15:04  B3L-P.4  Motion Compensation for Block-Based Lossless Video Coding using Lattice-Based Binning  .......... 2183
Mortuza Ali, Monash University; Manzur Murshed, Monash University

15:22  B3L-P.5  Transform-Domain Super Resolution for Improved Motion-Compensated Prediction  ................. 2187
Nafisa Tarannum, University of New South Wales at the Australian Defence Force Academy; Mark R. Pickering, University of New South Wales at the Australian Defence Force Academy; Michael R. Frater, University of New South Wales at the Australian Defence Force Academy; John F. Arnold, University of New South Wales at the Australian Defence Force Academy

B4L-A  SPECIAL SESSION: Circuits & Systems for Renewable Energy Sources (Lecture)
Time:  Tuesday, June 1, 2010, 16:00 - 17:30
Place:  Grand Ballroom E
Chair(s):  Giovanni Petrone, Università degli Studi di Salerno
          Doron Shmilovitz, Tel-Aviv University

16:00  B4L-A.1  A Returned Energy Architecture for Improved Photovoltaic Systems Efficiency  ......................... 2191
Yigal Nimni, Tel Aviv University; Doron Shmilovitz, Tel Aviv University

16:18  B4L-A.2  A Controller for Wind Generators to Increase Damping of Power Oscillations  ............................. 2195
G. Tsourakis, National Technical University of Athens; C. Vournas, National Technical University of Athens

16:36  B4L-A.3  Fuel Cell MPPT for Fuel Consumption Optimization  ................................................................. 2199
Carlos Andrés Ramos-Paja, Universidad Nacional de Colombia; Giovanni Spagnuolo, University of Salerno; Giovanni Petrone, University of Salerno; Roberto Giral, Universitat Rovira i Virgili; Alfonso Romero, Universitat Rovira i Virgili

16:54  B4L-A.4  Current Sourcing Isolated Grid Connected Inverter  ................................................................. 2203
Ilya Zeltser, Ben-Gurion University of the Negev; Sam Ben-Yaakov, Ben-Gurion University of the Negev

17:12  B4L-A.5  An Integrated Four-Port Converter for Compact and Efficient Hybrid Power Systems  ..................... 2207
Zhijun Qian, University of Central Florida; Osama Abdel-Rahman, Advanced Power Electronics Corporation; Christopher Hamilton, University of Central Florida; Majd Batarseh, University of Central Florida; Issa Batarseh, University of Central Florida

B4L-B  Wireless Circuits & Systems (Lecture)
Time:  Tuesday, June 1, 2010, 16:00 - 17:30
Place:  Grand Ballroom F
Chair(s):  Thierry Taris, University of Bordeaux

16:00  B4L-B.1  A 1.5V Low Noise Figure Mixer for 3.5GHz WiMAX Systems ....................................................... 2211
Ro-Min Weng, National Dong Hwa University; Shu-Wei Liu, National Dong Hwa University
16:18
B4L-B.2 Instantaneously Companding Baseband SC Low-Pass Filter and ADC for 802.11a/g WLAN Receiver
Shenjie Wang, Delft University of Technology; Vaibhav Maheshwari, Delft University of Technology; Wouter A. Serdijn, Delft University of Technology

16:36
B4L-B.3 An Area Efficient Digital Amplitude Modulator in 90nm CMOS
V. Chironi, University of Salento; B. Debaillie, IMEC; A. Baschirotto, University of Salento; J. Craninckx, IMEC; M. Ingels, IMEC

16:54
B4L-B.4 Efficiency based Design Flow for Fully-Integrated Class C RF Power Amplifiers in Nanometric CMOS
Nicolás Barabino, Universidad de la República; Rafaela Fiorelli, Universidad de Sevilla; Fernando Silva, Universidad de la República

17:12
B4L-B.5 A Broadband 470-862 MHz Direct Conversion CMOS Receiver
Raghavendra Kulkarni, Texas A&M University; Jusung Kim, Texas A&M University; Hyung-Joon Jeon, Texas A&M University; Jose Silva-Martinez, Texas A&M University; Jianhong Xiao, Broadcom Corporation

B4L-C Biomedical Signal Processing (Lecture)
Time: Tuesday, June 1, 2010, 16:00 - 17:30
Place: Grand Ballroom G
Chair(s): Wu-Sheng Lu, University of Victoria, Canada; Yajun Yu, Nanyang Technological University

16:00
B4L-C.1 Optimized Numerical Mapping Scheme for Filter-Based Exon Location in DNA using a Quasi-Newton Algorithm
Parameswaran Ramachandran, University of Victoria; Wu-Sheng Lu, University of Victoria; Andreas Antoniou, University of Victoria

16:18
B4L-C.2 Comparative Genomic Analysis using Statistically Optimal Null Filters
Rajasekhar Kakumani, Concordia University; M. Omair Ahmad, Concordia University; Vijay Devabhaktuni, University of Toledo

16:36
B4L-C.3 The Relationship Between Music Processing and Electrocardiogram (ECG) in Vegetative State (VS)
Brad S. Yen, National Chiao Tung University; Hui-Min Wang, National Chiao Tung University; Mark C. Hou, National Chiao Tung University; Sheng-Chieh Huang, National Chiao Tung University; Lei-Chun Chou, National Chiao Tung University; Shao-You Hsu, National Chiao Tung University; Tzu-Chia Huang, National Chiao Tung University; You-Liang Lai, National Chiao Tung University; Ming-Yie Jan, Academia Sinica

