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- Prof. Andrey Volkov
- Prof. Andrey Pustovgar
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#### **Organized by:**

- Moscow State University of Civil Engineering (MGSU)
- Tashkent Institute of Irrigation and Agricultural Mechanization Engineers (TIAME)
- JSC «HYDROPROJECT» (Uzbekistan)

#### **Supported by:**

- Ministry of Construction, Housing and Utilities of the Russian Federation
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- International House Tashkent Lyceum
- To'palang HPD Holding
- Scientific school of Russian Federation – Theory and Analysis of Systems in Construction (System Engineering of Construction)



XXII International Scientific Conference on Advanced in Civil Engineering

## **CONSTRUCTION**

### **THE FORMATION OF LIVING ENVIRONMENT**

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**Date:** April 18-21, 2019

**Venue:** Tashkent Institute of Irrigation and Agricultural Mechanization Engineers  
Republic of Uzbekistan, Tashkent city, Kari Niyozov street, 39-house

#### **Main Topics:**

- Smart City
- Modern Building Materials
- Safety in Construction
- Reliability of Buildings and Constructions
- Hydrotechnical Construction and Melioration
- New Construction Technologies

#### **Conference Chairmen:**

- **Prof. Andrey Volkov** (Professor, DSc, Rector of MGSU)
- **Prof. Uktam Umurzakov** (Professor, DSc, Rector of TIAME)
- **Alibek Ahmedov** (Director of JSC "Hydroproject")

#### **Conference Vice-Chairmen:**

- **Prof. Andrey Pustovgar** (Assoc. Professor, PhD, Vice-rector of MGSU)
- **Prof. Bahadir Mirzaev** (Professor, DSc, Vice-rector of TIAME)
- **Prof. Takhir Sultanov** (Professor, DSc, Vice-rector of TIAME)

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#### **International Scientific Committee:**

- **Prof. Vladimir Andreev**, DSc, Professor, Academician of RAACS, Head of Department of Strength of Materials. Moscow State University of Civil Engineering, Russia
- **Dr. Clarice Bleil De Souza**, Associate Professor, Welsh School of Architecture, Cardiff University, Great Britain
- **Prof. Walter Bardenwerper**, Visiting Professor, Peking University School of Transnational Law in China, China
- **Dr. Victoria Borkovskaya**, Associated Professor, Department of housing and communal complex, Moscow State University of Civil Engineering, Russia
- **Prof. Vladimir Burkov**, DSc, Prof., Laboratory of Active Systems, V. A. Trapeznikov Institute of Control Sciences of RAS, Russia
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- **Dr. Peter Kotes**, PhD, Assoc. Prof., Vice-dean, Department of Structures and Bridges. Civil Engineering Faculty, University of Zilina, Slovak Republic

- **Prof. Dmitry Kozlov**, DSc, Professor, Department of Hydraulics and Hydrotechnical engineering, Moscow State University of Civil Engineering, Russia
- **Prof. Sergey Kuznetsov**, DSc, Professor, Leading Scientist of Department Wave Dynamics, Institute for Problems in Mechanics, Russia
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- **Prof. Elena Lyapunтова**, DSc, Professor, Department of Innovative Entrepreneurship, Bauman Moscow State Technical University, Russia
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- **Dr. Reza Barkhi**, PhD, Department of Accounting and Information Systems, Virginia Tech, USA
- **Prof. Abdulkhakim Salokhiddinov**, DSc, Professor, Department of Water Resources and Environmental Management, Tashkent Institute of Irrigation and Agricultural Mechanization Engineers, Republic of Uzbekistan
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- **Dr. Adam Ujma**, PhD, Faculty of Civil Engineering, Czestochowa University of Technology, Poland
- **Prof. Andrzej Ubysz**, DSc, Professor, Faculty of Civil Engineering, Wroclaw University of Science and Technology, Poland
- **Prof. Paulo B. Lourenco**, PhD, Professor, Institute for Sustainability and Innovation in Structural Engineering, University of Minho, Portugal
- **Prof. Olga Lyapidevskaya**, PhD, Assoc. Professor, Department of Building Materials and Materials Science, MGSU, Russia
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- **Prof. Alim Pulatov**, PhD, Professor, EcoGIS Center, Tashkent Institute of Irrigation and Agricultural Mechanization Engineers, Republic of Uzbekistan
- **Prof. Richard L. Roe**, Adjunct Professor, Faculty of Law, Georgetown University Law Center, USA
- **Dr. Jaroslaw Rybak**, PhD, Assistant Professor, Faculty of Civil Engineering, Wroclaw University of Science and Technology, Poland
- **Prof. Gintautas Skripkiunas**, PhD, Professor, Department of Building Materials and Fire Safety, Vilnius Gediminas Technical University, Lithuania
- **Prof. Valeriy Telichenko**, DSc, Professor, Academician of RAACS, President of Moscow State University of Civil Engineering, First Vice-President of the Russian Academy of Architecture and Construction Sciences, Russia
- **Prof. Zaven Ter-Martirosian**, DSc, Professor of Department of Soil and Geotechnical Engineering, Chief Research Scientist of REC "Geotechnical Engineering". Moscow State University of Civil Engineering, Russia.
- **Dr. Jiangmiao Yu**, PhD, Roadway Engineering Department, South China University of Technology, China

