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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	Keynote Speakers- Invited talk
	<p>Title: Profitable Ubiquitous Rural and Remote IoT/M2M/H2H 5G Communications</p>  <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 riche 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

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

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

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
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Block Structure of Data Mining Algorithms

Karshiev Zaynidin, Ivan Kholod

Features Measurement Parameters and Control Functioning of Integrated Chips

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 Algoritim LBP

Islomov Shahboz Zokir ugli, Bobokulov Mirzohid Mirsalim ugli

Modeling Graduates Monitoring Processes Based On Data Mining

Faxrutdinov R.M., Karimova V.A.

Modification of Decision Rules "Ball Apolonia" The Problem of Classification

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

T.N. Nishanbayev, M.M. Abdullayev

Software Defined Networking: Management of Network Resources and Data Flow

Mahmudov Salimjon Olimjonovich

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

J.D.Isroilov

Method of Calculating the Distribution of Light in a Plane Parallel to the Light Guide Plate Control Devices

Zafar Khakimov Tulaganovich, Baxtiyor Rakhimov Nematovich, Botirjon Alimjanov Abdulkmaksud ugli

Original Educational Devices and Benches on Basis of Solar Elements

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

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
Akhmedov Khumoyun, Yun Cui, Lee Hanku

Model of Assessment of Risks of Information Security in the Environment of Cloud Computing
R. X. Djuraev, B. M. Umirzakov

A Timed Colored Petri-Net Modeling for Precision Time Protocol
Rustam Rakhimov Igorevich, Pusik Park

Modeling of The Processes in Magnetic Circuits Of Electromagnetic Transducers
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
M.O.Sultonova

Controller for Monitoring Solar Battery
F.I.Axunov, A.T.Aripov, F. Isayev, A.A.Boxodirov

Measurement-based Design and Optimization of the Heterogeneous LTE Network Architecture
Vera G. Drozdova, Ruslan V. Akhpashev

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

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

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

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

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
Rajeev Chatterjee, Jyostna Kumar Mandal

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

Listen Closely, Respond Quickly Enhancing Conformity of SPL Domain Requirements Through SNS
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
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Dynamic Framework for Assessing Cyber Security Risks in a Changing Environment
Sergey Naumov, Ilya Kabanov

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

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

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

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

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

Approaches to Solving The Problems of Optimization of Digital Television Networks in The Republic of 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

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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."

Biography: Abolfazl Mehbodniya received his Ph.D degree from the National Institute of Scientific Research-Energy, Materials, and Telecommunications (INRS-EMT), University of Quebec, Montreal, QC, Canada in 2010. From 2010 to 2012 he was a JSPS postdoctoral fellow at Tohoku University. Since Jan 2013, he has been an assistant professor at department of communications engineering, Tohoku University. Dr. Mehbodniya has 10+ years of experience in electrical engineering, wireless communications, and project management. He has over 40 published conference and journal papers in the areas of radio resource management, sparse channel estimation, interference mitigation, short-range communications, 4G/5G design, OFDM, heterogeneous networks, artificial neural networks (ANNs) and fuzzy logic techniques with applications to algorithm and protocol design in wireless communications. He is the recipient of JSPS fellowship for foreign researchers, JSPS young faculty startup grant and KDDI foundation grant.

End of Program