16:54
B4L-C.4 Data Adaptive Analysis of ECG Signals for Cardiovascular Disease Diagnosis
Md. Rabiul Islam, University of Rajshahi; Shamim Ahmad, University of Rajshahi; Keikichi Hirose, The University of Tokyo; Md. Khademul Islam Molla, University of Rajshahi
**B4L-D** Multimedia Mobile Networks (Lecture)

**Time:** Tuesday, June 1, 2010, 16:00 - 17:30

**Place:** Grand Ballroom H

**Chair(s):** Mladen Berekovic, Technische Universität Braunschweig
Chang Wen Chen, University at Buffalo

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16:00

**B4L-D.1** Time-Constrained Packet Scheduling Optimization for Video Streaming in Wireless Ad-Hoc Networks

Xinggong Zhang, Peking University; Zongming Guo, Peking University

16:18

**B4L-D.2** Efficient Packet Scheduling for Scalable Video Delivery to Mobile Clients

Maodong Li, Nanyang Technological University; Zhenzhong Chen, Nanyang Technological University; Seong-Ping Chuah, Nanyang Technological University; Yap-Peng Tan, Nanyang Technological University

16:36

**B4L-D.3** Cross-Layer Optimization for Wireless Streaming via Adaptive MIMO OFDM

Robert Yi-Pin Lu, National Taiwan University; Jun-Wei Lin, National Taiwan University; Tzi-Dar Chiueh, National Taiwan University

16:54

**B4L-D.4** A Cross-Layer Adaptation HCCA MAC for QoS-Aware H.264 Video Communications Over Wireless Mesh Networks

Byung Joon Oh, Link Communications, Ltd; Chang Wen Chen, State University of New York at Buffalo

17:12

**B4L-D.5** An EFOM for Cross-Layer Optimization Towards Low-Power and High-Performance Wireless Networks

Xia Li, Eindhoven University of Technology; Peter Baltus, Eindhoven University of Technology; Dusan Milosevic, Eindhoven University of Technology; Arthur van Roermund, Eindhoven University of Technology; Paul van Zeijl, Philips Research Eindhoven

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**B4L-E** Chemical Sensors (Lecture)

**Time:** Tuesday, June 1, 2010, 16:00 - 17:30

**Place:** Salon A

**Chair(s):** Amine Bermak, Hong Kong University of Science & Technology
Jennifer B. Christen, Arizona State University

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16:00

**B4L-E.1** A 100μA/Ch Fully-Integrable Lock-in Multi-Channel Frontend for Infrared Spectroscopic Gas Recognition

S. Sutula, Instituto de Microelectrónica de Barcelona; C. Ferrer, Instituto de Microelectrónica de Barcelona; F. Serra-Graells, Instituto de Microelectrónica de Barcelona

16:18

**B4L-E.2** A Single Chip Computational Sensor System for Gamma Isotope Identification

Nathan Schemm, University of Nebraska-Lincoln; Bo Liang, University of Nebraska-Lincoln; Sina Balkir, University of Nebraska-Lincoln; Michael W. Hoffman, University of Nebraska-Lincoln; Mark Bauer, University of Nebraska-Lincoln

16:36

**B4L-E.3** A Frequency-Based Signature Gas Identification Circuit for S₂O₂ Gas Sensors

Kwan Ting Ng, The University of Western Australia; Farid Boussaid, The University of Western Australia; Amine Bermak, Hong Kong University of Science and Technology
RF Inductive Sensors for Detection of Change in the Ionic Strength and pH of Liquid Samples

Siavash Saremi-Yarahmadi, Imperial College London; Olive H. Murphy, Imperial College London; Christofer Toumazou, Imperial College London

An ISFET based Sensing Array with Sensor Offset Compensation and pH Sensitivity Enhancement

Yan Liu, Imperial College of Science, Technology and Medicine; Chris Toumazou, Imperial College of Science, Technology and Medicine

Network Dynamics & Applications I (Lecture)

Time: Tuesday, June 1, 2010, 16:00 - 17:30
Place: Salon B
Chair(s): Jinhu Lu, Chinese Academy of Sciences; Wei Xing Zheng, University of Western Sydney

EEG-Based Cognitive State Monitoring and Prediction by using the Self-Constructing Neural Fuzzy System

Fu-Chang Lin, National Chiao-Tung University; Li-Wei Ko, National Chiao-Tung University; Shi-An Chen, National Chiao-Tung University; Ching-Fu Chen, National Chiao-Tung University; Chin-Teng Lin, National Chiao-Tung University

Intelligent Approach for PET Volume Analysis

Mhd Saeed Sharif, Brunel University; Abbas Amira, Brunel University; Habib Zaidi, Geneva University Hospital

A CNN Approach to Computing Arbitrary Boolean Functions

Eero Lehtonen, University of Turku; Jussi Poikonen, University of Turku; Mika Laiho, University of Turku

On Passivity of Delayed Markovian Jump Systems Subject to Parametric Uncertainties

Baoyong Zhang, Nanjing University of Science and Technology; Wei Xing Zheng, University of Western Sydney

Dynamics of Uncertain Neutral Stochastic Neural Networks with Markovian Jumping and Time-Varying Delays

