

2016 International Conference on Information Science and Communications Technologies (ICISCT 2016)

**Tashkent, Uzbekistan
2 – 4 November 2016**



**IEEE Catalog Number: CFP16H74-POD
ISBN: 978-1-5090-3547-2**

**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:	CFP16H74-POD
ISBN (Print-On-Demand):	978-1-5090-3547-2
ISBN (Online):	978-1-5090-3546-5

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



TOSHKENT AXBOROT
TEXNOLOGIYALARI
UNIVERSITETI



IEEE
COMMUNICATIONS
SOCIETY
Uzbekistan Chapter



MINISTRY OF DEVELOPMENT OF INFORMATION
TECHNOLOGIES AND COMMUNICATIONS
OF THE REPUBLIC OF UZBEKISTAN



MINISTRY FOR DEVELOPMENT OF INFORMATION TECHNOLOGIES AND
COMMUNICATIONS OF THE REPUBLIC OF UZBEKISTAN

TASHKENT UNIVERSITY OF INFORMATION TECHNOLOGIES (TUIT)

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

International Conference on Information Science and Communications Technologies ICISCT 2016

2nd, 3rd and 4th of November 2016, Tashkent Uzbekistan

Conference Program

Conference Program: 2nd of November

Time	Oral Sessions
8:30 - 9:00	Opening Remarks
9:00 - 10:30	<p>Keynote Speakers- Invited talk</p> <p>Title: Profitable Ubiquitous Rural and Remote IoT/M2M/H2H 5G Communications</p> <div data-bbox="332 1596 561 1848"> </div> <p>Alexander Markhasin, Professor, D.Sc. (T)</p> <p>Head of Telecommunication Networks Department Siberian State University of Telecommunications and Information Sciences, Novosibirsk, Russia</p> <p>Email: almar@risp.ru Phone: +7 383 2698383</p> <ul style="list-style-type: none"> Challenges of sparsely populated rural and remote areas of the emerging economics

- Extremely Green & Flexible PHY-MAC Fundamentals
- Spectral and power efficiency optimization and trade-off problems
- Distributed multifunctional MAC, bandwidth resource and QoS/QoE “on the fly” control
- Radically distributed profitable IoT/M2M/H2H 5G grid-like architecture conceptual model

Abstract:

Unacceptably high investments are required into deployment of the optic core infrastructure for ubiquitous wide covering of sparsely populated rural, remote, and difficult for access (RRD) areas using the recent (4G) and also forthcoming (5G) broadband radio access (RAN) centralized techniques, characterized by short cells ranges, because their profitability boundary exceeds a several hundred residents per square kilometer. Furthermore, the unprecedented requirements and new features of the forthcoming Internet of Things (IoT), machine-to-machine (M2M) and also many other machine type IT-systems lead to a breakthrough in designing extremely green flexible and low-cost technologies for future 5G wireless systems which will be able to reach in real time the performance extremums, trade-off optimums and fundamental limits.

We show that the distributed multifunctional medium access control (MFMAC) to long-delay wireless medium is a key technology for rural broadband wireless 5G communications. The improvement of MAC protocols plays a key role in ensuring the extremely green PHY and flexible radio resource & QoS “on the fly” management. Next, the fundamental PHY-MAC throughput limits and extremums of the energy, power, spectral efficiency invariants criteria are proved. The invariant criteria are constructed relying on Shannon m-ary digital channels capacity which rich palette of the technically interpreted PHY-MACs parameters consider. Therefore, the invariant criteria as very suitable for research and design of an 5G extremely performance problems are found. The PHY-MACs smart distributed control techniques which able implements “on-the-fly” the limits close and invariant criterion optimization or trade-off is proposed. Such PHY-MAC’s smart control techniques represent a key disruptive technologies meet the 5G network challenges.

12:00 -2:00	Lunch
Time	Oral Presentation
2:00 - 4:00	Session 1: Optical Communications and Networking OCN and Optical Passive and Active Components and Devices OPA I Room: A 117 Session Chair: Bakhtiyorjon Rakhimov

Development of Automatic Transfer Switch 1

F.I.Akhunov, F.F.Isaev, A.R. Soliyev, Sh.R.Djukharov

Fiber-Optic Measuring System Monitoring and Diagnosis of Mechanical Properties of Structures 4

Radjabov Telman Dadayevich, Baxtiyor Rakhimov Nematovich, Khakimov Zafar Tulaganovich

2:00 - 4:00	Session 2: Big Data Analytics and E- and M- Commerce and Delay Tolerant, Fault Tolerant and Reliable Communication Room: A 125 Session Chair: Dilmurod Davronbekov
-------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Block Structure of Data Mining Algorithms 7

Karshiev Zaynidin, Ivan Kholod

Features Measurement Parameters and Control Functioning of Integrated Chips 10
D. Davronbekov

4:00 - 4:30	Coffee Break
4:30 - 6:00	Session 3: Application of Information and Communications Technologies AICT Room: A 115 Session Chair: Tuygun Nishanbayev

Optimization Detection of Smiling and Opening Eyes in Faces with Algortihm LBP 13
Islomov Shahboz Zokir ugli, Bobokulov Mirzohid Mirsalim ugli

Modeling Graduates Monitoring Processes Based On Data Mining 17
Faxrutdinov R.M., Karimova V.A.

