



| | 14.09 (Friday) | 15.09 (Saturday) | 16.09 (Sunday) | 17.09 (Monday) |
|-------|--------------------------------|--|--|--|
| 9:00 | Registration | Three Plenary Talks, Action Hall | Three Plenary Talks, Action Hall | Three Plenary Talks, Action Hall |
| 9:30 | | | | |
| 10:00 | | | | |
| 10:30 | | Coffee Break | | |
| 11:00 | | | | |
| 11:30 | | Regular Papers Session (Rooms A-334, B-Conference Hall, C-318) | Regular Papers Session (Rooms A-334, B-Conference Hall, C-318) | Regular Papers Session (Rooms A-334, B-Conference Hall, C-318) |
| 12:00 | | | | |
| 12:30 | | | | |
| 13:00 | | | | |
| 13:30 | Lunch (13.30 - 14.30) | | | |
| 14:00 | | | | |
| 14:30 | | | | |
| 15:00 | Opening Session | Free Time | Social Event: City Kharkov tour | Closing Symposium, Action Hall |
| 15:30 | | | | |
| 16:00 | | | | |
| 16:30 | | | | |
| 17:00 | | | | |
| 17:30 | Plenary Session A, Action Hall | Departure | | |
| 18:00 | | | | |
| 18:30 | | | | |
| 19:00 | Concert | | Gala Dinner, restaurant "Baden-Baden" | |
| 19:30 | | | | |
| 20:00 | | | | |
| 20:30 | Welcome Reception, KHMURE | Social Event: Opera and Ballet Theatre | | |
| 21:00 | | | | |



FROM THE ORGANIZING COMMITTEE

We have great pleasure to invite you to Anniversary IEEE EAST-WEST DESIGN & TEST SYMPOSIUM – EWDTs'12!

The purpose of the symposium is to coordinate and exchange experiences between leading scientific organizations and experts of the Eastern and Western Europe, as well as of the USA in the field of digital systems design and test.

From the one side, an overview of the state-of-the-art and of the most important progress trends of the industrial design and test will be presented by leading researchers and practitioners.

On the other side, an overview of recent achievements obtained by the scientists and technologists will be presented by the researchers and practitioners from countries in the region.

We are happy that EWDTs is becoming a world-renown event, as we have seen the interest of Eastern and Western scientists in mutual collaboration. As a result of this collaboration we can see the penetration of new technologies in the Eastern Europe market and educational system.

We would like to thank: Yervant Zorian, Rich Goldman, Raimund Ubar, Viktor Djigan, Alexander Drozd, Vyacheslav Kharchenko, Igor Klyuchnik, Andrey Frolov for taking an active role in organizing the conference technical program and finances, in international activity in the field of higher education in Ukraine, and in support the preparation and operation of the symposium. The greatest appreciation to the official EWDTs'12 technical sponsor, the IEEE Computer Society Test Technology Technical Council – TTTC, and financial supporters Aldec, Synopsys, DataArt Lab, Tallinn Technical University, Trades Committee of Kharkov National University of Radioelectronics and Trades Committee of Students. We especially thank the Rector Mikhail Bondarenko – Kharkov National University of Radio Electronics for overall support and active personal participation in preparation and holding of the symposium.

We welcome all the participants of the symposium and wish you successful discussions and a pleasant stay in Kharkov!



ORGANIZING COMMITTEE

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|----------------|-------------------------------|
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| G. Markosyan | Publicity Chair, Armenia |
| V. Djigan | Public Relation Chair, Russia |
| S. Chumachenko | Local Arrangement, Ukraine |
| E. Litvinova | Local Arrangement, Ukraine |

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Svetlana Chumachenko, Eugenia Litvinova – Kharkov NU of
Radio Electronics, Ukraine

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TECHNICAL SPONSORSHIP

The Technical Sponsor of the 9th IEEE East-West Design & Test Symposium is IEEE COMPUTER SOCIETY'S Test Technology Technical Council (TTTC).



The Test Technology Technical Council is a volunteer professional organization sponsored by IEEE Computer Society. Its mission is to contribute to members' professional development and advancement and to help them solve engineering problems in electronic test, and help advance the state-of-the-art in test technology.

TTTC is a prime source of knowledge about electronic test via its conferences, workshops, standards, tutorials and education programs, web site, newsletters, and electronic broadcasts. All its activities are led by volunteer members. TTTC membership is open to all individuals directly or indirectly involved in test technology at a professional level. You may enroll as TTTC member for 2011 (no dues or fees). To learn more about TTTC offerings and membership benefits, please visit: <http://tab.computer.org/tttc>

IEEE DESIGN & TEST OF COMPUTERS



IEEE D&T is a bimonthly magazine published by the IEEE Computer Society in cooperation with the IEEE Circuits and Systems Society specifically for design and test engineers, and researchers. D&T features peer-reviewed original work describing methods and practices used to design and test electronic product hardware and supportive software. Articles explore current practices and experience in: System Level Design and Test; Embedded Test Technology; Low Power Design; Reconfigurable



Systems; Board and System Test; Analog and Mixed Signal Design and Test; System-on-Chip Design and IP Reuse; Embedded Systems and Software; Design and Verification.

PAPER SUBMISSION: Authors should use Manuscript Central (<https://mc.manuscriptcentral.com/cs-ieee>) to upload their submissions. The first-time user must create a new account. The site provides detailed instructions on usage. Each submitted paper undergoes at least three technical reviews. All submissions must be original, previously unpublished work.