Meng Dong, Northeastern University; Yingchun Wang, Northeastern University; Huaguang Zhang, Northeastern University; Zheng Song, Northeastern University

Power Systems Modeling & Simulation (Lecture)

Time: Tuesday, June 1, 2010, 16:00 - 17:30
Place: Salon C
Chair(s): Juri Jatskevich, University of British Columbia; Chika Nwankpa, Drexel University

Modeling Kita-Hon HVDC Link for Load Frequency Control of Eastern Japan 50-Hz Power System based on Application of the CampusWAMS

Changsong Li, Kyushu Institute of Technology; Yuji Okada, Kyushu Institute of Technology; Masayuki Watanabe, Kyushu Institute of Technology; Yasunori Mitani, Kyushu Institute of Technology
**B4L-G.2** An Eigenvalue Formulation for Determining Initial Conditions of Induction Machines in Dynamic Power System Simulations

Daniel K. Molzahn, University of Wisconsin-Madison; Bernard C. Lesieutre, University of Wisconsin-Madison

16:36

**B4L-G.3** Hardware Prototype to Emulate the Dynamics of Power System Generators with Field Programmable Analog Arrays

Anthony Deese, Drexel University; Juan C. Jiménez, Drexel University; Jon Berardino, Drexel University; Chika O. Nwankpa, Drexel University

16:54

**B4L-G.4** Averaged-Circuit Modeling of Line-Commutated Rectifiers for Transient Simulation Programs

Sina Chiniforoosh, University of British Columbia; Ali Davoudi, University of Illinois at Urbana-Champaign; Juri Jatskevich, University of British Columbia

17:12

**B4L-G.5** Simulation and Analysis of Distributed PV Generation in a LV Network using MATLAB-Simulink

Jose R. Rodriguez, IOC-UPC-Spain; Felipe Ruiz, DE-UTEM-Chile; Domingo Biel, IOC-UPC-Spain; Francesc Guinjoan, DEE-UPC-Spain

**B4L-H** Digital Circuits (Lecture)

*Time:* Tuesday, June 1, 2010, 16:00 - 17:30

*Place:* Salon D

*Chair(s):* Linda DeBrunner, Florida State University; Ming-Dou Ker, National Chiao Tung University

16:00

**B4L-H.1** A Low-Jitter Video Clock Recovery Circuit

Hossam Ali, Silicon Vision LLC; Emad Hegazi, Ain Shams University

16:18

**B4L-H.2** A Self-Learning Multiple-Class Classifier using Multi-Dimensional Quasi-Gaussian Analog Circuits

Zhouli Sun, University of Tokyo; Kyunghee Kang, University of Tokyo; Tadashi Shibata, University of Tokyo

16:36

**B4L-H.3** Implementation of the MFCC Front-End for Low-Cost Speech Recognition Systems

Ngoc-Vinh Vu, La Trobe University; Jim Whittington, La Trobe University; Hua Ye, La Trobe University; John Devlin, La Trobe University

16:54

**B4L-H.4** Low-Cost Low-Power Bypassing-Based Multiplier Design

Jin-Tai Yan, Chung-Hua University; Zhi-Wei Chen, Chung-Hua University

17:12

**B4L-H.5** Power Analysis Detectable Watermarks for Protecting Intellectual Property

John Goodwin, University of Southampton; Peter Wilson, University of Southampton
B4L-J VLSI Modeling & Optimization (Lecture)

Time: Tuesday, June 1, 2010, 16:00 - 17:30
Place: Salon J
Chair(s): Fathi Salem, Michigan State University
Radu Secareanu, Motorola, Inc

16:00
B4L-J.1 Compact Substrate Models for Efficient Noise Coupling and Signal Isolation Analysis ........................................ 2346
Renatas Jakushokas, University of Rochester; Emre Salman, University of Rochester;
Eby G. Friedman, University of Rochester; Radu M. Secareanu, Freescale Semiconductor;
Olin L. Hartin, Freescale Semiconductor; Cynthia L. Recker, Freescale Semiconductor

16:18
B4L-J.2 Effect of Body Biasing on Embedded SRAM Failure ................................................................................................. 2350
Amin Khajeh, University of California Irvine; Ahmed M. Eltawil, University of California Irvine;
Fadi J. Kurdi, University of California Irvine

16:36
B4L-J.3 Networks-on-Chip Topology Optimization Subject to Power, Delay, and Reliability Constraints ........ 2354
Haytham Elmiligy, University of Victoria; Ahmed A. Morgan, University of Victoria;
M. Watheq El-Kharashi, Mentor Graphics Egypt; Fayez Gebali, University of Victoria

16:54
B4L-J.4 Parallel Sparse Matrix Solver for Direct Circuit Simulations on FPGAs ......................................................... 2358
Tarek Nechma, University of Southampton; Mark Zwoliński, University of Southampton;
Jeff Reeve, University of Southampton

B4L-K Digital Audio & Speech Processing (Lecture)

Time: Tuesday, June 1, 2010, 16:00 - 17:30
Place: Salon K
Chair(s): Gwee Bah Hwee, Nanyang Technological University

16:00
B4L-K.1 A Simplified Structure of Second-Order Volterra Filters for Nonlinear Acoustic Echo Cancellation .................. 2366
Jing Fu, South China University of Technology; Wei-Ping Zhu, Concordia University