Modification of Decision Rules "Ball Apolonia" The Problem of Classification 20
A.X.Nishanov, O.B.Ruzibaev, Nguyen H. Tran

Provision of Dispersed Resources and Services of the Company Based on Service-Oriented Corporate Information System 23
T.N. Nishanbayev, M.M. Abdullayev

Software Defined Networking: Management of Network Resources and Data Flow 26
Mahmudov Salimjon Olimjonovich

Virtual Fences for Controlling Livestock Using Satellite-Tracking and Warning Signals 29
Azamjon Muminov, Daeyoung Na, Cheolwon Lee, Heung Seok Jeon

4:30 - 6:00	Session 4: Optical Communications and Networking OCN and Optical Passive and Active Components and Devices OPA II Room: A 125 Session Chair: Dilmurod Davronbekov
-------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Linearization Spectral Characteristics Through Passage by Means of Akusto-Optical Reconstructed Filters 36
J.D.Isroilov

Method of Calculating the Distribution of Light in a Plane Parallel to the Light Guide Plate Control Devices 38
Zafar Khakimov Tulaganovich, Baxtiyor Rakhimov Nematovich, Botirjon Alimjanov Abdilmaksud ugli

Original Educational Devices and Benches on Basis of Solar Elements 40
U.H. Qurbonova, B.R. Rakhmonov, F.M.Akramova

Methods for Determining the Location of Mechanical Damage to the Trunk and Local Fiber-Optic Communication Lines 43
Radjabov Telman Dadayevich, Baxtiyor Rakhimov Nematovich, Berdiyev Alisher Alikulovich

Conference Program: 3rd of November

Time	Oral Presentation
9:00 - 10:00	Session 5: Cloud Computing CC and Simulation, Modeling and Analysis and Performance Evaluations SMA Room: A 115 Session Chair: Ilkhomjon Siddikov

Spark Based Distributed Deep Learning Framework for Big Data Applications 45

Akhmedov Khumoyun, Yun Cui, Lee Hanku

Model of Assessment of Risks of Information Security in the Environment of Cloud Computing 50

R. X. Djuraev, B. M. Umirzakov

A Timed Colored Petri-Net Modeling for Precision Time Protocol 53

Rustam Rakhimov Igorevich, Pusik Park

Modeling of The Processes in Magnetic Circuits Of Electromagnetic Transducers 58

Siddikov Ilkhomjon Khakimovich, Sattarov Khurshid Abdishukurovich, Dekhkonov Oybek Ravshanovich, Khujamatov Khalimjon Ergashevich

10:00 - 10:30	Coffee Break
10:30 - 12:00	Session 6: Mobile Communications and Mobility MC and Mobile Ad-Hoc and Sensor Mesh Networks AdHoc, WIMAX, 3G and 4G Systems Room: A 125 Session Chair: Dilmurod Davronbekov

Development of Wireless Telecommunication Systems with the use of Technologies of Cognitive Radio 61

M.O.Sultonova

Controller for Monitoring Solar Battery 64

F.I.Axunov, A.T.Aripov, F. Isayev, A.A.Boxodirov

Measurement-based Design and Optimization of the Heterogeneous LTE Network Architecture 66

Vera G. Drozdova, Ruslan V. Akhpashev

Vehicular Ad-hoc Networks (VANETs) Dynamic Performance Estimation Routing Model for City Scenarios 70

Mayada Abdelgadir, Rashid Saeed, Abuagla Babiker

Development of Multiple Tracking System for Smart VIP Car Placement and Monitoring 78

Nizomjon Khajiev, Chol-U Lee, Kyung-Sook Kim, Seung-Ho Kim, Ryum-Duck Oh

12:00 - 2:00	Lunch
2:00 - 3:00	Session 7: Wireless Communications and Networking Room: A 125

Performance Modeling and Optimization of Flexible QoS-Guaranteed Multifunctional MAC for Rural Profitable Ubiquitous 5G IoT/M2M Systems 83
Alexander Loshkarev, Alexander Markhasin

Free Space Optical Data Link for Aircraft Parameters Remote Control 88
Ruslan Zakirov

