
Chair(s): Susanto Rahardja, *A-STAR, Institute for Infocomm Research*

B5P-V Circuits for Error Correcting Codes

Time: Tuesday, May 22, 2012 (09:40 - 11:10)
Place: Poster Area
Chair(s): Vassilis Paliouras, *University of Patras*
Zhengya Zhang, *University of Michigan*

B6P-P **Memory Circuits II**

Time Tuesday, May 22, 2012 (11:30 - 13:00)
Place Poster Area
Chair(s) Kwen-Siong Chong, *Nanyang Technological University*
Masud Chowdhury, *University of Illinois at Chicago*

B6P-Q **Video Signal Processing**

Time Tuesday, May 22, 2012 (11:30 - 13:00)
Place Poster Area
Chair(s) Kai-Kuang Ma, *Nanyang Technological University*

B6P-U **Circuits and Systems for Visual Signal Processing**

Time Tuesday, May 22, 2012 (11:30 - 13:00)
Place Poster Area
Chair(s) Oscar Au, *Hong Kong University of Science & Technology*
Andy Wai Hoong Khong, *Nanyang Technological University*

B6P-V **UWB Systems II**

Time Tuesday, May 22, 2012 (11:30 - 13:00)
Place Poster Area
Chair(s) Jaehyouk Choi, *Ulsan National Institute of Science & Technology*

B6P-W **Wireline Communications II**

Time Tuesday, May 22, 2012 (11:30 - 13:00)
Place Poster Area
Chair(s) Sangjin Byun, *Dongguk University*
Jaejoon Chang, *Samsung Electro-Mechanics America Inc.*

B7P-N **Amplifiers & Analog Filters I**

Time Tuesday, May 22, 2012 (14:30 - 16:00)
Place Poster Area
Chair(s) Joao Goes, *Universidade Nova de Lisboa / UNINOVA-CTS, FCT*

B7P-P **Mixed Signal Circuits II**
Time Tuesday, May 22, 2012 (14:30 - 16:00)
Place Poster Area
Chair(s) Randall Geiger, *Iowa State University*

B7P-Q **Mixed Signal Circuits and Testing**
Time Tuesday, May 22, 2012 (14:30 - 16:00)
Place Poster Area
Chair(s) Mohamad Sawan, *Ecole Polytechnique de Montreal*

B7P-T Biomedical and Genomic Signal Processing & Bioimaging Technology IV

Time: Tuesday, May 22, 2012 (14:30 - 16:00)
Place: Poster Area
Chair(s): Amine Bermak, *Hong Kong University of Science & Technology*
Alex Fish, *Ben-Gurion University*

B7P-U Neural Systems

Time: Tuesday, May 22, 2012 (14:30 - 16:00)
Place: Poster Area
Chair(s): Shantanu Chakrabartty, *Michigan State University*
Shih-Chii Liu, *INI, ETH Zurich*

B7P-V **Nonlinear Dynamic and Bifurcation Analysis**
Time Tuesday, May 22, 2012 (14:30 - 16:00)
Place Poster Area
Chair(s) Francis Lau, *The Hong Kong Polytechnic University*
Hiroo Sekiya, *Chiba University*

B7P-W **Power Systems and Electronic Circuits**
Time Tuesday, May 22, 2012 (14:30 - 16:00)
Place Poster Area
Chair(s) Eduard Alarcon, *Technical University of Catalunya*
Chika Nwankpa, *Drexel University*

B8P-N **Wireless Circuits and Systems IV**
Time Tuesday, May 22, 2012 (16:20 - 17:50)
Place Poster Area
Chair(s) Viktor Gruev, *Washington University in St. Louis*

B8P-P **Wireless Circuits and Systems III**

Time Tuesday, May 22, 2012 (16:20 - 17:50)
Place Poster Area
Chair(s) Viktor Gruev, *Washington University in St. Louis*

B8P-Q **Interface Circuits**

Time Tuesday, May 22, 2012 (16:20 - 17:50)
Place Poster Area
Chair(s) Shahriar Mirabbasi, *University of British Columbia*

B8P-R **Amplifiers & Analog Filters II**
Time Tuesday, May 22, 2012 (16:20 - 17:50)
Place Poster Area
Chair(s) Shahriar Mirabbasi, *University of British Columbia*

B8P-S **Wireless, Wearable, and Implantable/Injectable Technology II**
Time Tuesday, May 22, 2012 (16:20 - 17:50)
Place Poster Area
Chair(s) Yong Lian, *National University of Singapore*
Pantelis Georgiou, *Imperial College London*

B8P-T **Circuits for Biomedical Systems IV**

Time Tuesday, May 22, 2012 (16:20 - 17:50)
Place Poster Area
Chair(s) Angel Rodríguez-Vázquez, *Instituto de Microelectrónica de Sevilla*

B8P-U **Circuits for Biomedical Systems V**

Time Tuesday, May 22, 2012 (16:20 - 17:50)
Place Poster Area
Chair(s) Philipp Häfliger, *University of Oslo*
Tim Constandinou, *Imperial College London*

B8P-V **Power Electronic Converters and Applications**

Time Tuesday, May 22, 2012 (16:20 - 17:50)
Place Poster Area
Chair(s) Tadashi Suetsugu, *Fukuoka University*
Gabriel Rincón-Mora, *Georgia Institute of Technology*

B8P-W **Circuit Applications for Smart Grids and Renewables**

Time Tuesday, May 22, 2012 (16:20 - 17:50)
Place Poster Area
Chair(s) Eduard Alarcon, *Technical University of Catalunya*
Chika Nwankpa, *Drexel University*

C1L-A Next Generation DNA Sequence Processing LSI and System

Time: Wednesday, May 23, 2012 (09:40 - 11:10)
Place: Room 300
Chair(s): Riichiro Takemura, *Hitachi*

09:40
C1L-A.1 **BioCMOS LSIs for Portable Gene-Based Diagnostic Inspection System ……2287**
Kazuo Nakazato, *Nagoya University*

09:58
C1L-A.2 **High-Throughput Biology in the Time Domain: Improving Temporal Resolution of Single-Molecule Sensors ……..2291**
Jacob Rosenstein, Kenneth L. Shepard, *Columbia University*

10:16
C1L-A.3 **DNA Sequencing via Electron Tunneling ……...2295**
Michael Zwolak, *Oregon State University;*
Massimiliano Di Ventra, *University of California, San Diego*

