

2016 IEEE East-West Design & Test Symposium (EWDTS 2016)

**Yerevan, Armenia
14-17 October 2016**



**IEEE Catalog Number: CFP16DTW-POD
ISBN: 978-1-5090-0694-6**

**Copyright © 2016 by the Institute of Electrical and Electronics Engineers, Inc
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

******This publication is a representation of what appears in the IEEE Digital Libraries. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP16DTW-POD
ISBN (Print-On-Demand):	978-1-5090-0694-6
ISBN (Online):	978-1-5090-0693-9
ISSN:	2373-826X

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

CONTENTS

- Securing Test Infrastructure of System-on-Chips 1
Tshagharyan G., Harutyunyan G., Shoukourian S., Zorian Y.
- Low Power OpenRISC Processor with Power Gating, Multi-VTH
and Multi-Voltage Techniques 5
Vazgen Melikyan, Tigran Hakhverdyan, Davit Babayan, Sergey Manukyan
- Dedicated Chip for Pulse Oximetry Measurements 9
**Cezary Kolacinski, Jerzy Wasowski, Andrzej Szymanski, Adam Jarosz,
Ewa Kurjata-Pfitzner, Tomasz Borejko, Krzysztof Siwiec, Witold A. Pleskacz**
- CORDIC Rotator For Frequency Translation 13
Anton I. Smekalov, Victor I. Djigan
- Approximation of the Central Chi-squared Distribution for On-line Computati
on of the Threshold for Energy Detector 19
Vladislav Lesnikov, Tatiana Naumovich, Alexander Chastikov, Dmitriy Dubovcev
- Power Specification, Simulation and Verification of SystemC Designs 24
Kirill Gagarski, Maxim Petrov, Mikhail Moiseev, Ilya Klotchkov
- Optimizing Network Utilization through Source Code State Model Representation 28
Jorge López, Natalia Kushik, Ana Cavalli, Nina Yevtushenko
- An EFSM-Driven and Model Checking-Based Approach to Functional Test
Generation for Hardware Designs 32
Alexander Kamkin, Mikhail Lebedev, Sergey Smolov
- Extension of the Corner Stitching Data Structure for Arbitrary Layout Shapes 36
Wieslaw Kuzmicz
- A Quality Characteristics Estimation Methodology for the Hierarchy of RTL Compilers 40
Martirosyan L.
- Objects and Methods of On-Line Testing: Main Requirements and Perspectives of Development 44
Drozd A., Drozd J., Antoshchuk S., Nikul V., Al-Dhabi M.
- Client-Server Based Wireless Networked Control System 49
Mehdi J. Marie, Ghaida A. AL-Suhail, Salah Al-Majeed
- Research of Metastability Timing Characteristics for Threshold Voltage and
Process-Voltage-Temperature Variations 56
Tigran Khazhaky
- Qubit Description of the Functions and Structures for Computing 60
Vladimir Hahanov, Svetlana Chumachenko, Eugenia Litvinova, Mykhailo Liubarskyi
- ESL Design with RTL-Verified Predesigned Abstract Communication Channels 66
Hamed Najafi Haghi, Mikhail Chupilko, Alexander Kamkin, Zainalabedin Navabi

Analysis of the Impact of Metastability Phenomenon on the Latency and Power Consumption of Synchronizer Circuits 73

Vazgen Melikyan, Eduard Babayan, Tigran Khazhaky, Sergey Manukyan

Universal Mitigation of NBTI-Induced Aging by Design Randomization 76

Maksim Jenihhin, Alexander Kamkin, Zainalabedin Navabi and Somayeh Sadeghi-Kohan

Cloud Service for University E-government 81

Oleksandr Mishchenko, Vugar Abdullayev, Svetlana Chumachenko, Vladimir Hahanov, Eugenia Litvinova, Anastasya Hahanova

Methods of Organization of Totally Self-Checking Concurrent Error Detection System on the Basis of Constant-Weight «1-out-of-3»-code 91

Dmitry Efanov, Valery Sapozhnikov, Vladimir Sapozhnikov

Concurrent Error Detection of Combinational Circuits by the Method of Boolean Complement on the Base of «2-out-of-4» Code 100

