UDC 681.3 + 681.5 I 64

Information Innovative Technologies: Materials of the International scientific – practical conference. /Ed. Uvaysov S. U., Ivanov I.A. – M.: Association of graduates and employees of AFEA named after prof. Zhukovsky, 2018, 652 p.

ISSN 2542-1824

The materials of The International Scientific – Practical Conference is presented below. The Conference reflects the modern state of innovation in education, science, industry and social-economic sphere, from the standpoint of introducing new information technologies.

It is interesting for a wide range of researchers, teachers, graduate students and professionals in the field of innovation and information technologies.

The editorial board:

Avdeuk O.A., Cheremisina E.N., Golovanova N.B., Gorbunov A.P., Ivanov I.A. (executive editor), Kacejko P., Karnimskaya T.D., Khalutin S.P., Kharkov V.P., Konchakov A.V., Kravets A.G., Kudzh S.A., Meshcheryakov R.V., Nefedov V.I., Pankov V.L., Ragutkin A.V., Shashurin G.V., Shelupanov A.A., Shmid A.V., Sigov A.S., Sokolov V.V., Timoshenko A.V., Uvaysov S.U. (general editor), Vityazev V.V., Wójcik W., Yurkov N.K.

ISSN 2542-1824

© The conference organizing committee

Proceedings of the conference contains

- information about the organizers;
- materials of the conference.

EVENTS

Plenary meeting



Fundamental issues of innovations

Results of fundamental researches in different scientific and practical activities are considered

Form of the report: plenary

Time-limit of the speech – up to 30 minutes

Section meetings



Section 1. Information technologies in education

Questions under consideration: educational process management at the high, secondary and basic education; distance education; ICT for improvement of teaching quality and others.

Form of the report – section

Time-limit of the speech – up to 10 minutes

Section 2. Information technologies in science and industry



Use of modern information technologies in provision of scholar researches and new types of equipment and technologies creation.

Form of the report – section

Time-limit of the speech – up to 10 minutes

Section 3. Information technologies in social-economic sphere



This section is dedicated to issues of innovative and information technologies use in different spheres of society life and activities.

Form of the report – section

Time-limit of the speech – up to 10 minutes

Section 4. Economy of information systems and digitalization



The section is devoted to the economic analysis of information systems and the current process of transition to a digital economy (digitalization).

Form of the report – section

Time-limit of the speech – up to 10 minutes

CONTACTS

Organizing Committee: 119454 Moscow, Prospect Vernadskogo, 78, MIREA, dep.KPRES

Contact information:

• General questions - Ilya A. Ivanov, tel.: +7 (926) -3830740

- Saygid U. Uvaysov, tel.: +7 (926) -8080190

E-mail: i2t@diag.ru

ATTENTION! Please follow the updates on the site WWW.DIAG.RU

ORGANIZERS

General organizer	
Moscow Technological University (MIREA)	70 MIREA
Russian Centre for Science and Culture in Prague	

Sponsors	
Experimental laboratory NaukaSoft	NaukaSoft expensered Auditoriory

Support		
Russian Academy of Sciences	Decriciones (Surgenes Haya	
Ministry of Education and Science of the Russian Federation		

Organisational partners	
Association of graduates and employees of AFEA named after prof. Zhukovsky	A PORT OF THE PARTY OF THE PART
Immanuel Kant Baltic Federal University	
Institute of Electronics and Information Technology of Lublin University of Technology	
FSBEI HE DSMU MOH Russia	
Permanent Mission of the Republic of Dagestan to the President of the Russian Federation	%
Tomsk State University of Control Systems and Radioelectronics.	TUSUR UNIVERSITY Тонский государственный университет систем управления и радиоэлектрониям.
Yugra state university	

THE SCIENTIFIC SUPERVISOR

Sigov A.S., Professor, Doctor of Physico-Mathematical Sciences, Academician of Russian Academy of Science, President of MIREA

CHAIR OF THE PROGRAM COMMITTEE

Kudzh S.A., Professor, Doctor of Technical Sciences, Rector of MIREA

DEPUTY CHAIR OF THE PROGRAM COMMITTEE

Karnimskaya T.D., Docent, Candidate of Technical Sciences, Rector of Yugra State University