10:34
C1L-A.4 **Fluctuation Tolerant Read Scheme for Ultrafast DNA Sequencing with Nanopore Device ……..2299**
Yoshimitsu Yanagawa, Kazuo Ono, Akira Kotab, Riichiro Takemura, Tatsuo Nakagawa, Tomio Iwasaki, Takayuki Kawahara, *Hitachi, Ltd.*

10:52
C1L-A.5 **Low-Cost and Ultra-Sensitive Poly-Si Nanowire Bio-Sensor for Hepatitis B Virus (HBV) DNA Detection ……2303**
Che-Wei Huang, Hsiao-Ting Hsueh,Yu-Jie Huang, Jen-Kuang Lee, Shey-Shi Lu, Chih-Ting Lin, *National Taiwan University;*
Min-Cheng Chen, *National Nano Device Laboratories*

C1L-B Circuit Testing & Modeling

Time: Wednesday, May 23, 2012 (09:40 - 11:10)
Place: Room E1
Chair(s): Shu-Min Li, *National Sun Yat Sen University*
Izzet Kale, *University of Westminster*

09:40
C1L-B.1 **A Sat-Based Diagnosis Pattern Generation Method for Timing Faults in Scan Chains ……..2308**
Da Wang, Lunkai Zhang, Weizhi Xu, Dongrui Fan, *Chinese Academy of Sciences*

09:58
C1L-B.2 **Accumulator-Based Output Selection for Test Response Compaction ……2313**
Wei-Cheng Lien, Kuen-Jong Lee, Shih-Shiun Chien, *National Cheng Kung University;*
Tong-Yu Hsieh, *National Sun Yat-sen University;*
Krishnendu Chakrabarty, *Duke University*

10:16
C1L-B.3 **Automatic Generation of Hardware Design Properties from Simulation Traces ……2317**
Eman El Mandouh, *Mentor Graphics Corporation*;
Amr G. Wassal, *Cairo University*

10:34
C1L-B.4 **Low-Power Delay Test Architecture for Pre-Bond Test ……..2321**
Sying-Jyan Wang, Han-Hsuan Hsu, *National Chung Hsing University;*
Katherine Shu-Min Li, *National Sun Yat-Sen University*

10:52
C1L-B.5 **A Closed Form Expression for TSV-Based on-Chip Spiral Inductor ……..2325**
Khaled Salah, Alaa El Rouby, *Mentor Graphics*;
Hani Ragai, *Ain-Shams University*;
Yehea Ismail, *AUC University*

C1L-C **Multirate Signal Processing and Transforms**

Time Wednesday, May 23, 2012 (09:40 - 11:10)
Place Room E2
Chair(s) Tapio Saramäki, *Tampere University of Technology*
Andreas Spanias, *Arizona State University*

09:40
C1L-C.1 **Tree-Structured Linear-Phase Nyquist FIR Filter Interpolators and Decimators ……2329**
Håkan Johansson, Amir Eghbali, Jimmie Lahti, *Linköping University*

09:58
C1L-C.2 **On Shift Variance Bounds in Multi-Channel Filter Banks ……..2333**
Li Chai, *Wuhan University of Science and Technology;*
Qing-Long Han, *Central Queensland University;*
Jingxin Zhang, *Monash University*

10:16
C1L-C.3 **Design of Q-Shift Filters with Flat Group Delay ……...2337**
Xi Zhang, Hiroaki Morihara, *University of Electro-Communications*

10:34
C1L-C.4 **Fast Finite Field Orthogonal Transform Without Length Constraint ……..2341**
Soo-Chang Pei, Chia-Chang Wen, *National Taiwan University*

10:52
C1L-C.5 **On the Aliasing Effect of the Finer Directional Wavelet Transform ……2345**
Selvaraaju Murugesan, David B. H. Tay, *La Trobe University*

C1L-D **Sucessive Approximation ADCs**

Time Wednesday, May 23, 2012 (09:40 - 11:10)
Place Room E3
Chair(s) Jorge Fernandes, *IST Portugal*

09:40
C1L-D.1 **An 8-Bit Single-Ended Ultra-Low-Power SAR ADC with a Novel DAC Switching Method ……2349**
Weibo Hu, Donald Y.C. Lie, Yen-Ting Liu, *Texas Tech University*

09:58
C1L-D.2 **A 9.2b 47fJ/Conversion-Step Asynchronous SAR ADC with Input Range Prediction DAC Switching ……..2353**
Hsin-Yuan Huang, Jin-Yi Lin, Chih-Cheng Hsieh, *National Tsing Hua University;*
Wen-Hsu Chang, Hann-HueiTsai, Chin-Fong Chiu, *National Applied Research Laboratories*

10:16
C1L-D.3 **A 120dB SNDR Audio Sigma-Delta Modulator with an Asynchronous SAR Quantizer ……...2357**
Yafei Ye, Zhihua Wang, Liyuan Liu, *Tsinghua University*;
Jiangyuan Li, *Beihang University*

10:34
C1L-D.4 **Enhanced SAR ADC Energy Efficiency from the Early Reset Merged Capacitor Switching Algorithm ……2361**
Jon Guerber, Hariprasath Venkatram, Taehwan Oh, Un-Ku Moon, *Oregon State University*

10:52
C1L-D.5 **SAR ADC Using Single-Capacitor Pulse Width to Analog Converter Based DAC …..2365**
Guanglei Zhang, Kye-Shin Lee, *The University of Akron*

C1L-E Wireless System and IC

Time: Wednesday, May 23, 2012 (09:40 - 11:10)
Place: Room E4
Chair(s): Jaehyouk Choi, *Ulsan National Institute of Science & Technology*
Jaejoon Kim, *Ulsan National Institute of Science & Technology*

09:40
C1L-E.1 **A Multiple Access for Unlicensed Spectrum ……2369**
Rueywen Liu, *University of Notre Dame;*
Rendong Ying, *Shanghai Jiao-Tong University;*
Xu Wang, Fan He, Bo Hu, *Fudan University*

09:58
C1L-E.2 **A mm-Wave Analog Adaptive Array with Genetic Algorithm for Interference Mitigation ……2373**
Chuang Lu, Yan Wu, Reza Mahmoudi, Marion K. Matters-Kammerer, Peter G.M. Baltus, *Eindhoven University of Technology*