Valery Sapozhnikov, Vladimir Sapozhnikov, Dmitry Efanov

Weighted Sum Code without Carries – is an Optimum Code with Detection of any Double Errors in Data Vectors 108

Valery Sapozhnikov, Vladimir Sapozhnikov, Dmitry Efanov, Vyacheslav Dmitriev

A Novel Approach to Detect Temperature Variation 116

Ararat Khachatryan, Davit Mirzoyan

A Novel Process Corner Detection Circuit 120

Davit Mirzoyan, Ararat Khachatryan

Speed-Independent Fused Multiply Add and Subtract Unit* 124

Yuri Stepchenkov, Victor Zakharov, Yuri Rogdestvenski, Yuri Diachenko, Nickolaj Morozov, Dmitri Stepchenkov

Quantum-Cryptographic Network 128

Anton Pljonkin, Konstantin Rumyantsev

On One Method of Formation of Optimum Sum Code for Technical Diagnostics Systems 132

Dmitry Efanov, Valery Sapozhnikov, Vladimir Sapozhnikov

Automated Solution for Preventing Design Rules Violations at Abutment

Stage for Standard Cells Synthesis Flow 138

Sergey Bykov, Nikolai Ryzhenko, Anton Sorokin

Testing of software and hardware simulations of dataflow recurrent digital signal processor 142

Stepchenkov Yuri, Khilko Dmitry, Diachenko Yuri, Shikunov Yury, Shikunov Dmitry

Methods of Testing Time-Domain Simulators in EDA Packages 146

Alexandr M. Pilipenko, Vadim N. Biryukov, Anastasia B. Fadeeva

Gyroscope Explorer Terrain Angles Classification 150

Christofer Yalung, Salah Al Majeed, Cid Mathew Adolfo, Jalal Karam, Lela Mirtskhulava

ROBDD Based Path Delay Fault Testable Combinational Circuit Synthesis 155

Toral Shah, Virendra Singh, Anzhela Matrosova

System on Chip for Comparison of Precise Time Sources 159

Jiri Dostal, Vladimir Smotlacha

Testing Logic Circuits at Different Abstraction Levels: An Experimental Evaluation 163

Sergey Smolov, Jorge Lopez, Natalia Kushik, Nina Yevtushenko, Mikhail Chupilko, Alexander Kamkin

Testing Components of Interacting Timed Finite State Machines 167

Maxim Gromov, Aleksandr Tvardovskii, Nina Yevtushenko

Towards Parallel Composition of Partial Finite State Machines: 171

Checking Safety Property Step-by-Step

Darusenkova E., Shabaldina N.

Monitoring System of Vibration Impacts on the Structure of Overhead

Catenary of High-Speed Railway Lines 175

Dmitry Efanov, German Osadchy, Dmitry Sedykh, Dmitry Pristensky, Dmitry Barch

Methodological Aspects of Detection and Resolution of Conflicts

of Train Control Systems Information Security Software 183

Anatoly Kornienko, Mark Polyanichko, Dmitry Efanov

Chirp Generator Based on the Binary Optical Structures 188

Yuriy Zachinyaev, Konstantin Rumyantsev

UVM Based Approaches to Functional Verification of Communication

Controllers of Microprocessor Systems 192

Irina Stotland, Danil Shpagilev, Nadezhda Starikovskaya

Verification of Sampling Theorem Validity and Features

for Specific Cases of Transformed Samples Number 196

Gamlet S. Khanyan

Research of local dynamics of the Phase-locked loop 202

Gelozhe Y.A., Klimenko P.P., Maksimov A.V.