Scientific and Technical Journal

RADIOELECTRONICS AND INFORMATICS

A Journal serving electronic and test professionals in concurrence with the Test Technology Technical Council (TTTC) of the IEEE Computer Society. The main target is to exchange experiences between the scientists and technologies of the Eastern and Western Europe, as well as North America and other parts of the world, in the field of Computer Engineering (Design automation and test of electronic systems), Computer Science, Radiotechnics (RF Design), Microelectronics, HDTV, and Telecommunications.

The main features of R&I Journal are: 1) English language. 2) IEEE CS (like IEEE Transactions on ...) format of camera-ready. 3) Reviewed by 3 independent and blind reviewers. 4) Covered by IEEE index and included into IEEE library. 5) Publisher – Kharkov National University of Radio Electronics. 6) <http://www.ewdtest.com/ri>

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INFORMATION SUPPORT IS PROVIDED BY

- Russian A.S. Popov Society for Radioengineering, Electronics & Communications (Moscow, Russia);
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- The Institute for Design Problems in Microelectronics of the Russian Academy of Science (Moscow, Russia);
- National Academy of Sciences of the Republic of Armenia (NAS RA) (Erevan, Armenia);
- Enterprise Incubator Foundation (EIF) (Erevan, Armenia);



-
- The SEMIDEC Project: “Stimulating Semiconductor Design Cooperation between Europe and Russia” (Fraunhofer-IIS, Germany);
 - VLSI Engineering and Embedded Systems Research and Development Center of Microelectronics (ELVEES) (Moscow, Russia);
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 - Machine-oriented language Prover (Cherkassi, Ukraine);
 - Eritasard;
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 - Moscow Institute of Electronic Technology (MIET) (Moscow, Russia);
 - The Ryazan State Radio Engineering University (RSREU) (Ruazan, Russia);
 - Ulyanovsk State University (Russia);
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- "Problems of Radioelectronics" (Russia);
- "Radioindustry" (Russia);
- "Components and Technologies" (Russia);
- Scientific and practical journal "Moscow scientific review" (Russia);
- Scientific and practical journal "PHYS-MATH" (Russia);
- Scientific and practical journal "Branch aspects of technical sciences" (Russia);
- "LAST MILE" MAGAZINE (Russia);
- "NANOINDUSTRY" MAGAZINE (Russia);
- "ELECTRONICS: SCIENCE.TECNOLOGY. BUSINESS" MAGAZINE (Russia).

GENERAL INFORMATION AND INQUIRIES

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BANKING

Generally, everywhere in Ukraine you pay in UAH. The currency units are: UAH and copeck: 1 UAH = 100 copecks.

Foreign currency exchange facilities are available at major airports, railway stations, at large hotels, as well as in many private offices, called "Currency exchange". Credit cards can be used in such places as banks and branch banks. Approximate currency exchange rate: 1 USD = 8.11 UAH (100 USD = 811 UAH), 1 EURO = 10.04 UAH (100 EURO = 1004 UAH)

CREDIT CARDS: Visa Card and Master Card are the most common cards. However, other cards are also accepted.



PROGRAM OF THE SYMPOSIUM

The program of the EWDTs'12 symposium will consist of presentations of contributed keynotes, invited and regular papers. The language of the conference is English, neither translation nor interpretation will be provided.

The presentation time for regular papers is 15 minutes and keynotes/invited talks is 40-30 minutes.

Social events, covered by regular registration fee, are Welcome Reception and Gala Dinner, City tour, and Excursion.

WEATHER

September in Kharkov is warm. The temperature can be typically 22-24 degrees Centigrade during days. During nights, the temperature can drop to 10-15 degrees Centigrade.

GENERAL INFORMATION

Total number of authors: 296.

Number of accepted papers: 137.

Number of participating countries: 30 (Algeria, Armenia, Belarus, Brazil, Côte d'Ivoire, China, Estonia, Ethiopia, France, Germany, India, Iran, Italy, Libyan Arab Jamahiriya, Mexico, Nigeria, Palestine, Poland, Portugal, Romania, Russia, Saudi Arabia, Singapore, South Africa, Syria, Sweden, Turkey, UK, Ukraine, USA).

Number of keynotes is 4 and number of invited talk is 8.

Number of Universities and Companies is 102.

Number of cities is 79.



KHARKOV NATIONAL UNIVERSITY OF RADIOELECTRONICS



Kharkov National University of Radioelectronics was founded more than 76 years ago. It was the best University in USSR in 70th - 90th in the field of Radio electronics. Today University is the leader of all technical universities in Ukraine. Total number of students is more than 10000, 150 professors and doctors of science, 500 PhD and professor assistants.

Faculties: Computer Engineering and Control, Computer Science, Applied Mathematics and Management, Radio Engineering, Telecommunications and Instrumentation, Electronic Devices, Electronic Engineering.

Computer Engineering faculty (CE) consists of three departments: Design Automation Department, Electronic Computer Department and Information Technologies Security Department. Design Automation Department provides education in the subjects related to digital systems design, programming, hardware design automation, digital systems testing and testable design, quality assurance, knowledge testing. The staff includes 36 persons. They are: 6 professors, 14 PhD assistant professors, 16 PhD students and engineers. Research and



development at the Design Automation Department is concentrated in the field of comprehensive automated design of the hardware and software components of digital or computer systems and networks by using of high-level hardware description languages (VHDL, System Verilog, System C).

ADDRESS: 61166, Kharkov, Lenin ave., 14.