10:16
C1L-E.3 **Efficient Channel Shortening for Higher Order Modulation: Algorithm and Architecture ……2377**
Christian Benkeser, Stefan Zwicky, Harald Kröll, Johannes Widmer, Qiuting Huang, *ETH Zurich*

10:34
C1L-E.4 **A PVT-Robust Current-Mode Passive Mixer with Source-Degenerated Transconductance Amplifier ……2381**
Shaorui Li, *Brookhaven National Laboratory;*
Deping Huang, Jinghong Chen, *Southern Methodist University*

10:52
C1L-E.5 **A Fully Digital Polar Modulator for Switch Mode RF Power Amplifier ……...2385**
Philip Ostrovskyy, Christoph Scheytt, *IHP GmbH;*
SungJun Lee, BongHyuk Park, JaeHo Jung, *Electronics and Telecommunications Research Institute*

C1L-F Integrated Biomedical Systems, BioMEMS, Bio-Sensors/Actuators & Lab-on-Chip I

Time: Wednesday, May 23, 2012 (09:40 - 11:10)
Place: Room E7
Chair(s): Sandro Carrara, *EPFL*
Joseph Chang, *Nanyang Technological University*

09:40
C1L-F.1 **A Fast FPW-Based Protein Concentration Measurement System ……..2389**
Chua-Chin Wang, Chia-Hao Hsu, Yue-Da Tsai, Yun-Chi Chen, Ming-Chih Lee, I-Yu Huang, *National Sun Yat-Sen University*

09:58
C1L-F.2 **Single-Filter Multi-Color CMOS Fluorescent Contact Sensing Microsystem ……...2393**
Derek Ho, M. Omair Noor, Ulrich J. Krull, Glenn Gulak, Roman Genov, *University of Toronto*

10:16
C1L-F.3 **Improvised NanoSPR Biosensor System Utilizing Gold Nanorods and Nanohole Array Film ……...2397**
Santosh Koppa, Youngjoong Joo, *The University of Texas at San Antonio*

10:34
C1L-F.4 **Die-Level Photolithography and Etchless Parylene Packaging Processes for on-CMOS Electrochemical Biosensors ……..2401**
Lin Li, Xiaowen Liu, Andrew J. Mason, *Michigan State University*

10:52
C1L-F.5 **A Dual-Mode, Low-Power and Low-Noise 0.18µm CMOS Front-End for Optical Biosensors ……..2405**
A. Trabelsi, M. Boukadoum, M. Siaj, *Université du Québec à Montréal*

C1L-G **Spiking Neural Systems**
Time Wednesday, May 23, 2012 (09:40 - 11:10)
Place Room 307A
Chair(s) John Tapson, *University of Western Sydney*

C1L-H **Network-on-chip and Memrister**
Time Wednesday, May 23, 2012 (09:40 - 11:10)
Place Room 307B
Chair(s) Ching-Te Chiu, *National Tsing Hua University*
Yin-Tsung Hwang, *National Chung Hsing University*

C1L-J Circuits and Systems Education

Time: Wednesday, May 23, 2012 (09:40 - 11:10)
Place: Room 307C
Chair(s): Joos Vandewalle, *Katholieke Universiteit Leuven*
Tokunbo Ogunfunmi, *Santa Clara University*

09:40
C1L-J.1 **Introducing Negative Feedback with an Integrator as the Central Element ……2449**
Nagendra Krishnapura, *Indian Institute of Technology, Madras*

09:58
C1L-J.2 **Behavioral Modeling Techniques for Teaching Communication Circuits and Systems ……2453**
José M. de la Rosa, *IMSE-CNM (CSIC/Universidad de Sevilla)*

10:16
C1L-J.3 **Interactive Multimedia System for Conducting Laboratory Exercises in Circuits Education ……N/A**
Sergey Kovalenko, Anton Maksimov, *South-Ural Professional Institute;*
Mikhail Morozkov, *Saint Petersburg State University*

10:34
C1L-J.4 **Synthesis Based Introduction to Opamps and Phase Locked Loops ……2461**
Nagendra Krishnapura, *Indian Institute of Technology*

10:52
C1L-J.5 **On the Teaching of the Axiomatics of Physical Systems ……..2465**
Vedat Tavsanoglu, *Yildiz Technical University*

C1L-K Memory Circuits I

Time: Wednesday, May 23, 2012 (09:40 - 11:10)
Place: Room 308A
Chair(s): Volkan Kursun, *Hong Kong University of Science & Technology*
Mircea R. Stan, *University of Virginia*

09:40
C1L-K.1 **Two-Port Low-Power Gain-Cell Storage Array: Voltage Scaling and Retention Time ……2469**
Rashid Iqbal, Pascal Meinerzhagen, Andreas Burg, *EPFL*

09:58
C1L-K.2 **SRAM in Hold-Operation: Modeling the Interaction of Soft-Errors and Switching Power-Supply Noise ……2473**
Amrut Kolhapure, Animesh Kumar, *Indian Institute of Technology Bombay*

10:16
C1L-K.3 **Performance Analysis of Multi-Bank DRAM with Increased Clock Frequency ……2477**
Su-Jin Cho, Jaewoo Ahn, Hyojin Choi, Wonyong Sung, *Seoul National University*

10:34
C1L-K.4 **Hybrid Cache Architecture Replacing SRAM Cache with Future Memory Technology ……2481**
Suji Lee, Jongpil Jung, Chong-Min Kyung, *Korea Advanced Institute of Science and Technology*

10:52
C1L-K.5 **An All-Digital Bit Transistor Characterization Scheme for CMOS 6T SRAM Array ….2485**
Geng-Cing Lin, Shao-Cheng Wang, Yi-Wei Lin, Ming-Chien Tsai, Ching-Te Chuang,
Shyh-Jye Jou, *National Chiao Tung University;*
Nan-Chun Lien, Wei-Chiang Shih, Kuen-Di Lee, Jyun-Kai Chu, *Faraday Technology Corporation*

C1L-L **Mixed Signal Circuits I**
Time Wednesday, May 23, 2012 (09:40 - 11:10)
Place Room 308B
Chair(s) Salvatore Pennisi, *Università di Catania*

09:40
C1L-L.1 **Low Phase-Noise Temperature Compensated Self-Biased Ring Oscillator ……2489**
Somayeh Abdollahvand, João Goes, Luis B. Oliveira, Luis Gomes, Nuno Paulino,
Universidade Nova de Lisboa