16:18
B4L-K.2 A Modified TESPAR Algorithm for Wildlife Sound Classification ............................................................. 2370
Marius Vasile Ghirucau, Technical University of Cluj-Napoca; Corneliu Rusu, Technical University of Cluj-Napoca;
Radu Ciprian Bilcu, Nokia Research Center

16:36
B4L-K.3 Quasi-Periodic Signal Analysis using Harmonic Transform with Application to Voiced Speech Processing .............. 2374
Piotr Zubrycki, Białystok University of Technology; Alexander Petrovsky, Białystok University of Technology

16:54
B4L-K.4 Complexity-Effective Dynamic Range Compression for Digital Hearing Aids ............................................. 2378
Kuo-Chiang Chang, National Chiao Tung University; Yu-Ting Kuo, National Chiao Tung University;
Tay-Jyi Lin, National Chiao Tung University; Chih-Wei Liu, National Chiao Tung University
17:12
B4L-K.5 Improved Wavelet based A-Priori SNR Estimation for Speech Enhancement
Daniel Pak-Kong Lun, The Hong Kong Polytechnic University; Tai-Chiu Hsung, The Hong Kong Polytechnic University

16:00
B4L-L Circuit Theory & Techniques (Lecture)
Time: Tuesday, June 1, 2010, 16:00 - 17:30
Place: Salon L
Chair(s): Paul Sotiriadis, Sotekco LLC, USA

16:00
B4L-L.1 Analytical Passive Mixer Power Gain Models
M. Lont, Eindhoven University of Technology; D. Milosevic, Eindhoven University of Technology; P.G.M. Baltus, Eindhoven University of Technology; A.H.M. van Roermund, Eindhoven University of Technology; G. Dolmans, Holst Centre

16:18
B4L-L.2 Detailed Analyses in Prediction of Capacitive-Mismatch-Induced Offset In Dynamic Comparators
Jun He, Iowa State University; Degang Chen, Iowa State University; Randall Geiger, Iowa State University

16:36
B4L-L.3 Generation of Active Inductor Circuits
Marian Pierzchala, Wroclaw University of Technology; Mourad Fakhfakh, University of Sfax

16:54
B4L-L.4 Symmetry-Aware Analog Layout Placement Design Handling Substrate-Sharing Constraints
Rui He, Memorial University of Newfoundland; Lihong Zhang, Memorial University of Newfoundland

17:12
B4L-L.5 Indefinite Matrices of Linear Electrical Circuits, their Pseudoinverses, and Applications in Related Fields
Cristian E. Onete, NXP Semiconductors; Maria Cristina C. Onete, Technische Universität Darmstadt & CASED

16:00
B4L-M Sigma-Delta Applications (Lecture)
Time: Tuesday, June 1, 2010, 16:00 - 17:30
Place: Salon M
Chair(s): Anas Hamoui, McGill University

16:00
B4L-M.1 Design of a 70-MHz IF 10-MHz Bandwidth Bandpass \( \Sigma \Delta \) Modulator for WCDMA Applications
Hervé Caracciolo, University of Pavia; Edoardo Bonizzoni, University of Pavia; Piero Malcovati, University of Pavia; Franco Maloberti, University of Pavia

16:18
B4L-M.2 A 100 \( \mu \)W Decimator for a 16 Bit 24 kHz Bandwidth Audio \( \Delta \Sigma \) Modulator
Shankar Parameswaran, Indian Institute of Technology Madras; Nagendra Krishnapura, Indian Institute of Technology Madras

16:36
B4L-M.3 A 13-Bit, Low-Power, Compact ADC Suitable for Sensor Applications
Honglei Chen, Tsinghua University; Dong Wu, Tsinghua University; Yanzhao Shen, Tsinghua University; Jun Xu, Tsinghua University
B4L-M.4 A Frequency-Scalable 15-Bit Incremental ADC for Low Power Sensor Applications
Joshua Liang, University of Toronto; David A. Johns, University of Toronto

B4L-M.5 Double-Sampling Analog-Look-Ahead Second Order ΔΣ Modulator with Reduced Dynamics
Aldo Pena-Perez, University of Pavia; Victor R. Gonzalez-Diaz, University of Pavia; Franco Maloberti, University of Pavia

B4L-N SPECIAL SESSION: Activity-Driven, Event Coding Vision Sensors (Lecture)
Time: Tuesday, June 1, 2010, 16:00 - 17:30
Place: Radio City Ballroom I
Chair(s): Tobi Delbruck, ETH Zürich
Bernabe Linares-Barranco, Institute of Microelectronics, Sevilla

B4L-N.1 Activity-Driven, Event-Based Vision Sensors
Tobi Delbrück, UNI-ETH Zürich; Bernabe Linares-Barranco, Center for Microelectronics; Eugenio Culurciello, Yale University; Christoph Posch, Austrian Institute of Technology

B4L-N.2 High-DR Frame-Free PWM Imaging with Asynchronous AER Intensity Encoding and Focal-Plane Temporal Redundancy Suppression
Christoph Posch, Austrian Institute of Technology; Daniel Matolin, Austrian Institute of Technology; Rainer Wohlgenannt, Austrian Institute of Technology

B4L-N.3 A Compact-Pixel Tri-IVIode Vision Sensor
Dongsoo Kim, Yale University; Eugenio Culurciello, Yale University