Phone: +380 (57) 7021-421

SYMPOSIUM PROGRAM

| First Day: September 14th, 2012 (Friday) | |
|--|--|
| 09:00—15:00 | Registration and Coffee Break |
| 15:00—15:15 | Opening Session, Action Hall Mikhail Bondarenko — <i>rector of Kharkov National University of Radioelectronics, Ukraine</i> Welcome from the city government Yervant Zorian — <i>EWDTS General Chair, and Chief Architect, Synopsys, USA</i> Yakov Shifrin — <i>IEEE Fellow Member, Kharkov National University of Radio Electronics, Ukraine</i> Vladimir Hahanov — <i>EWDTS General Chair, Kharkov National University of Radio Electronics, Ukraine</i> |
| 15:15—17:15 | Plenary Session A, Action Hall Moderator: Maksim Jenihhin, <i>Estonia</i> |
| 15:15—15:55 | Invited Talk: SSBDDs and Double Topology for Multiple Fault Reasoning Ubar Raimund — <i>Tallinn Technical University, Estonia</i> |
| 15:55—16:35 | Keynote Address: Addressing test and yield challenges in advanced technology nodes Yervant Zorian — <i>EWDTS General Chair, and Chief Architect, Synopsys, USA</i> |



First Day: September 14th, 2012 (Friday)

Invited Talks:

- 16:35—17:15 **The Role of HDLs in the Evolution of Hardware Design**
Zainalabedin Navabi — *University of Tehran, Iran*
- 17:15—17:55 **Trends on Micro and Nanoelectronics**
Ricardo Reis – *Federal University of Rio Grande do Sul — UFRGS, Brazil*

18:00—19:00 **Concert**

19:00—21:00 **Welcome Reception**

Second Day: September 15th, 2012 (Saturday)

09:00—10:30 **Plenary Session B, Action Hall**
Moderator: Vazgen Melikyan, *Armenia*

09:00—09:45 **Invited Talk:**
Expanding Wireless Bandwidth in a Power-Efficient Way: Developing a Viable mm-Wave Radio Technology
Daniel Foty — *Gilgamesh Associates LLC, Sarissa Radio, Inc., USA*

09:45—10:15 **Keynote Address**
Innovation-Pushing the Boundaries of What's Possible
Rich Goldman — *Synopsys, Armenia*

10:15—10:45 **Invited Talk:**
Test compression, logic BIST, or hybrid?
Janusz Rajski — *Mentor Graphics*

10:45—11:15 **Coffee Break**



Second Day: September 15th, 2012 (Saturday)

11:15—13:30 **Session 2-A, room 334: CAD Tools for Design & Test (1)**

Volodymyr Obrizan — *Ukraine*

Comparison of Model-Based Error Localization Algorithms for C Designs

Urmas Repinski and Jaan Raik — *Tallinn University of Technology, Estonia*

On structure of quasi optimal algorithm of analogue circuit designing

Alexander Zemliak, Antonio Michua — *Autonomous University of Puebla, Mexico*,
Tatiana Markina — *National Technical University, Ukraine*

PDF testability of the circuits derived by special covering ROBDDs with gates

Matrosova Anzhela, Nikolaeva Ekaterina — *Tomsk State University, Russia*
Singh Virendra — *Indian Institute of Technology, India*
Kudin Dmitriy — *Gorno-Altai State University, Russia*

Invariant-Oriented Verification of HDL-Based Safety Critical Systems

Lyubov Reva, Vecheslav Kharchenko, Vladimir Sklyar and Boris Konorev — *National Aerospace University KhAI, Ukraine*

Architecture of Built-In Self-Test and Recovery Memory Chips

Vladimir Andrienko, Diaa Moamar, Vladimir Ryabtsev and Tetyana Utkina — *Cherkassy State Technological University, Ukraine*

Properties of code with summation for logical circuit test organization

Anton Blyudov, Dmitry Efanov, Valery Sapozhnikov and Vladimir Sapozhnikov — *Petersburg State Transport University, Russia*



Second Day: September 15th, 2012 (Saturday)

Simulation Methods of Diffusion Alloying Process by Means of Taurus TSUPREM-4 Programme

Nataliya Lagunovich — *Openly Join-Stock Company «INTEGRAL», Belarus*

Vladimir Borzdov — *Belarusian State University, Belarus*

Observability Calculation of State Variable Oriented to Robust PDFs and LOC or LOS Techniques

Anzhela Matrosova, Sergey Ostanin, Alexey Melnikov — *Tomsk State University, Russia*

Virendra Singh — *Indian Institute of Technology (IIT) Bombay, India*

Engineering-Maintenance Methods of the Calculation Service Area Fixed BWA-paths

Victor Panteleev and Sergey Myshlyakov — *TELNET, Ltd., Ukraine*

Improved Scaling-Free CORDIC algorithm

Leonid Moroz, Taras Mykytiv and Martyn

Herasym — *National University "Lviv Polytechnic", Ukraine*

Analyses of two run march tests with address decimation for BIST procedure

Ireneusz Mrozek — *Bialystok University of Technology, Poland*

Svetlana Yarmolik — *Belarusian State University of Informatics and Radioelectronics, Belarus*

11:00—13:30

Session 2-B, Conference Hall: CAD Tools for Design & Test (2)

Alexander Zaychenko — *Ukraine*

Artificial Neural Network for Software Quality Evaluation Based on the Metric Analysis

Oksana Pomorova and Tetyana Hovorushchenko — *Khmelnytsky National University, Ukraine*



Second Day: September 15th, 2012 (Saturday)

Matrix implementation of Moore FSM with nonstandard presentation of state codes

Larysa Titarenko and Olena Hebda — *University of Zielona Góra, Institute of Computer Engineering and Electronics, Poland*

Verifying Specifications in the Language L Against Temporal Properties Expressed by GR(1) Formulae

Anatoly Chebotarev — *Glushkov Institute of Cybernetics, Ukrainian Academy of Sciences, Ukraine*