09:58
C1L-L.2 **A Low-Power Dynamic Comparator with Time-Domain Bulk-Driven Offset Cancellation ……..2493**
Junjie Lu, Jeremy Holleman, *The University of Tennessee*

10:16
C1L-L.3 **Multi-Channel Mixed-Signal Noise Source with Applications to Stochastic Equalization ……2497**
Jinzhou Cao, Raviv Raich, Gabor C. Temes, *Oregon State University;*
Gert Cauwenberghs, *University of California, San Diego*

10:34
C1L-L.4 **A Probabilistic Test Instrument Using a Sigma Delta-Encoded Amplitude/Phase-Signal Generation Technique ……2501**
Azhar A. Chowdhury, Gordon W. Roberts, *McGill University*

10:52
C1L-L.5 **Lumped Model Identification Based on a Double Multi-Valued Neural Network and Frequency Response Analysis ……....2505**
A. Luchetta, S. Manetti, *University of Florence*

C1L-M **Nano-devices Based New Computing Paradigms**
Time Wednesday, May 23, 2012 (09:40 - 11:10)
Place Room 308C
Chair(s) Weisheng Zhao, *Université Paris-Sud 11*
Amara Amara, *ISEP*

09:40
C1L-M.1 **Nanodevice-Based Novel Computing Paradigms and the Neuromorphic Approach ……2509**
Weisheng Zhao, Damien Querlioz, Jacques-Olivier Klein, Djaafar Chabi, Claude Chappert,
Université Paris-Sud 11

09:58
C1L-M.2 **Designing Memristors: Physics, Materials Science and Engineering ……...2513**
Gilberto Medeiros Ribeiro, J. Joshua Yang, Janice Nickel, Antonio Torrezan, John Paul Strachan,
R. Stanley, *Hewlett-Packard Labs*

10:16
C1L-M.3 **A 32nm Tunnel FET SRAM for Ultra Low Leakage ……..2517**
Adam Makosiej, Rutwick Kumar Kashyap, Andrei Vladimirescu, Amara Amara,
Costin Anghel, *Institut Superieur d'Electronique de Paris*

10:34
C1L-M.4 **SPICE-Compatible Compact Model for Graphene Field-Effect Transistors ……2521**
Michael B. Henry, Shamik Das, *The MITRE Corporation*

10:52
C1L-M.5 **Self-Assembled Multiferroic Magnetic QCA Structures for Low Power Systems …..2525**
Mircea R. Stan, Mehdi Kabir, Jiwei Lu, Stuart Wolf, *University of Virginia*

C2L-A **UWB Systems I**

Time Wednesday, May 23, 2012 (11:30 - 13:00)
Place Room 300
Chair(s) Sangwoong Yoon, *Kyunghee University*
Franklin Bien, *Ulsan National Institute of Science & Technology*

11:30
C2L-A.1 **A Pulse-Shaped Power Amplifier with Dynamic Bias Switching for IR-UWB Transmitters 2529**
Shuli Geng, Woogeun Rhee, Zhihua Wang, *Tsinghua University*

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C2L-A.2 **An Ultra Low Power, Low Voltage CMOS Squarer Circuit for Non-Coherent IR-UWB Receivers 2533**
Mahdi Parvizi, Karim Allidina, Mourad N. El-Gamal, *McGill University*

12:06
C2L-A.3 **Sliding Window Integrator Approximations for Multichannel Autocorrelation UWB Receivers 2537**
Andreas Pedross, Klaus Witrisal, *Graz University of Technology*

12:24
C2L-A.4 **A Programmable OOK Impulse Radio Ultra Wideband Transmitter with Power Cycling and Spectral Agility 2541**
Raslen Hamdi, Alexandre Desmarais, Aniss Belarbi, Dominic Deslandes, Frederic Nabki, *Université du Québec à Montréal*

12:42
C2L-A.5 **A Current-Steering DAC-Based CMOS Ultra-Wideband Transmitter with Bi-Phase Modulation 2545**
Ju-Ching Li, Sungyong Jung, *University of Texas at Arlington;*
Youngjoong Joo, *University of Texas at San Antonio;*
Ping Gui, *Southern Methodist University*

C2L-B **Low Power Circuits I**

Time Wednesday, May 23, 2012 (11:30 - 13:00)
Place Room E1
Chair(s) Gaetano Palumbo, *Università degli Studi di Catania*
Kwen-Siong Chong, *Nanyang Technological University*

11:30
C2L-B.1 **Low Leakage Power NoC Switch Using AVC 2549**
Rabab Ezz-Eldin, *Bani-suef University;* Magdy A. El-Moursy, *Mentor Graphics Corporation;*
Amr M. Refaat, *Fayoum University*

11:48
C2L-B.2 **Minimum Convertible Voltage Analysis for Ratioless and Robust Subthreshold Level Conversion 2553**
Shien-Chun Luo, Chi-Ray Huang, Lih-Yih Chiou, *National Cheng Kung University*

12:06
C2L-B.3 **A Low-Power Low-Noise Bioamplifier for Multielectrode Neural Recording Systems 2557**
Md Shahed Enamul Quadir, Mohammad Rafiqul Haider, Yehia Massoud,
The University of Alabama at Birmingham

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C2L-B.4 **Is the Road Towards "Zero-Energy" Paved with NEMFET-Based Power Management? 2561**
Marius Enachescu, George R. Voicu, Sorin D. Cotofana, *Delft University of Technology*

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C2L-B.5 **A 41.264W, 3.33GHz Processor Datapath Using Current Mode Logics in 130nm CMOS Technology ..... N/A**
Abdullah Al Owahid, Foster F. Dai, *Auburn University*

C2L-C Detection and Estimation

Time Wednesday, May 23, 2012 (11:30 - 13:00)
Place Room E2
Chair(s) Behrooz Nowrouzian, *University of Alberta*
Xinping Huang, *Communication Research Center, Ottawa*

11:30
C2L-C.1 **A New Method for Robust Beamforming Using Iterative Second-Order Cone Programming 2569**
B. Liao, K. M. Tsui, S. C. Chan, *The University of Hong Kong*

11:48
C2L-C.2 **Lean Angle Estimation in Two-Wheeled Vehicles with a Reduced Sensor Configuration 2573**
Ivo Boniolo, Sergio M. Savaresi, Mara Tanelli, *Politecnico di Milano*