B4L-N.4 A Signed Spatial Contrast Event Spike Retina Chip
J.A. Lefiero-Bardallo, Instituto de Micorelectronica de Sevilla (IMSE-CNM-CSIC); T. Serrano-Gotarredona, Instituto de Micorelectronica de Sevilla (IMSE-CNM-CSIC); B. Linares-Barranco, Instituto de Micorelectronica de Sevilla (IMSE-CNM-CSIC)

B4L-N.5 Temporal Contrast AER Pixel with 0.3%-Contrast Event Threshold
Tobi Delbruck, University of Zurich and ETH Zürich; Raphael Berner, University of Zurich and ETH Zürich

B4L-P SPECIAL SESSION: Recent Theory & New Applications in Chaos Communication (Lecture)
Time: Tuesday, June 1, 2010, 16:00 - 17:30
Place: Radio City Ballroom II
Chair(s): Geza Kolumban, Pazmany Peter Catholic University
Tony Lawrance, University of Warwick

B4L-P.1 Recent Theory and New Applications in Chaos Communications
Anthony J. Lawrance, University of Warwick

B4L-P.2 Feasibility of UWB Radio: Impulse Radio versus Chaos-Based Approach
Géza Kolumbán, Pázmány Péter Catholic University; Tamás Krébesz, Budapest University of Technology and Economics; Francis C.M. Lau, The Hong Kong Polytechnic University
B4L-P.3 Design and Simulation of a Cooperative Communication System based on DCSK/FM-DCSK
Jing Xu, Xiamen University; Weikai Xu, Xiamen University; Lin Wang, Xiamen University; Guanrong Chen, City University of Hong Kong

B4L-P.4 Performance Evaluation of Error-Correcting Scheme Without Redundancy Code for Noncoherent Chaos Communications
Shintaro Arai, Aichi University of Technology; Yoshifumi Nishio, Tokushima University; Takaya Yamazato, Nagoya University; Shinji Ozawa, Aichi University of Technology

B4L-P.5 Performance Analysis of Differential Chaos Shift-Keying Over an M-Distributed Fading Channel
Georges Kaddoum, LACIME laboratory, ETS; Pascal Chargé, LATTIS Laboratory; Daniel Roviras, LAETITIA Laboratory; François Gagnon, LACIME laboratory, ETS

B5P-Q Low Power Design for Nano-Circuits (Poster)
Time: Tuesday, June 1, 2010, 9:30 - 11:00
Place: Times Square 1
Chair(s): Shyh-Jye Jou, National Chiao Tung University; Mona E. Zaghloul, George Washington University

B5P-Q.1 Robust Low Power Design in Nano-CMOS Technologies
Touqeer Azam, University of Glasgow; David R.S. Cumming, University of Glasgow

B5P-Q.2 Ultra-Wide-Band Low Noise Amplifier using Inductive Feedback in 90-nm CMOS Technology
Heng-Ming Hsu, National Chung-Hsing University; Tai-Hsin Lee, National Chung-Hsing University; Jhao-Siang Huang, National Chung-Hsing University

B5P-Q.3 Adiabatic SRAM with a Shared Access Port using a Controlled Ground Line and Step-Voltage Circuit
Shunji Nakata, NTT Corporation; Hirotsugu Suzuki, Kanazawa University; Ryota Honda, Kanazawa University; Takahito Kusumoto, Kanazawa University; Shin'ichi Miyama, Kanazawa University; Hiroshi Makino, Osaka Institute of Technology; Masayuki Miyama, Kanazawa University; Yoshio Matsuda, Kanazawa University

B5P-Q.4 A New Substrate Model and Parameter Extraction Method for DNW RF MOSFETs
Jun Liu, Hangzhou Dianzi University; Lingling Sun, Hangzhou Dianzi University; Zhiping Yu, Hangzhou Dianzi University; Marissa Condon, Dublin City University

B5P-Q.5 A Forward Body Bias Generator for Digital CMOS Circuits with Supply Voltage Scaling
Maurice Meijer, NXP Semiconductors; José Pineda de Gyvez, NXP Semiconductors / Technical University of Eindhoven; Ben Kup, NXP Semiconductors; Bert van Uden, NXP Semiconductors; Peter Bastiaansen, NXP Semiconductors; Marco Lammers, NXP Semiconductors; Maarten Vertregt, NXP Semiconductors

B5P-R Design for Variability in Nano-Electronics & Systems (Poster)
Time: Tuesday, June 1, 2010, 9:30 - 11:00
Place: Times Square 2
Chair(s): Sorin Cotofana, Delft University of Technology; Chin-Wei Liu, National Chiao-Tung University

B5P-R.1 Selective Redundancy-Based Design Techniques for the Minimization of Local Delay Variations
Milos Stanisavljevic, EPFL; Alexandre Schmid, EPFL; Yusuf Leblebici, EPFL
B5P-R.2 Process Variation Compensation of a 4.6 GHz LNA in 65nm CMOS
Mustansir Yunus Mukadam, Cornell University; Oscar Gouveia Filho, Universidade Federal do Paraná; Xuan Zhang, Cornell University; Alyssa B. Apsel, Cornell University