A Novel Wideband Circular Ring DGS Antenna Design for Wireless Communications

Sunil Khah, Rakesh Sharma and Abhishek Kandwal — *Jaypee University of Information Technology, India*

Conservative Finite-difference Scheme for the Problem of Laser Pulse Propagation in a Medium with Third-order Dispersion

Vyacheslav Trofimov and Anton Denisov — *Lomonosov Moscow State University, Russia*

A low power 1.2 GS/s 4-bit flash ADC in 0.18 μ m CMOS

Mohammad Chahardori, Mohammad Sharifkhani and Sirus Sadughi — *Sharif University of Technology, Iran*

An Approach to Testing of Planar Integrated Antennas in Frequency Range of 5–7 GHz

Aleksandr Timoshenko, Ksenia Lomovskaya, Victor Barinov and Andrey Tikhomirov — *National Research University of Electronic Technology (MIET), Russia*

System-on-Chip FPGA-Based GNSS Receiver

Alexander Fridman — *NPO ENERGOMODULE*
Serguey Semenov — *Moscow Aviation Institute, Russia*



Second Day: September 15th, 2012 (Saturday)

An Efficient Fault Diagnosis and Localization Algorithm for Successive-Approximation Analog to Digital Converters

Tatevik Melkumyan, Gurgen Harutyunyan,
Samvel Shoukourian, Valery Vardanian and
Yervant Zorian — *Synopsys, Armenia*

System approach to determination of ADC parameters

Ivan Knyshev — *Russian Research and Design
Institute for Information Systems, Automation and
Communication, Russia*

11:00—13:30

Session 2-C, room 318: CAD Tools for Design & Test (3)

Vladislav Nelayev — *Belarus*

New version of Automated Electro-Thermal Analysis in Mentor Graphics PCB Design System

Konstantin Petrosyants, Igor Kharitonov, Petr
Kozynko, Alexander Sidorov and Yuri
Chichkanov — *Moscow state institute of
electronics and mathematics, Russia*

SiGe HBT Performance Modeling after Proton Radiation Exposure

Konstantin Petrosyants and Maxim Kozhukhov —
*Moscow state institute of electronics and
mathematics, Russia*

Power Reduction of 7T Dual-Vt SRAM Cell Using Forward Body Biasing

Sahba S.Jahromi and Raziye Bounik —
University of Tehran, Iran

Simulation of Total Dose Influence on Analog-Digital SOI/SOS CMOS Circuits with EKV RAD macromodel

Konstantin Petrosyants, Igor Kharitonov —
Moscow State Inst. of Electronics & Mathematics
Lev Sambursky — *Institute for Design Problems
in Microelectronics of Russian Academy of*



Second Day: September 15th, 2012 (Saturday)

Sciences

Vladimir Bogatyrev, Zoya Povarnitsyna and
Eugeny Drozdenko — *Scientific-Production
Association for Instrumentation (NPO IT)*

Logi-Thermal Analysis of Digital Circuits Using Mixed-Signal Simulator Questa ADMS

Konstantin Petrosyants and Nikolay Rjabov —
*Moscow State Institute of Electronics and
Mathematics, Russia*

Design of Nonvolatile Memory Based on Magnetic Tunnel Junction for Special Electronic Systems

Viktor Stempitsky, Vladislav Nelayev, Alexandr
Kostrov — *Belarusian State University of
Informatics and Radioelectronics, Belarus*
Anatoly Belous — *R&D Center
"BelMicroSystems", branch of Joint Stock
Company "Integral", Belarus*
Arkady Turtsevich — *Joint Stock Company
"Integral", Belarus*

Real-time Interconnection Network for Single- Chip Many-Core Computers

Harald Richter — *TU Clausthal, Germany*

Synthesis of Clock Trees for Sampled-Data Analog IC Blocks

Bilgiday Yuce, Seyrani Korkmaz, Vahap Baris
Esen, I. Faik Baskaya, Gunhan Dundar —
Bogazici University
Fatih Temizkan, Cihan Tunc, Gokhan Guner, H.
Fatih Ugurdag — *Ozyegin University*
Iskender Agi

Implementation of Address-Based Data Sorting on Different FPGA Platforms

Dmitri Mihhailov, Alexander Sudnitson — *Tallinn
University of Technology, Estonia*
Valery Sklyarov and Ioulia Skliarova —
University of Aveiro, Portugal



Second Day: September 15th, 2012 (Saturday)

13:30—14:30 **Lunch**

15:00—18:00 **Free time**

18:00—20:30 **Social Event: Opera and Ballet Theatre**

Third Day: September 16th, 2012 (Sunday)

09:00—10:30 **Plenary Session C, Action Hall**
Moderator: Virendra Singh, *India*

09:00—09:30 **Invited Talk:**
Recent Achievements on an On-Chip Sensor-Based Approach for Aging Monitoring in Nano-Scale SRAMs
Fabian Vargas — *the Catholic University (PUCRS), Brazil*

09:30—10:00 **Keynote Address:**
Fault Simulation for IR-Drop induced Delay
Michel Renovell — *LIRMM, France*

10:00—10:30 **Invited Talk:**
Simulation of Digital Circuits with Consideration of Destabilizing Factors
Vazgen Melikyan — *Synopsys, Armenia*

10:30—11:00 **Coffee Break**

11:00—13:30 **Session 3-A, room 334: Signal Processing**
Moderator: Victor I. Djigan, *Russia*

The Theory of Optimal Nonlinear Filtering in Infocommunication's Problems
Victor Panteleev — *TELNET, Ltd., Ukraine*
Sampling Theorem for Finite Duration Signal in Limited Frequency Band
G. Khanyan — *Central Institute of Aviation Motors, Russia*