12:06
C2L-C.3 **The Detection Bound of the Probability of Error in Compressed Sensing Using Bayesian Approach 2577**
Jiuwen Cao, Zhiping Lin, *Nanyang Technological University*

12:24
C2L-C.4 **Road-Constraint Assisted Target Tracking in Mixed LOS/NLOS Environments Based on TDOA Measurements 2581**
Lili Yi, Zhiping Lin, Sirajudeen Gulam Razul, *Nanyang Technological University;*
Chong-Meng See, *DSO National Laboratories*

12:42
C2L-C.5 **Accurate DOA Estimation via Sparse Sensor Array 2585**
Jian-Feng Gu, Wei-Ping Zhu, M.N.S. Swamy, *Concordia University*

C2L-D Oscillator Circuits

Time Wednesday, May 23, 2012 (11:30 - 13:00)
Place Room E3
Chair(s) Shahriar Mirabbasi, *University of British Columbia*

11:30
C2L-D.1 **An Ultra Low Power Frequency Synthesizer Based on Multiphase Fractional Frequency Divider 2589**
Ye Zhang, Ralf Wunderlich, Stefan Heinen, *RWTH Aachen University*

11:48
C2L-D.2 **A 90nm CMOS Digital PLL Based on Vernier-Gated-Ring-Oscillator Time-to-Digital Converter 2593**
Ping Lu, Ying Wu, Pietro Andreani, *Lund University*

12:06
C2L-D.3 **A 6-Gb/s 3X-Oversampling-Like Clock and Data Recovery in 0.13-μm CMOS Technology 2597**
Bo-Qian Jiang, Cheng-Liang Hung, Bing-Hung Chen, Kuo-Hsing Cheng,
National Center University

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C2L-D.4 **Sinusoidal Signal Generation for Production Testing and BIST Applications 2601**
Bharath K Vasan, Siva K Sudani,Degang J Chen, Randall L Geiger, *Iowa State University*

12:42
C2L-D.5 **Contactless Testing of on-Chip Oscillator Operation 2605**
Igor M. Filanovsky, *University of Alberta;*
Brian Moore, *Scanimetrics, Inc.*

C2L-E **Decoders for Low-Density Parity-Check Codes**

Time Wednesday, May 23, 2012 (11:30 - 13:00)
Place Room E4
Chair(s) Vassilis Paliouras, *University of Patras*
Zhiyuan Yan, *Lehigh University*

11:30
C2L-E.1 **A Pure Software LDPC Decoder on a Multi-Core Processor Platform with Reduced Inter-Processor Communication Cost ……..2609**
Yan Ying, Kaidi You, Liyang Zhou, Heng Quan, Minge Jing, Zhiyi Yu, Xiaoyang Zeng, *Fudan University*

11:48
C2L-E.2 **Memory Efficient Column-Layered Decoder Design for Non-Binary LDPC Codes …2613**
Kai He, Jin Sha, *Nanjing University*;
Zhongfeng Wang, *Broadcom Corporation*

12:06
C2L-E.3 **Efficient Network for Non-Binary QC-LDPC Decoder ……..2617**
Chuan Zhang, *University of Minnesota;*
Jin Sha, *Nanjing University*

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C2L-E.4 **Stochastic Decoding for LDPC Convolutional Codes ……2621**
Xin-Ru Lee, Chih-Lung Chen, Hsie-Chia Chang, Chen-Yi Lee, *National Chiao Tung University*

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C2L-E.5 **High-Throughput Architecture and Implementation of Regular (2, d_c) Nonbinary LDPC Decoders ……..2625**
Yaoyu Tao, Youn Sung Park, Zhengya Zhang, *University of Michigan*

C2L-F **Wireless, Wearable, and Implantable/Injectable Technology I**

Time Wednesday, May 23, 2012 (11:30 - 13:00)
Place Room E7
Chair(s) Mohamad Sawan, *École Polytechnique de Montréal*
Pantelis Georgiou, *Imperial College London*

11:30
C2L-F.1 **A 100-Channel Hermetically Sealed Implantable Device for Wireless Neurosensing Applications ……2629**
Ming Yin, David A. Borton, Juan Aceros, William R. Patterson, Arto V. Nurmikko, *Brown University*

11:48
C2L-F.2 **The Design and Implementation of A Chipset for the Endoscopic Micro-Ball …….2633**
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12:06
C2L-F.3 **A Wireless Force Measurement System for Total Knee Arthroplasty ……2637**
Hanqing Luo, Ming Liu, Hong Chen, Chun Zhang, Zhihua Wang, *Tsinghua University*

12:24
C2L-F.4 **A 39 µW Body Channel Communication Wake-Up Receiver with Injection-Locking Ring-Oscillator for Wireless Body Area Network ……2641**
Hyunwoo Cho, Joonsung Bae, Hoi-Jun Yoo, *Korea Advanced Institute of Science and Technology*

12:42
C2L-F.5 **Frequency Analysis of Wireless Accelerometer and EMG Sensors Data: Towards Discrimination of Normal and Asymmetric Walking Pattern ……...2645**
Irina Spulber, Pantelis Georgiou , Amir Eftekhar, Chris Toumazou, Lynsey Duffell, Jeroen Bergmann, Alison McGregor, *Imperial College London;*
Tinaz Mehta, Miguel Hernandez, Alison Burdett, *Toumaz UK Limited*

C2L-G Cellular Processor Arrays

Time Wednesday, May 23, 2012 (11:30 - 13:00)
Place Room 307A
Chair(s) Piotr Dudek, *University of Manchester*
Chai Wah Wu, *IBM T.J. Watson Research Center*

11:30
C2L-G.1 **In-Pixel Generation of Gaussian Pyramid Images by Block Reusing in 3D-CMOS …2649**
M. Suárez, V.M. Brea, D. Cabello, *University of Santiago de Compostela;*
R. Carmona-Galán, *Universidad de Sevilla*

11:48
C2L-G.2 **Trigger-Wave Collision Detecting Asynchronous Cellular Logic Array for Fast Image Skeletonization ……2653**
Przemyslaw Mroszczyk, Piotr Dudek, *The University of Manchester*

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C2L-G.4 **Missing Image Interpolation Using Sigma-Delta Modulation Type of DT-CNN ……2661**
Sathit Prasomphan, *King Mongkut University of Technology;*
Hisashi Aomori, Mamoru Tanaka, *Sophia University*