PROGRAM COMMITTEE

PROGRAM COMMITTEE	
Cheremisina E.N., Prof.	Dubna, Director of the Institute of System Analysis and
	Management of International University "Dubna"
Chernodarov A.V., Prof.	Moscow, Experimental laboratory NaukaSoft
Golovanova N.B., Prof.	Moscow, Deputy First Vice-Rector of MIREA
Gorbunov A.P., Prof.	Pyatigorsk, Rector of PSU
Gusein-zade N.G., Prof.	Moscow, Head of Department, GPI RAS
Kacejko Piotr, prof.dr	Lublin, Rektor of Lublin University of Technology
hab.inż.	
Karpenko A.P., Prof.	Moscow, Head of Department, BMSTU
Klaban Vladimír, Prof.	Brno, RAŠÍNOVA VYSOKÁ ŠKOLA s.r.o.
Ing., CSc	
Kokes Josef, Assoc.	Prague, prorector of VSMIEP Prague
prof., CSc.	
Kulikov G.V., Prof.	Moscow, MIREA
Kuzaev G.A., Prof.	Nordheim, Prof. radio group of Norwegian Institute of Science
	and Technology
Meshcheryakov R.V., Prof.	Tomsk, Vice-Rector for Research and Innovation of TUSUR
Nazarenko M.A., Docent	Moscow, Acting Director of Institute, MIREA
Omarov N.SM., Prof.	Makhachkala, First Vice-rector of Dagestan state medical university
Pankov V.L., Prof.	Moscow, First Vice-Rector of MIREA
Pozhidaev E.D., Prof.	Moscow, scientific director of faculty MIEM HSE
Prachař Jan, Ing., PhD.	Prague, Evropský polytechnický institut
Ragutkin A.V.	Moscow, Vice-Rector for Innovative Development of MIREA
Shashurin G.V., Docent	Moscow, Head of the Faculty, BMSTU
Shelupanov A.A., Prof.	Tomsk, Rector of TUSUR
Shmid A.V., Prof.	Moscow, General Director of "EC-Leasing"
Stupar S.K.	Prague, Russian trade representative in Czech Republic
Sokolov V.V., Prof.	Moscow, First Vice-Rector of MIREA
Timofeev G.A., Prof.	Moscow, Head of "NUK RK" BMSTU
Timoshenko A.V., Prof.	Moscow, Deputy First Vice-Rector of MIREA
Vityazev V.V., Prof.	Ryazan, Head of Department, RSREU

CHAIR OF THE ORGANIZATION COMMITTEE

Uvaysov S.U. - Professor, Doctor of of Technical Sciences, Head of Department, MIREA.

<u>DEPUTY CHAIR OF THE ORGANIZATION COMMITTEE</u>

Konchakov A.V. – Director of Russian Centre for Science and Culture in Prague.

ACADEMIC SECRETARY

Ivanov I.A. - Candidate of Technical Sciences, Docent.