Review of Open Optical Transmission Systems and their Possible use in Urgench City 90
Ibraimov R. Refat, Khalbaeva Z. Muazzam, Davronbekov D. Nurbek

Cost-Effective Ubiquitous IoT/M2M/H2H 5G Communications for Rural and Remote Areas 94
Alexander Markhasin, Valery Belenky, Vera Drozdova, Alexander Loshkarev, Ilya Svinarev

3:00 – 3:30 Coffee Break

3:30 – 5:30 Session 8: **ICT in Education, Research and Science**
 Room: A 117
 Session Chair: Marat Rakhmatullayev

A Novel Learning Object Framework for Confidence Based Learning 102
Rajeev Chatterjee, Jyostna Kumar Mandal

Investigating the Acceptance of Technology in Distance Learning Program 108
Ibrahim Almarashdeh, Mutasem Alsmadi

Listen Closely, Respond Quickly Enhancing Conformity of SPL Domain Requirements Through SNS 113
Nazakat Ali, SoonKyeom Kim, Jang-Eui Hong

3:30 - 5:30 Session 9: **Military Application of Communications and Information Security MACIS, Architectures, Devices, Security and Privacy ADSP**
 Room: D 208
 Session Chair: Abduxalil Ganiyev

Dynamic Framework for Assessing Cyber Security Risks in a Changing Environment 118
Sergey Naumov, Ilya Kabanov

Comparative Factors of Key Generation Techniques 125
Khudoykulov Zarif Turakulovich, Yusupov Bokhodir Karamatovich

Biometric Cryptosystems: Open Issues and Challenges 122
Ganiyev Salim Karimovich, Khudoykulov Zarif Turakulovich

Method for Security Monitoring and Special Filtering Traffic Mode in Info communication Systems 128
Sherzod Rajaboyevich Gulomov, Nasrullayev Nurbek Bakhtiyorovich

Multiscale Analysis of Wavelet - Transformation, as a Solution to the Problem of Compression of Information Flows 134

Oksana Porubay

Review of Materials Used for The Shielding of Side Electromagnetic Field in Radioelectronic Equipment 138
Sh.U. Puiatov

Approaches to Solving The Problems of Optimization of Digital Television Networks in The Republic of 141
Uzbekistan
Sh.U. Pulatov, R.A. Rahmanberdiev

Invited Dinner

Conference Program: 4th of November
Continental Breakfast

Time	Oral Presentation
9:00 - 5:00	Tutorials Room:

Title: Introduction to 5G and Challenges for Radio Resource Management



Assistant Professor Abolfazl Mehbodniya

Department of Communications Engineering
Graduate School of Engineering, Tohoku University, JAPAN

Email: mehbod@mobile.ecei.tohoku.ac.jp
Phone: +81-90-28856608

Abstract: "This talk briefly introduces our JUNO project at Tohoku University, Japan. JUNO project aims at finding solutions for two major issues which are supposed to remain the main concerns of the worldwide research community for at least a decade; (1) Optimization of energy consumption to save the limited energy resources and cope with its increasing demand as well as reducing the worldwide CO2 emission, (2) The need for next generation (5G) mobile communications due to the tremendous trend in increase of data traffic.

Technically speaking, 5G mission is to develop a spectrum- and energy-efficient network which is capable of reaching speeds of 10 Gbps. Specifically, its capability to minimize the energy requirements of web devices and network infrastructure is of utmost importance due to recent concerns for energy consumption in ICT industry. With the rapid growth in the mobile communications sector, the carbon footprint of the ICT sector will grow up to 1.43 Giga-tons by 2020 and mobile communications sector is responsible for 201 Mega-tons of emissions by 2020 (14% of the whole ICT sector). Already, EU targets a 20% reduction in the energy consumption of IT industry by 2020. At the beginning of this talk, we discuss what we have achieved so far by four generations of wireless networks and what we may expect from the upcoming 5G. The newest state-of-the-art proposals and specifications discussed by leading international wireless R&D companies for 5G will then be presented. Later, we introduce the energy-efficiency (EE) issue for wireless communications and infrastructure from different perspectives. These techniques brighten the horizon for 5G system design. In fact, during last decade most researchers have focused on spectrum-efficiency (SE), and EE was not considered by 3GPP as an important performance indicator until very recently. As a result recent wireless standards such as LTE have near optimal SE, with the aid of some advanced techniques such as turbo coding, while they ignore the EE issue. The main problem is how to balance EE and SE metrics in radio resource management (RRM), because they are usually not consistent and sometimes conflict with each other. Finally, we will present some recent energy-efficient RRM modules for 5G Heterogeneous Networks (HetNet). Interference management is one of the main issues of concern in 5G HetNet and RRM module design and will be discussed accordingly."