B5P-R.3 Statistical NBTI-Effect Prediction for ULSI Circuits
Tong Boon Tang, University of Edinburgh; Alan F. Murray, University of Edinburgh; Binjie Cheng, University of Glasgow; Asen Asenov, University of Glasgow

B5P-R.4 Design Metrics for RTL Level Estimation of Delay Variability Due to Intradie (Random) Variations
Michael Merrett, University of Southampton; Yangang Wang, University of Southampton; Mark Zwolinski, University of Southampton; Koushik Maharatna, University of Southampton; Massimo Alioto, Università di Siena

B5P-R.5 Statistical Delay Modeling of Read Operation of SRAMs Due to Channel Length Variation
Hossein Aghababa, University of Tehran; Mahmoud Zangeneh, University of Tehran; Ali Afzali-Kusha, University of Tehran; Behjat Forouzandeh, University of Tehran

B5P-S Blind Signal Processing (Poster)
Time: Tuesday, June 1, 2010, 9:30 - 11:00
Place: Times Square 3
Chair(s): Shoji Makino, University of Tsukuba
Aurelio Uncini, Università di Roma La Sapienza

B5P-S.1 Cepstral Smoothing of Separated Signals for Underdetermined Speech Separation
Yumi Ansai, University of Tsukuba; Shoko Araki, NTT Corporation; Shoji Makino, University of Tsukuba; Tomohiro Nakatani, NTT Corporation; Takeshi Yamada, University of Tsukuba; Atsushi Nakamura, NTT Corporation; Nobuhiko Kitawaki, University of Tsukuba

B5P-S.2 A Statistical Analysis of the Dual-Mode CMA
Renato Candido, University of São Paulo; Magno T.M. Silva, University of São Paulo; Maria D. Miranda, University of São Paulo; Vitor H. Nascimento, University of São Paulo

B5P-S.3 A Modified Eigenvector Method for Blind Deconvolution of MIMO Systems using the Matrix Pseudo-Inversion Lemma
Mitsuru Kawamoto, National Institute of Advanced Industrial Science and Technology; Kiyotaka Kohno, Yonago National College of Technology; Yujiro Inouye, Shimane University; Koichi Kurumatani, National Institute of Advanced Industrial Science and Technology

B5P-S.4 A Signal Perturbation Free Semi-Blind MRT MIMO Channel Estimation Approach
Chung Chen, Nanjing University of Posts and Telecommunications; Wei-Ping Zhu, Concordia University; Qingmin Meng, Nanjing University of Posts and Telecommunications

B5P-S.5 Blind Channel Estimation based Robust Physical Layer Key Generation in MIMO Networks
Sachin S. Shetty, Tennessee State University; Ravi P. Ramachandran, Rowan University

B5P-T DSP for Communications (Poster)
Time: Tuesday, June 1, 2010, 9:30 - 11:00
Place: Times Square 4
Chair(s): Mohsin Jamali, University of Toledo
Yoshikazu Miyanaga, Hokkaido University

B5P-T.1 Low Complexity Adaptive Step-Size Filtered Gradient-Based Per-Tone DMT Equalisation
Suchada Sitjongsataporn, Mahanakorn University of Technology; Peerapol Yuvaapoositanon, Mahanakorn University of Technology
B5P-T.2 A Multiplierless Structure for Direct Digital IF Signal Synthesis .................................................. 2530
Ruimin Huang, University of Freiburg; Niklas Lotze, University of Freiburg; Markus Becker, University of Freiburg; Yiannos Manoli, University of Freiburg

B5P-T.3 Scalable Pipeline Architecture of MMSE MIMO Detector for 4x4 MIMO-OFDM Receiver .......................... 2534
Shingo Yoshizawa, Hokkaido University; Hirokazu Ikeuchi, Hokkaido University; Yoshikazu Miyanaga, Hokkaido University

B5P-T.4 Enhanced Direction of Arrival Estimation via Reassigned Space-Time-Frequency Methods ...................... 2538
S.R. Miller, Arizona State University; A.S. Spanias, Arizona State University; A. Papandreou-Suppappola, Arizona State University; R. Santucci, Arizona State University

B5P-T.5 Image Encryption using the Reciprocal-Orthogonal Parametric Transform ............................................. 2542
Saad Bouguezel, University Farhat Abbas of Setif; M. Omair Ahmad, Concordia University; M.N.S. Swamy, Concordia University

B5P-U Spiking Networks & Network Algorithms (Poster)
Time: Tuesday, June 1, 2010, 9:30 - 11:00
Place: Time Square 5
Chair(s): John Harris, University of Florida
Shih-Chii Liu, ETH Zürich

B5P-U.1 A Reinforcement Learning Algorithm Used In Analog Spiking Neural Network for an Adaptive Cardiac Resynchronization Therapy Device .................................................. 2546
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Time: Tuesday, June 1, 2010, 9:30 - 11:00
Place: Times Square 8
Chair(s): Rolf Drechsler, University of Bremen

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**Time:** Tuesday, June 1, 2010, 11:20 - 12:50  
**Place:** Times Square 1  
**Chair(s):** M. Omair Ahmad, Concordia University

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**Time:** Tuesday, June 1, 2010, 11:20 - 12:50  
**Place:** Times Square 2  
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Place: Times Square 3
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         David Tay, La Trobe University
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Place: Times Square 5
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Mauricio F. Quelhas, Federal University of Río de Janeiro; Antonio Petraglia, Federal University of Río de Janeiro