12:42
C2L-G.5 **Memristive Analog Arithmetic Within Cellular Arrays ……2665**
Mika Laiho, Eero Lehtonen, *University of Turku*;
Wei Lu, *University of Michigan*

C2L-H Visual Signal Processing and Modeling

Time Wednesday, May 23, 2012 (11:30 - 13:00)
Place Room 307B
Chair(s) Jianfei Cai, *Nanyang Technological University*
Shao-Yi Chien, *National Taiwan University*

11:30
C2L-H.1 **Sparsity Estimation in Image Compressive Sensing ……..2669**
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Xinggong Zhang, Zongming Guo, *Peking University*

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Linfeng Xu, Hongliang Li, Zhengning Wang,
University of Electronic Science and Technology of China

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Lin Ma, King N. Ngan, *The Chinese University of Hong Kong;*
Weisi Lin, Chenwei Deng, *Nanyang Technological University*

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Junjun Jiang, Ruimin Hu, Zhen Han, Tao Lu, Kebin Huang, *Wuhan University*

12:42
C2L-H.5 **Facial Expression Mapping Based on Elastic and Muscle-Distribution-Based Models ……..…….2685**
Yihao Zhang, Weiyao Lin, Chongyang Zhang, Bin Sheng, *Shanghai Jiao Tong University;*
Jianxin Wu, *Nanyang Technological University;*
Hongxiang Li, *University of Louisville*

C2L-J **Advances in Circuits & Systems Educational Delivery**

Time Wednesday, May 23, 2012 (11:30 - 13:00)
Place Room 307C
Chair(s) Babak Ayazifar, *UC Berkeley*
Arjuna Madanayake, *University of Akron*

11:30
C2L-J.1 **A Mixed-Signal EEG Interface Circuit for Use in First Year Electronics Courses ……2689**
Vincent Lee, Winthrop Williams, Michel Maharbiz, Vivek Subramanian, Ferenc Kovac, *University of California;*
Jennifer Monski, Bharathwaj Muthuswamy, Tom Swiontek, *Milwaukee School of Engineering*

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Len T. Bruton, *University of Calgary*

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Ravi P. Ramachandran, Robi Polikar, Kevin D. Dahm, *Rowan University;*
Sachin S. Shetty, *Tennessee State University*

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C2L-J.4 **Teaching Freshmen VHDL-Based Digital Design ……2701**
Arjuna Madanayake, Chamith Wijenayake, Rimesh M. Joshi, Jim Grover, Joan Carletta, Jay Adams and Tom Hartley, *University of Akron*;
Tokunbo Ogunfunmi, *Santa Clara University*

C2L-K **Reconfigurable & Array-Based Architectures**

Time Wednesday, May 23, 2012 (11:30 - 13:00)
Place Room 308A
Chair(s) Lan-Da Van, *National Chiao Tung University*
Mladen Berekovic, *Technische Universität Braunschweig*

11:30
C2L-K.1 **Variation-Resilient Current-Mode Logic Circuit Design Using MTJ Devices ……...2705**
Youngkeun Kim, Masanori Natsui, Takahiro Hanyu, *Tohoku University*

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Ludovic Noury, *Université Paris-Est, ESYCOM, ESIEE Paris;*
Sophie Dupuis, Nicolas Fel, *CEA, DAM, DIF*

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C2L-K.3 **Evaluating Performance of Manycore Processors with Various Granularities Considering Yield and Lifetime Reliability ……...2713**
Yueming Yang, Zewen Shi, Jianming Yu, Liulin Zhong, Xiaoyang Zeng, Zhiyi Yu, *Fudan University*

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Meilin Zhang, Paul Ampadu, *University of Rochester*;
Qiaoyan Yu, *University of New Hampshire*

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Thorsten Jungeblut, Johannes Ax, Ulrich Rückert, *Bielefeld University;*
Mario Porrmann, *University of Paderborn*

C2L-L **Data Converters and Regulators**
Time Wednesday, May 23, 2012 (11:30 - 13:00)
Place Room 308B
Chair(s) Pak Kwong Chan, *Nanyang Technological University*

11:30
C2L-L.1 **Track and Hold for Giga-Sample ADC Applications Using CMOS Technology ……..2725**
Marco Macedo, Gordon W. Roberts, Ishiang Shih, *McGill University*

11:48
C2L-L.2 **Output-Dependent Delay Cancellation Technique for High-Accuracy Current-Steering DACs ……2729**
Long Cheng, Yu-Jing Lin, Fan Ye, Ning Li, Jun-Yan Ren, *Fudan University*

12:06
C2L-L.3 **Full Quiescent Current Enhancement Technique for Improving Transient Response on the Output-Capacitorless Low-Dropout Regulator ……2733**
Chun-Hsun Wu, Le-Ren Chang-Chien, *National Cheng-Kung University*

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C2L-L.4 **A Dynamic Latched Comparator for Low Supply Voltages down to 0.45 V in 65-nm CMOS ……..2737**
Yu Lin, Hans Hegt, Arthur van Roermund, *Eindhoven University of Technology;*
Kostas Doris, *NXP Semiconductors*

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Mounir Boukadoum, Frederic Nabki, Wessam Ajib, *Université du Québec à Montréal*

C2L-M **Recent Advances in Sparse Adaptive Filters**
Time Wednesday, May 23, 2012 (11:30 - 13:00)
Place Room 308C
Chair(s) Mrityunjoy Chakraborty, *Indian Institute of Technology, Kharagpur*

11:30
C2L-M.1 **Sparse Adaptive Filters - an Overview and Some New Results ……...2745**
Rajib Lochan Das, Mrityunjoy Chakraborty, *Indian Institute of Technology, Kharagpur*

11:48
C2L-M.2 **Sparsity-Aware Adaptive Filters Based on l_p-Norm Inspired Soft-Thresholding Technique ……2749**
Masahiro Yukawa, Yuta Tawara, *Niigata University*;
Masao Yamagishi, Isao Yamada, *Tokyo Institute of Technology*

12:06
C2L-M.3 **A Variable Step-Size Multichannel Equalization Algorithm Exploiting Sparseness Measure for Room Acoustics ……2753**
Rajan S. Rashobh, Andy W. H. Khong, *Nanyang Technological University*

12:24
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Constantin Paleologu, *University Politehnica of Bucharest;*
Jacob Benesty, *University of Quebec*

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Thomas Paul, Tokunbo Ogunfunmi, *Santa Clara University*