Determination Jump Monitored Parameter Using a Neural Network 206

Sergei Klevtsov

A Trace Signal Selection Algorithm for Improved Post-Silicon Debug 210

Binod Kumar, Ankit Jindal, Virendra Singh

Robust Algorithm for Detection of Image Features 214

Konstantin Rumyantsev, Dmitry Petrov

Algebraic Models of Digital System Design Debugging Decomposition 218

Alexander Ivannikov, Vladimir Kulagin, Aleksandr Romanov, Boris Pozdneev

Generic Two-Modulus Sum Codes for Technical Diagnostics of Discrete Systems Problems 222

Dmitry Efanov, Valery Sapozhnikov, Vladimir Sapozhnikov

Waveform Modulation for the 5G Mobile Telecommunication Systems 227

Martin Aivazyan, Levon Grigoryan, Hayk Avetisyan, Arshak Babayan

Spectral Efficiency of Channel for Wireless Communication Systems with MIMO Technology 230
Natalya N. Kisel, Hamed E.A. Mahyoub, Sergey G. Grishchenko

The Modeling of Characteristics of the Patch Antenna
with Non-uniform Substrate Metamaterial 233
Natalya N. Kisel, Vitaliy A. Cheremisov, Dmitry S. Derachitc

An Approach to Instruction Stream Generation 236
for Functional Verification of Microprocessor Designs
Andrei Tatarnikov

The Method of Speeding of the Operational Amplifiers Based on the Folded Cascode 240
Prokopenko N.N., Pakhomov I.V., Bugakova A.V., Butyrlagin N.V.

The Multifunctional Current Logical Element for Digital Computing Devices,
Operating on the Principles of Linear (Not Boolean) Algebra 244
Prokopenko N.N., Chernov N.I., Yugai V., Butyrlagin N.V.

The Analog Array Chip AC-1.3 for the Tasks of Tool Engineering in
Conditions of Cryogenic Temperature, Neutron Flux and Cumulative Radiation Dose Effects 248
Dvornikov O.V., Prokopenko N.N., Pakhomov I.V., Bugakova A.V.

The Radiation-Hardened Differential Difference Operational Amplifiers for
Operation in the Low-Temperature Analog Interfaces of Sensors 252
Prokopenko N.N., Bugakova A.V., Pakhomov I.V.

The Drivers of the Differential Communication Lines based on Radiation-
Hardened Structured Array MH2XA010 256
Dvornikov O.V., Prokopenko N.N., Pakhomov I.V., Bugakova A.V.

Electrodynamic Characteristics Estimation for Aperiodic Random Composite Media 260
**Dmitry A. Bezuglov, Larissa V. Cherckesova, Nikolay N. Prokopenko,
Gennady P. Sinyavsky, Marina Yu. Zvezdina, Yulia A. Shokova, George N. Shalamov,
Olga N. Manaenkova**

Composite Media Based on Chiral Elements and Their Combinations
with Ferromagnetic Structures 264
**Dmitry A. Bezuglov, Larissa V. Cherckesova, Nikolay N. Prokopenko,
Gennady P. Sinyavsky, Marina Yu. Zvezdina, Yulia A. Shokova, George N. Shalamov,
Olga N. Manaenkova**

Bandpass RC Filters of the Second-Order Based
on the Micropower Two-Component Differential Stages 268
Ignashin A.A., Serebryakov A.I., Medvedev D.V., Budyakov P.S.

Adaptation of Discrete Estimation Algorithms According State Model
and Shaping Noise Parameters Based on the Combined Maximum Principle 272
Andrey Kostoglotov, Igor Deryabkin, Sergey Lazarenko, Igor Pugachev, Anton Kuznetsov

Information-Measuring Control System of Active Vibration Protection RED 277
Lysenko A.V., Yurkov N.K., Goryachev N.V., Telegin A.M., Trusov V.A.

Monochrome Multitone Image Approximation with Low-dimensional Palette 281
Neydorf R.A., Aghajanyan A.G., Vucinic D.