Third Day: September 16th, 2012 (Sunday)

The Systolic Compositions of Two-dimensional and Multidimensional Lattice Filters for Space-Time Signal Processing

Andrii Semeniaka, David Lekhovyt'skiy and Dmytro Rachkov — *Kharkiv National University of Radio Electronics, Ukraine*

A Flexible Design for Optimization of Hardware Architecture in Distributed Arithmetic based FIR Filters

Fazel Sharifi, Saba Amanollahi, Mohammad Amin Taherkhani and Omid Hashemipour — *Department of Electrical and Computer Engineering-Shahid Beheshti University, Iran*

Universal technique of the analysis of round-off noise in digital filters with arbitrary structure described by topological matrixes

V. Lesnikov, T. Naumovich, A. Chastikov, S. Armishev — *Vyatka State University, Russia*

Two-Component Encoding of Approximating Picture Pixels in Tele-Communication Facilities

V. Barannik, A. Dodukh, R. Safronov — *Ivan Kozhedub Air Force University, Kharkov, Ukraine*

Coding Tangible Component of Transforms to Provide Accessibility and Integrity of Video Data

V. Barannik, A. Hahanova, V. Krivonos — *Ivan Kozhedub Air Force University, Kharkov, Ukraine*

The Positional Structural-Weight Coding of the Binary View of Transformants

V. Barannik, A. Krasnoruckiy, A. Hahanova — *Ivan Kozhedub Air Force University, Kharkov, Ukraine*

A Neuro-Fuzzy Edge Based Spectrum Sensing Processor for Cognitive Radios

Mohammadreza Baharani, Mohammad Aliasgari,



Third Day: September 16th, 2012 (Sunday)

Mohammadreza Najafi, Hamind Noori and
Mohammadreza Jamali — *University of Tehran,
Ferdowsi University of Mashhad, Iran*

MIMO Radar with Phase-coded waveforms

Amirsadegh Roshanzamir and M. H. Bastani —
*Department of Electrical Engineering, Sharif
University of Technology, Iran*

A Data Modem for GSM Adaptive Multi Rate Voice Channel

Mehdi Boloursaz, Amir Hossein Hadavi, Reza
Kazemi and Fereidoon Behnia — *Sharif
University of Technology, Iran*

Multi-Beam Constant Modulus Adaptive Arrays in Real-Valued Arithmetic

Victor I. Djigan — *Electronic VLSI Engineering
and Embedded Systems (ELVEES) Research
and Development Center of Microelectronics,
Zelenograd, Moscow, Russia*

11:00—13:30 1st Workshop on Green and Safe Computing and Communication (WS GreenCom)

WS Chair: Vyacheslav Kharchenko (National
Aerospace University KhAI, Kharkiv, Ukraine)

Co-Chair: Gert Jervan (Tallinn University of
Technology, Estonia)

Moderator: Vyacheslav Kharchenko, *Ukraine*

11.00-11.05 WS Opening. Dependable Embedded FPGA- Systems for Critical Applications: KhAI-ERA Project

Vyacheslav Kharchenko — *National Aerospace
University KhAI, Ukraine*

Gert Jervan — *Tallinn Technical University,
Estonia*

Keynote Address:

**11:05—11:20 Smart Grid and Nuclear Power Plant
Interaction: Safety and Security Issues**
Brezhnev Eugene — *National Aerospace*



Third Day: September 16th, 2012 (Sunday)

| | |
|-------------|---|
| 11:20—11:35 | <p><i>University KhAI, Centre for Safety Infrastructure-Oriented Research and Analysis, Kharkiv, Ukraine.</i></p> <p>A WSN Approach to Unmanned Aerial Surveillance of Traffic Anomalies: Some Challenges and Potential Solutions Ka Lok Man — <i>Xi'an Jiaotong-Liverpool University, Suzhou, China</i></p> |
| 11:35—13:30 | <p>Session 3-B, Conference Hall: Chip and Unit Power Consumption Reduction Methods and Techniques Moderator: Alexander Barkalov, <i>Poland</i></p> |
| | <p>Synthesis of Moore FSM with transformation of system in CPLD Alexander Barkalov, Larysa Titarenko and Slawomir Chmielewski — <i>University of Zielona Góra, Institute of Computer Engineering and Electronics, Poland</i></p> <p>Compositional Microprogram Control Unit with Operational Automaton of Transitions Alexander Barkalov, Roman Babakov and Larysa Titarenko — <i>University of Zielona Góra, Institute of Computer Engineering and Electronics, Poland</i></p> <p>Hardware Reduction for Compositional Microprogram Control Unit Dedicated for CPLD Systems Alexander Barkalov, Larysa Titarenko and Lukasz Smolinski — <i>University of Zielona Góra, Institute of Computer Engineering and Electronics, Poland</i></p> <p>Self Compensating Low Noise Low Power PLL design Vazgen Melikyan — <i>Synopsys Armenia</i>, Armen Durgaryan, Ararat Khachatryan — <i>Synopsys Armenia CJSC</i>, Manukyan Hayk and Eduard Musaelyan —</p> |



Third Day: September 16th, 2012 (Sunday)

Synopsys Armenia, State Engineering University of Armenia

High Speed IC Output Buffer with Reduced Power Consumption

Karine Movsisyan — *Synopsys Armenia CJSC*

A design for testability technique for reversible circuits

Joyati Mondal, Debesh Kumar Das, Dipak Koley and Hafizur Rahaman — *Jadavpur University, India*

Secure Data over GSM based on Algebraic Codebooks

Reza Kazemi, Damoun Nashtaali, Mehdi Boloursaz and Fereydoon Behnia — *SUT, Iran*