C3L-A **Image Analysis & Processing I**

Time Wednesday, May 23, 2012 (14:30 - 16:00)
Place Room 300
Chair(s) Chien-Cheng Tseng, *National Kaohsiung First University of Science & Technology*
Kai-Kuang Ma, *Nanyang Technological University*

14:30
C3L-A.1 **Digital Image Sharpening Using Fractional Derivative and Mach Band Effect ……2765**
Chien-Cheng Tseng, *National Kaohsiung First University of Sci. and Tech.;*
Su-Ling Lee, *Chung-Jung Christian University*

14:48
C3L-A.2 **Constant Time O(1) Contextual and Variational Contrast Enhancement with Integral Histogram ……2769**
Yu-Wen Tsai, Fan-Chieh Cheng, Shanq-Jang Ruan, *National Taiwan University of Science and Technology*

15:06
C3L-A.3 **Image Co-Segmentation via Active Contours ……...2773**
Fanman Meng, Hongliang Li, Guanghui Liu, *University of Electronic Science and Technology of China*

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C3L-A.4 **Effective Image Haze Removal Using Dark Channel Prior and Post-Processing …...2777**
Soo-Chang Pei, Tzu-Yen Lee, *National Taiwan University*

15:42
C3L-A.5 **Edge-Preserving Image Decomposition Based on Guided Upper/Lower Envelops ..2781**
Soo-Chang Pei, Wen-Hui Chu, *National Taiwan University;*
Chih-Tsung Shen, *Academia Sinica*

C3L-B **Low Power Communication/Signal Processing Systems**

Time Wednesday, May 23, 2012 (14:30 - 16:00)
Place Room E1
Chair(s) Sau-Gee Chen, *National Chiao Tung University*
Paul K. Ampadu, *Massachusetts Institute of Technology*

14:30
C3L-B.1 **A Low Power Hearing Aid Computing Platform Using Lightweight Processing Elements ……...2785**
Kuo-Chiang Chang, Yu-Wen Chen, Yu-Ting Kuo, Chih-Wei Liu, *National Chiao-Tung University*

14:48
C3L-B.2 **Design of a Low-Cost Low-Power Baseband-Processor for UHF RFID Tag with Asynchronous Design Technique ……....2789**
Dingguo Wei, Chun Zhang, Yan Cui, Hong Chen, Zhihua Wang, *Tsinghua University*

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C3L-B.3 **A Low-Power MMSE MIMO Detector Using Dynamic Voltage Wordlength Scaling for 4x4 MIMO-OFDM Systems ……...2793**
Jaeseong Kim, Shingo Yoshizawa, Yoshikazu Miyanaga, *Hokkaido University*

15:24
C3L-B.4 **A 28μW Sub-Sampling Based Wake-Up Receiver with -70dBm Sensitivity for 915MHz ISM Band Applications ……2797**
Shahaboddin Moazzeni, Glenn E. R. Cowan, *Concordia University;*
Mohamad Sawan, *Ecole Polytechnique de Montreal*

15:42
C3L-B.5 **A Low Complexity Speech Coder for Binaural Communication in Hearing Aids ……2801**
Shuo-Wen Hsu, Tian-Sheuan Chang, *National Chiao-Tung University*

C3L-C **Statistical and Blind Signal Processing**

Time Wednesday, May 23, 2012 (14:30 - 16:00)
Place Room E2
Chair(s) Zhiping Lin, *Nanyang Technological University*
Weixing Zheng, *University of Western Sydney*

14:30
C3L-C.1 **Coping with Saturating Projection Stages in RMPI-Based Compressive Sensing ….2805**
Mauro Mangia, Riccardo Rovatti, *University of Bologna;*
Fabio Pareschi, Gianluca Setti, *University of Ferrara;*
Giovanni Frattini, *Texas Instruments*

14:48
C3L-C.2 **Robust Logistic Principal Component Regression for Classification of Data in Presence of Outliers ……..2809**
H. C. Wu, S. C. Chan, K. M. Tsui, *The University of Hong Kong*

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Muhammad Tahir AKHTAR, Tzyy-Ping Jung, Scott Makeig, Gert Cauwenberghs,
University of California San Diego

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Ke Deng, Qinye Yin, Yan Zhang, Huiming Wang, *Xi'an Jiaotong University*

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Wei Li, Ke Deng, Qinye Yin, Huiming Wang, *Xi'an Jiaotong University*

C3L-D **Low Power Reference Circuits**

Time Wednesday, May 23, 2012 (14:30 - 16:00)
Place Room E3
Chair(s) Julio Georgiou, *University of Cyprus*

14:30
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Chen Zhao, Randall Geiger, Degang Chen, *Iowa State University*

14:48
C3L-D.2 **A Simple Voltage Reference with Ultra Supply Independency ……2829**
Shun Bai, Stan Skafidas, *The University of Melbourne*

15:06
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G. T. Ong, P. K. Chan, *Nanyang Technological University*

15:24
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Xiaocheng Jing, Philip K.T. Mok, Cheng Huang, Fan Yang,
The Hong Kong University of Science and Technology

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C3L-D.5 **A Sub 1V Self Clocked Switched Capacitor Bandgap Reference with a Current Consumption of 180nA ……2841**
Martin Wiessflecker, Günter Hofer, Gerald Holweg, *Infineon Technologies Austria AG;*
Hannes Reinisch, Wolfgang Pribyl, *Graz University of Technology*

C3L-E Advanced MIMO Detector

Time: Wednesday, May 23, 2012 (14:30 - 16:00)
Place: Room E4
Chair(s): Jaejoon Kim, *Ulsan National Institute of Science & Technology*
Franklin Bien, *Ulsan National Institute of Science & Technology*

C3L-F Harvesting/Scavenging Energy for Biomedical Devices I

Time: Wednesday, May 23, 2012 (14:30 - 16:00)
Place: Room E7
Chair(s): Philipp Häfliger, *University of Oslo*
Guoxing Wang, *Shanghai Jiao Tong University*

C3L-G **Neural Implementations**

Time Wednesday, May 23, 2012 (14:30 - 16:00)
Place Room 307A
Chair(s) Andre van Schaik, *University of Western Sydney*
Giacomo Indiveri, *INI, ETH Zurich*

14:30
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Ravi Krishna Shaga, Shantanu Chakrabartty, *Michigan State University*