- The PDCS "Buran" Operating Efficiency Improvement Ways 285
Klimov A.V., Levchenko N.N., Okunev A.S., Stempkovsky A.L., Zmejev D.N.
- Research of Asynchronous Algorithm for Molecular Dynamics Task on the PDCS "Buran" Models 289
Khodosh L.S., Klimov A.V., Levchenko N.N., Okunev A.S., Zmejev D.N.
- I/O Processor as the Device for Computing Process Management in the PDCS "Buran" 293
Levchenko N.N., Okunev A.S., Stempkovsky A.L., Zmejev D.N.
- Method of Additional Information Encapsulation into Digital Audio Channel with Minimal Loss of Original Signal Quality 297
Sergey Makov, Anton Nikitin, Alexandr Minaev, Viacheslav Voronin, Ilya Svirin
- Removing of Systematic Measurement Errors Caused by Asymmetric Distribution Law of the Noise Component 301
Vladimir Marchuk, Sergey Makov, Alexandr Minaev, Viacheslav Voronin, Dmitry Chernyshov
- Studying of Accuracy of the New Desired Signal Extraction Method by Residuals in a Priory Indeterminacy Conditions 305
Vladimir Marchuk, Sergey Makov, Alexandr Minaev, Gennady Galustov, Sergey Stradanchenko
- An Ultra-Fast Multi-Objective Optimization Algorithm for VLIW Architecture 309
Samira Nazari, Maryam Hassani, Ali Azarpeyvand
- Graphical Visualization of Data Measurements of Programmable Microcontroller According to ARDUINO-Project Example 316
Zaza Davitadze, Guladi Partenadze, Elza Djincharadze
- Development Tools for High-Performance Computing Systems Using Associative Environment for Computing Process Organization 321
Zmejev D.N., Levchenko N.N., Okunev A.S.
- QuaSim – Cloud Service for Digital Circuits Simulation 325
Ivan Hahanov, Wajeb Gharibi, Igor Iemelianov, Tamer Bani Amer
- Cosmological Computing and Genome-Algorithm of the Universe 333
Vladimir Hahanov, Eugenia Litvinova, Wajeb Gharibi, Svetlana Chumachenko
- Critical Path Selection Under NBTI/PBTI Aging for Adaptive Frequency Tuning 340
Andres F. Gomez, Victor Champac
- The Processing of the Diagnostic Data in a Medical Nformation-Analytical System Using a Network of Neuro Modules with Relearning 344
Fedorenko N., Kharchenko V., Lutay L., Yehorova Ye.
- Approaches to Selection of Combinatorial Algorithm for Optimization in Network Traffic Control of Safety-Critical Systems 348
Georgiy Kuchuk, Vyacheslav Kharchenko, Andriy Kovalenko, Eugen Ruchkov

- A Comparative analysis of Mutation Testing tools for Java 354
Forostyanova Mariya, Dongak Barkhas
- Synthesis of Algorithms for Estimation of Parameters and State of Dynamic Systems
Using Additional Invariants 357
**Andrey Kostoglotov, Igor Deryabkin, Dmitriy Andrashitov,
Sergey Lazarenko, Igor Pugachev**
- Digital beamforming in MIMO-radar with frequency diversity 362
Vladimir Lobach, Alexandr Kasyanov, Michael Potipak
- Dynamic FPGA-Accelerator Sharing among Concurrently Running Virtual Machines 366
Hamid Nasiri, Maziar Goudarzi
- Automated Generation of Core Test Description File for Hierarchical Test 370
Hayk Chukhajyan
- Performance Modelling of Heterogeneous ISA Multicore Architectures 374
**Nirmal Kumar Boran, Rameshwar Prasad Meghwal, Kuldeep Sharma,
Binod Kumar, Virendra Singh**
- Fast One- and Two-Pick Fixed-Priority Selection and Muxing Circuits 378
Mustafa Tosun, M. Akif Ozkan, Aydın Emre Guzel, H. Fatih Ugurdag
- Using High-Level Synthesis for Rapid Design of Video Processing Pipes 382
**Aydın Emre Guzel, Vecdi Emre Levent, Mustafa Tosun, M. Akif Ozkan,
Toygar Akgun, Duygu Buyukaydin, Cengiz Erbas, H. Fatih Ugurdag**
- The Use of Redundancy in the Structural Synthesis of IIR Digital Filters 386
Vladislav Lesnikov, Tatiana Naumovich, Alexander Chastikov
- On optimization of multi-cycle tests for test quality and application time 389
Cemil Cem Gursoy, Abdullah Yildiz, Sezer Gören
- Differential Clock Cross-Point Correction Method for Pipeline ADCs 393
Arsen Hekimyan, Sergey Gavrilov, Davit Trdatyan, Arman Trdatyan
- Enabling LOS Delay Test with Slow Scan Enable 396
Satyadev Ahlawat, Darshit Vaghani, Rohini Gulve, Virendra Singh
- ILP Based Don't Care Bits Filling Technique for Reducing Capture Power 400
Rohini Gulve, Virendra Singh
- Multi-Interval Static Timing Analysis Accounting Logic Compatibility 404
Sergey Gavrilov, Galina Ivanova, Daria Ryzhova, Pavel Volobuev
- A Multi-Criteria Method for Noise Reduction 408
Evgeny Semenishchev, Igor Shraifel, Vladimir Marchuk, Ilia Svirin
- Secure Scan-based Design Using Blum Blum Shub Algorithm 414
Elnaz Koopahi, Shahram Etemadi Borujeni
- High Output Hamming-Distance Achievement by a Greedy Logic Masking Approach 419
**Mohammad Saleh Samimi, Ehsan Aerabi, Arash Nejat, Mahdi Fazeli,
David Hely, Vincent Beroulle**