Lower Bound of Error in AOA Based Passive Source Localization Using Single Moving Platform

Farzam Hejazi Kukamary, Mohamad Mehdi Nayeby — *Sharif University of Technology*

Yasser Norouzi — *Amirkabir University of Technology, Iran*

Scheduling Test for 3D SoCs with Temperature Constraints

Indira Rawat — *Govt. Engineering College Ajmer, India*

M.K. Gupta — *MANIT, Bhopal, India*

Virendra Singh — *IIT, Bombay, Mumbai, India*

11:30—13:30

Session 3-C, room 318: Power Award Wireless Networking and Digital Systems for Safety Critical Application

Moderator: Brezhnev Eugene, *Ukraine*

The Use of Natural Resources for Increasing a Checkability of the Digital Components in Safety-Critical Systems

Alexandr Drozd, Svetlana Antoshchuk, Julia Drozd, Michail Lobachev and Julian Sulima —



Third Day: September 16th, 2012 (Sunday)

*Odessa National Polytechnic University,
Vyacheslav Kharchenko — National Aerospace
University KhAI, Ukraine*

Internet of Things: A Practical Implementation based on a Wireless Sensor Network Approach

*Ka Lok Man — Xi'an Jiaotong-Liverpool
University, Suzhou, China*

Investigation of EM Wave Propagation of the Wireless Capsule in Human Body

*Ka Lok Man and Eng Gee Lim — Xi'an Jiaotong-
Liverpool University, Suzhou, China*

BBN-based Approach For Assessment of Smart Grid And Nuclear Power Plant Interaction

*Brezhnev Eugene and Vyacheslav Kharchenko
— National Aerospace University KhAI, Ukraine*

Cyber Security Lifecycle and Assessment Technique for FPGA-based I&C Systems

*Oleg Illiashenko, Vyacheslav Kharchenko —
National Aerospace University KhAI,
Andriy Kovalenko — Kharkiv National University
of Radioelectronics, Ukraine*

Self-Adaptive Mobile Wireless Hotspot Zones

*Maxim Yanovsky, Vyacheslav Kharchenko and
Anatoliy Gorbenko — National Aerospace
University KhAI, Ukraine*

FPGA Technologies in Medical Equipment: Electrical Impedance Tomography

*Artem Perepelitsyn and Dmitry Shulga —
National Aerospace University KhAI, Ukraine*

Methodological Aspects of Complex ecological estimation of man-caused territory state and Mathematical Modelling of Processes in a Environment System

Tatyana Kozulia, Natalya Sharonova, Darya



Third Day: September 16th, 2012 (Sunday)

Emelianova and Mariya Kozulya — *NTU "KPI", Ukraine*

A new Structure for Interconnect Offline Testing

Somayeh Sadeghi-Kohan, Shahrzad Keshavarz, Farzaneh Zokaee, Farimah Farahmandi and Zainalabedin Navabi — *University of Tehran, Iran*

13:30—14:30 **Lunch**

15:00—18:30 **Social Event: City tour**

18:30—21:00 **Gala Dinner**

Fourth Day: September 17st, 2012 (Monday)

09:00—10:30 **Plenary Session C, Action Hall**
Moderator: Alexandr Drozd, *Ukraine*

Invited Talks:

09:00—09:30 **Can a HW development and research environment be convenient, scalable and free? zamiaCAD: open-source platform for hardware design and analysis**

Jenihhin Maksim — *Tallinn University of Technology, Estonia*

09:30—10:00 **Experiences on the road from EDA Developer to Designer to Educator**

Fatih Ugurdag — *Ozyegin University*

10:00—10:30 **Architecting a Reliable System**

Virendra Singh — *Indian Institute of Technology, India*

10:30—11:00 **Coffee Break**

11:00—13:00 **Session 4-A, Conference Hall: CAD and EDA Tools, Methods and Algorithms (1)**

Moderator: Iegor Vdovychenko, *Ukraine*



Fourth Day: September 17st, 2012 (Monday)

Development of parameterized cell using Cadence Virtuoso

Vadim Borisov — *Voronezh State Technical University, Russia*

Malfunctions Modeling of Converters and Homogeneous-chain Distributed Structure Devices

Artur Gulín and Zhanna Sukhinets — *Ufa State Aviation Technical University, Russia*

The evaluation of statistical characteristics of the retransmission meter signal frequency and initial phase on the basis of VHDL-model

Igor Vdovychenko and Dmitry Velychko — *A.Y. Usikov Institute of Radio Physics and Electronics NAS of Ukraine*

Models for Embedded Repairing Logic Blocks

Hahanov V.I., Litvinova E.I., Frolov A., Tiecoura Yves — *Kharkiv National University of Radio Electronics, Ukraine*

Synthesis of qubit models for logic circuits

Wajeb Gharibi — *Jazan University, Kingdom of Saudi Arabia*

Zaychenko S.A., Dahiri Farid, Hahanova Yu.V., Ngene Christopher Umerah, Adiele Stanley — *Kharkiv National University of Radio Electronics, Ukraine*

Guz O.A. — *Donetsk Academy of Road Transport, Ukraine*

Qubit Model for Solving the Coverage Problem

Hahanov V.I., Litvinova E.I., Chumachenko S.V., Baghdadi Ammar Awni Abbas, Eshetie Abebech Mandefro — *Kharkiv National University of Radio Electronics, Ukraine*

Transaction level model of embedded processor for vector-logical analysis

Irina V. Hahanova, Volodymyr Obrizan,



Fourth Day: September 17st, 2012 (Monday)

Alexander Adamov, Dmitry Shcherbin — *Kharkiv National University of Radio Electronics, Ukraine*