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Dzmitry Maliuk, *Yale University*;
Yiorgos Makris, *The University of Texas at Dallas*

15:06
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Wenjun Xia, Tadashi Shibata, *The University of Tokyo*

15:24
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Horacio Rostro-Gonzalez, Guillaume Garreau, Andreas Andreou, Julius Georgiou, *University of Cyprus;*
Jose H. Barron-Zambrano, Cesar Torres-Huitzil, *CINVESTAV*

15:42
C3L-G.5 **Architecture and Implementation of an Associative Memory Using Sparse Clustered Networks ……2901**
Hooman Jarollahi, Naoya Onizawa, Vincent Gripon, Warren J. Gross, *McGill University*

C3L-H **Visual Signal Reconstruction and Coding**

Time Wednesday, May 23, 2012 (14:30 - 16:00)
Place Room 307B
Chair(s) Daniel Lun, *The Hong Kong Polytechnic University*
Bing Zeng, *Hong Kong University of Science & Technology*

14:30
C3L-H.1 **Parallelizing Video Transcoding Using Map-Reduce-Based Cloud Computing ……..2905**
Feng Lao, Xinggong Zhang, Zongming Guo, *Peking University*

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Ho Sun Jung, Myung Hoon Sunwoo, *Ajou University;*
Un Seob Kim, *Telechips Inc.*

15:06
C3L-H.3 **Interpolation Based Symmetrical Predictor Structure for Lossless Image Coding ...2913**
Vinit Jakhetiya, Oscar C. AU, *The Hong Kong University of Science and Technology;*
Sunil Prasad Jaiswal, *The LNM Institute of Information Technology;*
Anil Kumar Tiwari, *Indian Institute of Technology Rajasthan*

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Jun Ke, Edmund Y. Lam, *The University of Hong Kong*

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C3L-H.5 **Design of Low-Complexity, Non-Separable 2-D Transforms Based on Butterfly Structures ……..2921**
Haoming Chen, Bing Zeng, *The Hong Kong University of Science and Technology*

C3L-J **Shortcuts in Circuits and Systems Education**

Time Wednesday, May 23, 2012 (14:30 - 16:00)
Place Room 307C
Chair(s) Cem Goknar, *Dongus University*
Tokunbo Ogunfunmi, *Santa Clara University*

14:30
C3L-J.1 **Shortcuts in Circuits and Systems Education with a Case Study of the Thévenin/Helmholtzand Norton/Mayer Equivalents ……2925**
Joos Vandewalle, *Katholieke Universiteit Leuven*

14:48
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Bernhard E. Boser, *University of California, Berkeley*

15:06
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Babak Ayazifar, *University of California, Berkeley*

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Scott Ambelang, Bharathwaj Muthuswamy, *Milwaukee School of Engineering*

C3L-K **Digital Circuit Design I**

Time Wednesday, May 23, 2012 (14:30 - 16:00)
Place Room 308A
Chair(s) Xinmiao Zhang, *Case Western Reserve University*
Bah-Hwee Gwee, *Nanyang Technological University*

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C3L-L **Interface Circuits for Sensors**
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Place Room 308B
Chair(s) Deuk Heo, *Washington State University*

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C4P-N **Calibration Techniques for Data Converters III**
Time Wednesday, May 23, 2012 (09:40 - 11:10)
Place Poster Area
Chair(s) Alyssa Apsel, *Cornell University*

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C4P-P **Sigma-Delta Converters II**
Time Wednesday, May 23, 2012 (09:40 - 11:10)
Place Poster Area
Chair(s) Salvatore Pennisi, *Università di Catania*

C4P-Q **Digital Circuit Design II**
Time Wednesday, May 23, 2012 (09:40 - 11:10)
Place Poster Area
Chair(s) Izzet Kale, *University of Westminster*
Vojin G. Oklobdzija, *New Mexico State University*

C4P-T **Digital Circuit Design III**

Time Wednesday, May 23, 2012 (09:40 - 11:10)
Place Poster Area
Chair(s) Bah-Hwee Gwee, *Nanyang Technological University*
Izzet Kale, *University of Westminster*

C4P-U **Sensory Systems I**

Time Wednesday, May 23, 2012 (09:40 - 11:10)
Place Poster Area
Chair(s) Tim Constandinou, *Imperial College London*

C4P-V **Sensory Systems II**

Time Wednesday, May 23, 2012 (09:40 - 11:10)
Place Poster Area
Chair(s) Tim Constandinou, *Imperial College London*

C5P-N **Voltage Regulator and Data Converter**

Time Wednesday, May 23, 2012 (11:30 - 13:00)
Place Poster Area
Chair(s) Hoi Lee, *University of Texas at Dallas*

C5P-P **Time-to-Digital Converter**
Time Wednesday, May 23, 2012 (11:30 - 13:00)
Place Poster Area
Chair(s) Sameer Sonkusale, *Tufts University*

C5P-Q **Digital Filters**
Time Wednesday, May 23, 2012 (11:30 - 13:00)
Place Poster Area
Chair(s) Hakan Johansson, *Linköping University*
Raija Lehto, *Tempere University of Technology*

C5P-R **DSP Algorithm and Applications I**

Time Wednesday, May 23, 2012 (11:30 - 13:00)
Place Poster Area
Chair(s) Izzet Kale, *University of Westminster*
Oscar Gustafsson, *Linköping University*

C5P-S **DSP Algorithm and Applications II**

Time Wednesday, May 23, 2012 (11:30 - 13:00)
Place Poster Area
Chair(s) David Tay, *La Trobe University*
Bah-Hwee Gwee, *Nanyang Technological University*

C5P-T **Digital Signal Processing**

Time Wednesday, May 23, 2012 (11:30 - 13:00)
Place Poster Area
Chair(s) M.N.S. Swamy, *Concordia University*
Yong Lian, *National University of Singapore*

C5P-U **New Directions in Computer-Aided Design**

Time Wednesday, May 23, 2012 (11:30 - 13:00)
Place Poster Area
Chair(s) Shih-Hsu Huang, *Chung Yuan Christian University*
Mineo Kaneko, *Japan Advanced Institue of Science and Technology*

C5P-V **Nanoelectronics and Gigascale Systems**

Time Wednesday, May 23, 2012 (11:30 - 13:00)

Place Poster Area

Chair(s) Chih-Wei Liu, *National Chiao Tung University*
Robert Chen-Hao Chang, *National Chung Hsing University*