1.9 GHz 1.05V 16-bit RISC Core for High Density 423
and Low Power Operation in 28nm Technology

**Davit Babayan, Eduard Babayan, Poghos Petrosyan, Anna Tumanyan,
Emil Kagramanyan, Tigran Hakhverdyan**

NBTI Mitigation by M-IVC with Input Duty Cycle and Randomness Constraints 427

Maoxiang Yi, Xiaohong Liu, Qingwu Wu, Tianming Ni, Zhengfeng Huang, Huaguo Liang

Big Data Visualization in Smart Cyber University 432

Tetiana Soklakova, Artur Ziarmand, Svitlana Osadchyieva

Transport Monitoring and Control Systems 441

Artur Ziarmand, Dariya Kucherenko, Tetiana Soklakova

Feedback Cloud Service for the Smart Cyber University 445

Anastasia Makarevich

Multiversion Parallel Synthesis of Digital Structures Based on SystemC Specification 450

Vladimir Obrizan, Tetiana Soklakova

Cloud Incident Response Model 456

Alexander Adamov, Anders Carlsson

Extending Fault Periodicity Table for Testing External Memory Faults 459

Harutyunyan G.

A novel technique to detect Aging in Analog/Mixed-signal circuits 463

Mehrnaz Ahmadi, Rasoul Jafari

Applying Parameterized Model Checking to Real-Life Cache Coherence Protocols 467

Vladimir Burenkov, Alexander Kamkin

ROBDDs Application for Finding the Shortest Transfer Sequence
of Sequential Circuit or Only Revealing Existence of this Sequence
without Deriving the Sequence itself 471

Matrosova A., Andreeva V., Melnikov A.

A Technique for Low Power, Stuck-at Fault Diagnosable
and Reconfigurable Scan Architecture 475

Binod Kumar, Boda Nehru, Brajesh Pandey, Virendra Singh

No-Reference Image Quality Assessment based on Local Binary Patterns 479

Nenakhov I., Khryashchev V., Priorov A.

Pseudo-exhaustive Testing of Sequential Circuits for Multiple Stuck-at Faults 483

Matrosova A., Mitrofanov E.

Application of Ferromagnetic Materials with Properties Set On Nanolevel at
Resonant Circuits Creating of Microwave (SHF) and THz (EHF) Ranges 487

**Dmitry A. Bezuglov, Larissa V. Cherckesova, Nikolay N. Prokopenko,
Gennady P. Sinyavsky, Marina Yu. Zvezdina, Yulia A. Shokova, George N. Shalamov,
Olga N. Manaenkova**

Frequency Method of Measurement of Average High Temperature 491
in Inhomogeneous Media
Sukhinets Zh.A., Gulin A.I., Sukhinets A.V.

Contactless Measurement Technique for the Amplitude of Vibrational Movement
of the Test Material Point 496
Grigoriev A.V., Yurkov N.K., Kochegarov I.I.

Generalized Structural Models of Complex Distributed Objects 499
Mikheev M.Yu., Shcherban A.B., Zhashkova T.V., Grishko A.K., Rybakov I.M.