Models for Analyzing Effectiveness of Computing Structures

Murad Ali Abbas, Chumachenko S.V., Hahanova A.V., Gorobets A.A., Priymak A. — *Kharkiv National University of Radio Electronics, Ukraine*

Classical Models of Test used in Advanced Electronics Quality Assurance

Surendra Batukdeo — *Celestica Electronics Singapore*

Interconnection Analysis of the Integral Reliability Characteristics of the Monoergative Computer System and User's Competency

Gennady Krivoulya, Dariya Kucherenko and Alexander Shkil — *Kharkiv National University of Radio Electronics, Ukraine*

An Improved Scheme for Pre-computed Patterns in Core-based SoC Architecture

Elahe Sadredini, Paniz Foroutan, Zainalabedin Navabi — *University of Tehran, Iran*

Gholam Reza Rahimi — *Sharif University of Technology, Iran*

Mahmood Fathy — *Iran University of Science and Technology, Iran*

11:00—13:00 Session 4-B, room 318: CAD and EDA Tools, Methods and Algorithms (2)

Moderator: Alexander Chemeris, *Ukraine*

Loop Nests Parallelization for Digital System Synthesis

Alexander Chemeris, Julia Gorunova and Dmitry Lazorenko — *Pukhov Institute for modelling in energy engineering*

Optimization Consideration in QCA designs

Zahra Najafi Haghi, Marzieh Mohammadi, Behjat



Fourth Day: September 17st, 2012 (Monday)

Forouzandeh and Zainalabedin Navabi —
University of Tehran, Iran

Test Data Compression Strategy While Using Hybrid-BIST methodology

Elmira Karimi — *University of Tehran, Sharif
University of Technology, Iran*

Mohammad Hashem Haghbayan — *University of
Tehran, Iran*

Mahmood Tabandeh — *Sharif University of
Technology, Iran*

Application of Defect Injection Flow for Fault Validation in Memories

Karen Amirkhanyan, Arman Davtyan, Gurgun
Harutyunyan, Tatevik Melkumyan, Samvel
Shoukourian, Valery Vardanian and Yervant
Zorian — *Synopsys, Armenia, USA*

Researching of mathematical models based on optimal control approaches for congestion control in telecommunication network

Alexander Lemeshko and Maxim Semenyaka —
*Kharkiv National University of Radioelectronics,
Ukraine*

Design, Test and Fault Detection in QCA 4-to-1 Multiplexer

Zahra Najafi Haghi and Behjat Forouzandeh
— *University of Tehran, Iran*

Extracting Complete Set of Equations to Analyze VHDL-AMS Descriptions

Arezoo Kamran, Vahid Janfaza and Zainalabedin
Navabi — *University of Tehran, Iran*

A Trend-based Design Space Exploration of Multi-core Systems Using Regression Modeling

Fazeleh Hajari Taheri and Omid Fatemi —
University of Tehran, Iran

Assertion Based Method of Functional Defects for Diagnosing and Testing



Fourth Day: September 17st, 2012 (Monday)

Karyna Mostova, Vladimir Hahanov and
Oleksandr Paschenko — *Kharkiv National
University of Radio Electronics, Ukraine*

A Research of Heuristic Optimization Approaches to The Test Set Compaction Procedure Based On Decomposition Tree for Combinational Circuits

Valentina Andreeva — *TSU, Russia*
Kirill Sorudeykin — *Kharkiv National University of
Radio Electronics, Ukraine*

Synchronous Rectifiers Enable High Efficiency for Buck-Boost Converter

Yurii Shynkarenko and Igor Klyuchnyk — *Kharkiv
National University of Radio Electronics, Ukraine*

WebALLTED: Interdisciplinary Simulator Based on Grid Services

Oleksii Finogenov, Bogdan Bulakh, Volodymyr
Ladogubets, Anatoly Petrenko and Mykhaylo
Zgurovsky — *National Technical University of
Ukraine "Kyiv Polytechnic Institute", Ukraine*

11:00—13:00

Poster Session, room 334

Moderator: Mostovaya Karina, *Ukraine*

Factorization of Rhythmograms Parametric Spectra on the Base of Multiplicative Linear Prediction Models

N. Kudriavtseva and I. Fil — *Kharkiv National
University of Radio Electronics, Ukraine*

Features of the transfer of information with different reliability in a single channel

L. Pertsev, A. Bakhtin and O. Timofeeva — *TCS
Department, MIET Moscow, Russia*

Construction of Signals with Controlled Peak- Factor

V. Koshevyy and D. Dolzhenko — *Odessa
National Maritime Academy, Ukraine*



Fourth Day: September 17st, 2012 (Monday)

The Effective Method of Space Filtering of Noise in Rayleigh Communication Channel with the Adaptive Antenna

A. Strelnitskiy, V. Shokalo, G. Maistrenko and A. Rybalko — *Kharkiv National University of Radio Electronics, Ukraine*

Hash-based Detection of OFDM Watermarking Symbol for Radiotelephone Identification

A.V. Shishkin, A.A. Lyashko — *Odessa National Maritime Academy, Ukraine*

Decreasing the Power Consumption of Content-Addressable Memory in the Dataflow Parallel Computing System

Nikolay Levchenko, Anatoly Okunev, Dmitry Yahontov and Dmitry Zmejev — *Institute for Design Problems in Microelectronics, Russian Academy of Sciences, Moscow, Russia*

Method for “Failure on Demand” Latent Faults Diagnosis of NPP Safety Control Systems

Kostyantyn Gerasymenko — *Impulse Company, Severodonetsk, Ukraine*

VLSI: An Investigation into Electromagnetic Signatures (EMS) for Non-Invasive Testing and Signal-integrity Verification