B6P-U.4 Digital Notch Filter with Time-Varying Quality Factor for the Reduction of Powerline Interference
Jacek Piskorowski, West Pomeranian University of Technology

B6P-U.5 A Novel Technique for DCGA Optimization of Guaranteed BIBO Stable IIR-Based FRM Digital Filters Over the CSD Multiplier Coefficient Space
Syed Bokhari, University of Alberta; Behrouz Nowrouzian, University of Alberta; S. Ali Hashemi, University of Alberta

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Time: Tuesday, June 1, 2010, 11:20 - 12:50
Place: Times Square 6
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Tadashi Suetsugu, Fukuoka University

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Tadashi Suetsugu, Fukuoka University; Marian K. Kazimierczuk, Wright State University

B6P-V.2 An Area Efficient Fully Monolithic Hybrid Voltage Regulator
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B6P-V.3 Freewheel Duration Adjustment Circuits for Charge-Control Single-Inductor Dual-Output Switching Converters
Kwok-To Kwan, The Hong Kong University of Science and Technology; Wing-Hung Ki, The Hong Kong University of Science and Technology

B6P-V.4 Analysis and Improvement of Bilateral Chopper Having Current Resonant Soft-Switch
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B6P-V.5 Design of a Step-Up DC-DC Converter with On-Chip Coupled Inductors
Ayaz Hasan, University of Guelph; Stefano Gregori, University of Guelph

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Nisha Kondrath, Wright State University; Marian K. Kazimierczuk, Wright State University

B6P-W.2 A Current-Limiter-Based Soft-Start Scheme for Linear and Low-Dropout Voltage Regulators
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B6P-W.3 Analysis and Design of a Loss-Free Resistor based on a Boost Converter in PWM Operation
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Time: Tuesday, June 1, 2010, 11:20 - 12:50
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Place: Times Square 1
Chair(s): Philipp Häfliger, University of Oslo

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Time: Tuesday, June 1, 2010, 14:10 - 17:30
Place: Times Square 2
Chair(s): Philipp Häfliger, University of Oslo

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Daniel Brüderle, Ruperto-Carola University; Johannes Bill, Ruperto-Carola University; Bernhard Kaplan, Ruperto-Carola University; Jens Kremkow, Albert-Ludwig University; Karlheinz Meier, Ruperto-Carola University; Eric Müller, Ruperto-Carola University; Johannes Schemmel, Ruperto-Carola University

Live Demonstration: State-Dependent Sensory Processing in Networks of VLSI Spiking Neurons
Emre Neftci, University of Zurich and ETH Zurich; Elisabetta Chicca, University of Zurich and ETH Zurich; Matthew Cook, University of Zurich and ETH Zurich; Giacomo Indiveri, University of Zurich and ETH Zurich; Rodney Douglas, University of Zurich and ETH Zurich

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Scott Koziol, Georgia Institute of Technology; Craig Schlottmann, Georgia Institute of Technology; Arindam Basu, Georgia Institute of Technology; Stephen Brink, Georgia Institute of Technology; Csaba Petre, Georgia Institute of Technology; Brian Degnan, Georgia Institute of Technology; Shubha Ramakrishnan, Georgia Institute of Technology; Paul Hasler, Georgia Institute of Technology; Aurele Balavoine, Georgia Institute of Technology

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Hung Tat Chen, Hong Kong University of Science and Technology; Amine Bennak, Hong Kong University of Science and Technology; Adam Khalifa, Hong Kong University of Science and Technology; Dominique Martinez, LORIA

Live Demonstration: Spatial-Temporal Color Video Reproduction from Noisy CFA Sequence
Lei Zhang, The Hong Kong Polytechnic University; Weisheng Dong, Xidian University; Chiu-Wai Hui, The Hong Kong Polytechnic University; Xiaolin Wu, McMaster University; Guangming Shi, Xidian University
### Wednesday, June 2, 2010

**C1L-A**  SPECIAL SESSION: Circuits & Systems Concept Inventory (Lecture)

**Time:**  Wednesday, June 2, 2010, 9:30 - 11:00  
**Place:**  Grand Ballroom E  
**Chair(s):**  Tokunbo Ogunfunmi, Santa Clara University  
Joos Vandewalle, Katholieke Universiteit Leuven

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<td><strong>C1L-A.1</strong> A Concepts Inventory for an Attractive Teaching Approach of the Mathematics of Circuits and Systems</td>
<td>Joos Vandewalle, Katholieke Universiteit Leuven</td>
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<td>9:48</td>
<td><strong>C1L-A.2</strong> A Concept Inventory for an Electric Circuits Course: Rationale and Fundamental Topics</td>
<td>Tokunbo Ogunfunmi, Santa Clara University; Mahmudur Rahman, Santa Clara University</td>
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<td>10:06</td>
<td><strong>C1L-A.3</strong> A Set of Questions for a Concept Inventory for a DC Circuits Course</td>
<td>Mahmudur Rahman, Santa Clara University; Tokunbo Ogunfunmi, Santa Clara University</td>
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<td><strong>C1L-A.4</strong> A First Lab in Filter Design: Power Line Hum Suppression in an ECG Signal</td>
<td>Hsin-I Liu, University of California, Berkeley; Jonathan Kotker, University of California, Berkeley; Babak Ayazifar, University of California, Berkeley</td>
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**C1L-B**  Complex Amplifiers (Lecture)