ORGANIZATIONAL COMMITTEE

	ORGANIZATIONAL COMMITTEE	
Abramov O.V., Prof.	Vladivostok, Head of Department, IACP FEB RAS	
Avakyan A.A., Prof.	Zhukovsky, JSC "SRIAE"	
Avdeuk O.A., Docent	Volgograd, Head of Department, VSTU	
Bitukov V.K., Prof.	Moscow, Head of Department, MIREA	
Bushmeleva K.I., Prof.	Surgut, Head of Department, SurSU	
Chernova N.I., Prof.	Moscow, Head of Department, MIREA	
Eremenko V.T., Prof.	Orel, Head of Department, Orel State University	
Gorshkov P.S., Docent	Moscow, Adviser Experimental laboratory NaukaSoft	
Grachev N.N., Prof.	Moscow, HSE	
Grodzenskiy S.Ya., Prof.	Moscow, MIREA	
Ismagilov F.R., Prof.	Ufa, Head of Department, USATU	
Kasimov A.O., Docent	Almaty, AIPET	
Kechiev L.N., Prof.	Moscow, HSE	
Khalutin S.P., Prof.	Moscow, General Director Experimental laboratory NaukaSoft	
Kharkov V.P., Prof.	Moscow, Adviser to General Director Experimental laboratory	
	NaukaSoft	
Kirichenko A.V., Prof.	Bryansk, Vice-Rector of BSTU	
Klimov K.N., Prof.	Moscow, JSC LEMZ	
Kofanov Yu.N., Prof.	Moscow, HSE	
Koskin A.V., Prof.	Orel, Director of Department, Orel State University	
Kravets A.G., Prof.	Volgograd, VSTU	
Kulagin V.P., Prof.	Moscow, Head of Department, MIREA	
Levin V.A.	Prague, Czech Republic	
Lvov B.G., Prof.	Moscow, Head of Department, HSE	
Mandzhiev A.A.	Moscow, MIREA	
Nefedov V.I., Prof.	Moscow, Head of Department, MIREA	
Novoselova V.O.	Prague, Head of the Department of Science and Education,	
	Russian Centre for Science and Culture in Prague	
Orlova Yu.A., Docent	Volgograd, VSTU	
Paramonov A.A., Prof.	Moscow, Head of Department, MIREA	
Saenko V.S., Prof.	Moscow, HSE	
Saushev A.V., Prof.	St. Petersburg, Head of Department, Admiral Makarov SUMIS	
Starikh V.A., Prof.	Moscow, Head of Department, HSE	
Stukach O.V., Prof.	Tomsk, TPU	

Teplov S.V.	Moscow, General Director of Technopark "STROGINO"
Isaeva Z.U.	Makhachkala, Director of the Medical Center
Vasilev V.A., Prof.	Penza, Head of Department, PSU
Vorobev G.A., Docent	Pyatigorsk, Head of Department, PSU
Wójcik Waldemar, Prof.	Lublin, director of the Institute of Electronics and Information
dr hab. inż.	Technology of Lublin University of Technology
Yurkov N.K., Prof.	Penza, Head of Department, PSU
Zamuruev S.N., Prof.	Moscow, Head of Department, MIREA

COORDINATION COMMITTEE

Panasik D.S., HSE Milovanova N.V., MIREA Kuzina E.A., MIREA Lyshov S.M., SurSU

INFORMATION PARTNERS

[&]quot;Information Technologies"

[&]quot;Measurement Techniques"

[&]quot;Quality. Innovation. Education»

[&]quot;Sensors and Systems"

[&]quot;EMC Technologies"

[&]quot;Methods of Management Quality"

[&]quot;Management Challenges"

[&]quot;Caspian Journal Management and High Technologies"

[&]quot;Reliability & Quality of Complex Systems"

[&]quot;Russian technological journal"

Dear Colleagues,

I wholeheartedly welcome participants of the International Scientific and Practical conference "Information Innovative Technologies"



Today many countries seek transition to a qualitatively new, innovative vector of scientific and technological development as one of their priorities. Discussing topical issues of improving national innovation policies, introducing novel information technologies into prioritized sectors of the digital economy, science and education as well as addressing other crucial problems may create an impetus to achieve the goal.

Naturally the development of information innovative technologies and means of communication is attracting a great deal of public attention. People strive for cooperation in order to create and implement

new formats of information interaction. We see innovative communication technologies as a foundation for establishing modern information society and a key element to facilitate economy of a new innovative type.

The system of information innovative technologies being implemented on their basis will help general public, scientific and education institutions, businesses and governments to work more efficiently. Information technologies are embedded in virtually every aspect of human life, making each step of its development impossible without coordinated decision-making.

The conference today is a convenient platform for professionals in business, education and science to converse. I sincerely hope that discussing the above-mentioned issues of implementing information innovative technologies within the framework of the forum would become a significant support for solving strategic tasks, increasing people's welfare and standard of living. Thanks to the organizers' efforts, forum participants can enjoy an intense and exciting programme. We are looking forward to seeing the results of topical discussions and the recommendations derived.