Imitation Modelling for the Subsystem of Identification 503
and Structuring Data of Signal Sensors
Mikheev M.Yu., Meshcheryakova E.N., Zhashkova T.V., Gudkov K.V., Grishko A.K.

The Application for Internal Restructuring the Data in the Entropy Coding
Process to Enhance the Information Resource Security 508
Vladimir Barannik, Sergii Shulgin, Ivan Tupitsya, Sergii Sidchenko, Volodymyr Larin

Estimate of the Capacity of the Closed Video Channel for the Method Based
on the Selection of Relevant Structural Units 512
Dmitry Komolov, Volodymyr Krivonos, Tanya Belikova, Roman Tarnopolov

The Ensuring the Integrity of Information Streams Under the Cyberattacks Action 517
Vladimir Barannik, Andrey Krasnorutskyi, Sergey Podlesny, Alexander Musienko, Viktoria Himenko

The Development Method for Evaluating the Saturation of Video Frame Blocks
to Reduce the Processing Time of the Video Stream 522
Oleg Kulitsa, Vitaly Tverdokhlebo, Dmitry Okladnoy, Anna Hahanova

The New Method of Secure Data Transmission on the Indirect Steganography Basis 525
Ali Bekirov, Oleg Frolov, Dmitry Barannik, Oleh Suprun

Hybrid Genetic Algorithm For Cutting Stock And Packaging Problems 529
Orlov Anton, Kureichik Vladimir, Glushchenko Alexander

The Demodulation Signal under the Influence of Additive
and Multiplicative non-Gaussian Noise 533
Artyushenko V.M., Volovach V.I., Shakursky M.V.

The Determination of Measurement Error the Instantaneous Frequency
of the Deep Fading Signals 537
Artyushenko V.M., Volovach V.I., Budilov V.N.

Influence of Correlated Additive non-Gaussian Noise on Accuracy of Signal
Parameters Measurement during Continuous Processing 541
Artyushenko V.M., Volovach V.I., Kucherov B.A.

A Fault-tolerant Sequential Circuit Design for Soft Errors Based on Fault- Secure Circuit 545
Ostanin S., Matrosova A., Butorina N., Lavrov V.

Cyber Physical Computing 549
Vladimir Hahanov, Mazen Abdelrahman Abdelaziz Hussein, Anna Hahanova, Ka Lok Man

Expert Diagnosis of Computer Systems using Neuro-Fuzzy Knowledge Base 557
Krivoulya G., Lipchansky A., Sheremet Ye.

Internet portal of NGN platforms 562
Aleksandr Roslyakov

Simulation of a hierarchical routing protocol for MANET 566
Dmitry Prozorov, Anton Chistyakov, Alexander Metelyov and Sergey Romanov

The Use of Petri Nets as the Basis of Algorithm for Gate Level Digital Circuits Simulation 570
Alexander Lapin, Dmitry Bulakh, Andrey Korshunov and Gennady Kazennov

Estimation of the Measurement Accuracy of the Informative Parameters of the Signal on the Background of Correlated Additive non-Gaussian Noise 574
Vladimir M. Artyushenko and Vladimir I. Volovach

Synthesis of combinational circuits from the truth tables in "Kovcheg" CAD design flow 578
Valentina Aleshina, Maria Makarceva and Alexandr Golenkevich

Computer model of steganographic system based on contraction mapping with stream audio container 582
Maxim Shakurskiy, Viktor Shakurskiy and Vladimir Volovach

An Improved Scheme for Pre-computed Patterns in Core-based SoC Architecture 586
Elaheh Sadredini

Radiophysical Processes in Thin-Film Structures 592
Larissa V. Cherckesova, Dmitry A. Bezuglov, Gennady P. Sinyavsky, Alexander N. Zaichenko, Alexander G. Shein, George N. Shalamov and Olga N. Manaenkova

On Simplification of Timed Automata 596
Maxim Gromov

Analysis and Design of Planar Flexible Antenna Prototype 600
Ksenia Lomovskaya, Aleksandr Timoshenko, Egor Belousov, Egor Borodulin and Aleksandr Levanov

Structural CDC Analysis Methods 605
Sergiy Zaychenko, Pavlo Leshtaev, Bogdan Gureev, Maksym Shliakhtun