Hj Kadim — *LJMU, UK*

MEMS Intellect Multiprobes Contacting Devices for Electrical Checking-up of Multilayers Commutative Boards and BGA/CSP Electronic Components

I.Sh. Nevliudov, V.A. Palagin, E.A. Razumov-Frizjuk and I.V. Zharikova — *Kharkiv National University of Radioelectronics, Ukraine*

Low-Voltage Low-Power 2.5 GHz Linear Voltage Controlled Ring Oscillator

Hayk Dingchyan — *Synopsys Armenia CJSC*



Fourth Day: September 17st, 2012 (Monday)

High Speed IC Output Buffer with Reduced Power Consumption

Karine Movsisyan — *Synopsys Armenia CJSC*

Design of Area Efficient Second Order Low Pass Analog Filter

Andranik Hovhannisyan — *Synopsys Armenia CJSC*

Testware and Automatic Test Pattern Generation for Logic Circuits

Victor Zviagin — *St.Petersburg National Research University of Information Technologies, Mechanics and Optics, Russia*

The methods of exclusion of variables in symbolic time models of linear periodically time-variable circuit

Yuriy Shapovalov and Dariya Smal — *Lviv Polytechnic National University*

Embedded Intelligent Control Systems on the Basis of Elementary Fuzzy-Logic Cells

Anastacia Dontsova and Alexey Vassiliev — *Saint-Petersburg State Polytechnic University, Russia*

Simulation of Telecommunication Channel Using Volterra Model

Vitaliy Pavlenko and Viktor Speransky — *Odessa National Polytechnic University, Ukraine*

IC Physical Design Optimization Due to Effects of Device Physical Geometries

Avag Sargsyan — *Synopsys Armenia CJSC*

Self-Compensation of Influence of Parasitic Gate-Drain Capacitances of CMOS Transistors in Analog Microcircuitry

Sergey G. Krutchinsky, Grigory A. Svizev and Alexey E. Titov — *Taganrog Institute of Technology SFedU, scientific center «MicAn», Russian Federation*



Fourth Day: September 17st, 2012 (Monday)

A Four Bit Low Power 165MSPS Flash-SAR ADC for Sigma-Delta ADC Applications

Hasan Molaei and Khosrow Hajsadeghi — *Sharif University of Technology, Iran*

Symmetrical Differential Stages on CMOS Transistors with Circuits of Self-Compensation and Cancellation

Alexey E. Titov, Sergei G. Krutchinsky and Grigory Svizev — *Taganrog Institute of Technology, Southern Federal University, Russia*

Optimal project solution decision making in telecommunication systems using multicriteria optimization methods

Valery Bezruk and Alexander Bukhanko — *Kharkiv National University of radioelectronics, Ukraine*

Informational Saturation of Noise Signals

Zenoviy Kolodiy and Andriy Kolodiy — *National University of Lviv Polytechnica, Ukraine*

Synchronization of a fuzzy automata

Dmitriy Speranskiy — *Moscow State University of Railway Engineering, Russia*

Method of Hybrid Regression Analysis in the Calibrations Experiments

Natalia Ordinartseva — *Penza State University, Russia*

Power Consumption Analysis of Content-Addressable Memories

Nikolay Levchenko, Anatoly Okunev — *IPPM RAS*

Dmitry Yahontov — *Institute for Design Problems in Microelectronics*

Control and diagnosing by indicators of complexity of process of system functioning

Vladimir Tverdokhlebov — *Institute of precision mechanics and control science of RAS, Russia*



Fourth Day: September 17st, 2012 (Monday)

Higher Order Propagation Modes Error and Its Compensation

Olga Zaichenko, Igor Klyuchnyk — *Kharkiv National University of Radioelectronics, Ukraine*
Leonid Martynenko — *KhTEI KNTEU, Ukraine*

Strategy of analyzing most common algorithms for path finding in discrete labyrinth using software statistic data collector

Evgeniy Krasnov and Dmitry Bagaev — *Kovrov State Technological Academy, Russia*

Method of Implementation of Technology of Orders Based Transparent Parallelizing for Solving Computationally Complex Problems on Cluster

Vitaliy Pavlenko, Victor Burdejnyj and Sergey Pavlenko — *Odessa National Polytechnic University, Ukraine*

Automated application mapping into Network-on-Chip topologies

Sergey Bykov — *Vladimir State University, Russia*

Review of the botnet detection techniques

Andrii Kryshchuk, Oleg Savenko and Sergiy Lysenko — *Khmelnitskyi National University, Ukraine*

Trends and prospects of development of techniques for extracting acoustic sounding information of the atmospheric boundary layer

I. Klyuchnik, A. Panchenko, R. Umyarov — *Kharkiv National University of radioelectronics, Ukraine*

Decision-Making in Robotics and Adaptive Tasks

Artem Bronnikov and Alexandr Tsymbal —



Fourth Day: September 17st, 2012 (Monday)

*Kharkiv National University of Radioelectronics,
Ukraine*

Power Efficient Implementation of Homogenous Multi-Core Processors

Aram Poghosyan — *Synopsys Armenia CJSC*

Software implementation and debugging of forward error correction codes

A. Smirnov, D. Migalin, L. Pertsev and
I. Muravyev — *National Research University of
Electronic Technology, Russia*

Models for SoC Infrastructure of Radio Frequency Identification with code-division multiple

Filippenko I.V., Hahanova I.V., Filippenko I.O,
Maksimov M., Chugurov I. — *Kharkiv National
University of radioelectronics, Ukraine*

13:30—14:20 **Closing Lunch**

14:30—15:00 **Symposium Closing – Action hall**

15:00—22:00 **Departure**