I wish the participants of the International Scientific and Practical Conference to achieve their goals and successfully realize new ideas for the creation and implementation of information and innovative technologies that will undoubtedly appear on this forum.

President of MTU A.S. Sigov

Dear colleagues!



This year our university is once again holding the annual International Scientific and Practical Conference "Information and Innovative Technologies".

This conference is taking place at a time when the higher education system faces issues associated with finding fundamentally new solutions and mechanisms allowing to reflect the new policies of many countries in this sphere.

Active introduction of the latest information and innovative technologies is one of the key conditions for the national development. In addition to the economic effects, information technologies have a huge impact on the modern lifestyle, introducing new business models, as well as novel methods of state management and education formats.

Formation of professional human resources is a prerequisite for the advancement of information innovative technologies. We have to further improve the system of training and professional development for information technology professionals, introduce educational and professional standards that comply with the international ones.

At the same time, a serious increase in the competence level of future specialists appears impossible without the involvement of employers. It is the employers who determine the content, structure and quality assessment criteria of the novel education system, being its major customer.

I hope that the conference held by our university will allow many of its participants to bring their ideas to the wider audiences in various fields of activity, to share their accumulated experience and opinions on the most vital issues and problems, to create favorable conditions for further cooperation and creative activity of its individual participants as well as research teams

I wish everyone fruitful and meaningful work, new business links established, and success!

Rector of MTU S.A. Kudzh

Welcoming word to the participants of the international scientific and practical conference «Information Innovative Technologies»

Andrey Viktorovitch Konchakov

Associate director of the Russian centre for science and culture in Prague



Dear organizers, participants and guests of the International Scientific and Practical Conference «Information Innovative Technologies»!

Indeed, it is my great pleasure to have an opportunity to host the conference in Russian center for science and culture in Prague. It is dedicated to up-to-date information technologies for building and creating a modern education platform.

It is a great pleasure for me to host the conference in Russian center for science and culture in Prague. The Conference is dedicated to up-to-date information technologies for creation and development the modern education platform. It is known that management improvement in education using advanced information technologies is one of the most important factors in development of economy and society.

In many countries, the cooperation between state universities and companies of the innovation and education sphere develops differently. The major Conference goal is collaboration of state authorities, educational institutions, public and business organizations of Russia and their like-minded representatives from abroad.

I believe that the I²T feedback would be especially good for further educational improvements based on new information technologies.

I wish the organizers, participants, guests of this Conference to get success, and be assure of the full support for the innovative projects presented and promoted by the means of Russian Centre for Science and Culture in Prague.

Andrey Konchakov

Welcome words of chairman of the conference organizing committee.



Dear colleagues,

It's my pleasure to greet you at the beginning of our annual International Scientific and Practical conference which has already become a tradition! On behalf of the organizing committee, let me express my gratitude to all those who have found the opportunity to come for full participation in the work of the event. In addition, I would like to thank the Russian Center of Science and Culture in Prague for the heartwarming reception and excellent conditions for the planned plenary and sectional meetings, round tables and master-classes.

Organizing this event in the geographical center of Europe - the Czech Republic - we are looking forward to broad international participation and exchange of opinions, problems and solutions to these problems in the field of information technologies

and their innovative applications in a wide range of human activities: from education and science to the economy and social sphere.

Considering the needs for the participants in publishing the materials of their works in peer-reviewed journals indexed with Scopus and WoS, we plan to hold an international seminar within the framework of our conference. The seminar is dedicated increasing the design efficiency for electronic devices and technological production processes.

I am glad to announce that the next year's seminar has been included in the IEEE calendar under the number 44515.

Meanwhile, we have always believed that one should seek novel ideas and groundbreaking results at the intersection of different science branches. Therefore, the conference agenda will remain broad in terms of the problems under consideration and openminded towards the emergence of new sections, roundtables, master classes and other forms of international scientific and practical cooperation. That said, information technologies will remain the unifying basis.

I wish creative inspiration, rewarding work and pleasant impressions for all the participants of the conference.

Yours Saygid U. Uvaysov