**Time:**  Wednesday, June 2, 2010, 9:30 - 11:00  
**Place:**  Grand Ballroom F  
**Chair(s):**  Gaetano Palumbo, University of Catania

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<td><strong>C1L-B.1</strong> A Novel Low-Power High-Speed Rail-to-Rail Class-B Buffer Amplifier for LCD Output Drivers</td>
<td>Davide Marano, Università di Catania; Gaetano Palumbo, Università di Catania; Salvatore Pennisi, Università di Catania</td>
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<td>9:48</td>
<td><strong>C1L-B.2</strong> Rail-to-Rail Low-Power Fully Differential OTA Utilizing Adaptive Biasing and Partial Feedback</td>
<td>Tuan Vu Cao, University of Oslo; Dag T. Wisland, University of Oslo; Tor Sverre Lande, University of Oslo; Farshad Moradi, University of Oslo</td>
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<td>10:06</td>
<td><strong>C1L-B.3</strong> Linear-in-dB Variable Gain Amplifier with PWL Exponential Gain Control</td>
<td>D. Moro-Frias, INAOE; M.T. Sanz-Pascual, INAOE; C.A. de la Cruz-Blas, Public University of Navarra</td>
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<td>10:24</td>
<td><strong>C1L-B.4</strong> Two-Stage Fully-Differential Inverter-Based Self-Biased CMOS Amplifier with High Efficiency</td>
<td>M. Figueiredo, Universidade Nova de Lisboa; E. Santin, Universidade Nova de Lisboa; J. Goes, Universidade Nova de Lisboa; R. Santos-Tavares, Universidade Nova de Lisboa; G. Evans, Faculdade de Ciências da Universidade de Lisboa</td>
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<td>10:42</td>
<td><strong>C1L-B.5</strong> Low-Power Dual-Active Class-AB Buffer Amplifier with Self-Biasing Network for LCD Column Drivers</td>
<td>Davide Marano, Università di Catania; Gaetano Palumbo, Università di Catania; Salvatore Pennisi, Università di Catania</td>
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Xinping Huang, Communications Research Centre Canada; Mario Caron, Communications Research Centre Canada

C1L-C.2 Beamforming using Passive Nested Arrays of Sensors
Piya Pal, California Institute of Technology; P.P. Vaidyanathan, California Institute of Technology

C1L-C.3 Fast Huffman Decoding Algorithm by Multiple-Bit Length Search Scheme for MPEG-2/4 AAC
Han-Chang Ho, National Cheng Kung University; Sheau-Fang Lei, National Cheng Kung University

C1L-C.4 Super-Resolution ToA Estimation for Indoor Geolocation of Wireless Sensor Networks using Frequency Hopping
Weile Zhang, Xi'an Jiaotong University; Qinye Yin, Xi'an Jiaotong University; Wenjie Wang, Xi'an Jiaotong University

C1L-C.5 Tracking by Nonuniform Amplitude Division based LMS Algorithm for Time Varying Channels
Rubaiyat Yasmin, Saitama University; Tetsuya Shimamura, Saitama University

C1L-D Transcoding & Image Segmentation (Lecture)

C1L-D.1 Efficient Algorithm for H.264/AVC Intra Frame Transcoding
Chien-Da Wu, National Central University; Yinyi Lin, National Central University

C1L-D.2 Fast Block-Size Partitioning Using Empirical Rate-Distortion Models for MPEG-2 to H.264/AVC Transcoding
Qiang Tang, University of British Columbia; Panos Nasiopoulos, University of British Columbia; Rabab Ward, University of British Columbia

C1L-D.3 Learn to Segment Attention Object from Low DoF Image
Hongliang Li, University of Electronic Science and Technology of China; Guanghui Liu, University of Electronic Science and Technology of China; KingNgi Ngan, The Chinese University of Hong Kong

C1L-D.4 A New Method for Segmentation of Noisy, Low-Contrast Image Sequences
Hsiao-Chiang Chuang, Purdue University; Mary L. Comer, Purdue University
10:42
C1L-D.5  A Directional Extension of the JPEG Image Codec
Marek Parfieniuk, Bialystok Technical University

C1L-E  Giga-Scale Arrays & Architectures (Lecture)
Time:   Wednesday, June 2, 2010, 9:30 - 11:00
Place:  Salon A
Chair(s):  Ching-Te Chiu, National Tsing Hwa University
Danella Zhao, University of Louisiana at Lafayette

9:30
C1L-E.1  Performance Analysis of 3D-IC for Multi-Core Processors in Sub-65nm CMOS Technologies
Kumiko Nomura, Toshiba Corporation; Keiko Abe, Toshiba Corporation; Shinobu Fujita, Toshiba Corporation; Yasuhiko Kurosawa, Toshiba Corporation; Atsushi Kageshima, Toshiba Corporation

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C1L-E.2  Combining Circuit and Packet Switching with Bus Architecture in a NoC for Real-Time Applications
Angelo Kuti Lusala, Université Catholique de Louvain; Jean-Didier Legat, Université Catholique de Louvain

10:06
C1L-E.3  A 100-Context Optically Reconfigurable Gate Array
Mao Nakajima, Shizuoka University; Minoru Watanabe, Shizuoka University