**Organizing Committee:**

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**Technical Operator of the Conference:**

LLC "Quintet"

## PREFACE

XXII International Scientific Conference “CONSTRUCTION - THE FORMATION OF LIVING ENVIRONMENT” (FORM-2019) was held from April 18 to April 21, 2019 in Tashkent, Uzbekistan. The Conference was organized by Moscow State University of Civil Engineering (MGSU), Tashkent Institute of Irrigation and Agricultural Mechanization Engineers (TIAME) and JSC Hydroproject (Uzbekistan).

The Conference has been held for 22 years and traditionally brings together researchers around the world who works in the most relevant areas of construction science. Its main goal is to popularize the results of research and development in the field of construction in the international scientific information space, expanding scientific interaction and the formation of new interdisciplinary projects, the development of scientific communications and the competences of scientists.

FORM-2019 was first held in Uzbekistan and the hospitality of the host country allowed an outstanding event to be held: this year, according to Organizing Committee estimates, more than 1,000 people attended the Conference. In official part participants were greeted by the chairmen of the Organizing Committee and special guests: rector of TIAME Uktam Umurzakov, vice-rector of MGSU Andrey Pustogar, Minister of Higher and Secondary Special Education of the Republic of Uzbekistan Inom Madzhidov, Minister of Water Management of the Republic of Uzbekistan Shavkat Khamrayev, First Deputy Minister of Construction of the Republic of Uzbekistan Shukhhokhodja Hashimov, First Deputy Chairman of the Board of JSC "Uzbekenergo" Jahangir Turgunov and Director of JSC "Hydroproject" Alibek Ahmedov.

The key speakers at the plenary session of the conference were famous scientists: Prof. Akmal Karimov (Uzbekistan), Prof. Daman K. Panesar (Canada), Prof. Borislav Hristov (Germany), Prof. David L. Passmore (USA), Dr. Andrey Zhuravlev (Russia), Prof. Alim Pulatov (Uzbekistan).

Among the speakers of the conference and Scientific Committee members were scientists from 24 countries: Uzbekistan, Russia, Armenia, Australia, Belarus, Canada, China, Czech Republic, France, Georgia, Germany, Iran, Italy, Kazakhstan, Lithuania, Mongolia, Poland, Portugal, Syria, Tajikistan, Ukraine, UK, USA and Vietnam.

Within three working days of the Conference it was presented 135 oral and 160 poster presentations in six thematic sections: Smart City; Modern Building Materials; Safety in Construction; Reliability of Buildings and Constructions; Hydrotechnical Construction and Melioration; New Construction Technologies.

An important event of the Conference was the traditional Seminar for young scientists (age under 25 y.o.) “Youth Innovations” with competition program. The international jury, which included experts from Russia, Uzbekistan, Europe and the countries of North America, determined 10 winners and 20 finalists who were awarded by medals and memorable prizes of the Conference for their research projects.



**Prof. Andrey Volkov**  
Acting Rector of MGSU, Co-Chairman

## **Dear Participants of the Conference!**

As part of the state visit of President of the Russian Federation V. Putin to the Republic of Uzbekistan, October 18-19, 2018, the First Uzbek-Russian Educational Forum “New Personnel for the New Economy” was held in Tashkent, with the participation of more than 140 rectors of leading universities of the two countries. It became the largest event to strengthen the cooperation of scientists of the two countries. Extensive prospects for scientific, educational and practical activities were outlined.

At this forum, over 130 agreements were signed between the universities of the two countries in the area of cooperation in the training of highly qualified specialists and the development of research activities. In particular, within the framework of the forum, a Memorandum of Cooperation was signed between TIAME and MGSU, and the “Agreement on the network form of the educational program implementation” on the preparation of bachelors in the direction of 08.03.01 Construction, profile - "Construction of engineering, energy, hydrotechnical and environmental facilities" and masters of the direction 08.04.01 Construction, profile - "Hydraulic engineering".

Another important event between universities was the decision to jointly hold the XXII International Scientific Conference "Construction the formation of the living environment" (FORM-2019).

I would like to note that the theme of this conference, “Construction the formation of living environment”, has a particular relevance in the light of global trends in the field of construction, science and education.

The process of integration of various levels and organizational forms of education and science is a trend that gradually covers all countries of the world, including Uzbekistan. And it is no coincidence that in recent years much has been said about creating forms that can unite the scientific and educational potential. It is important to realize that the training of highly qualified specialists is not the task of a single educational institution, but of the entire educational system and production sectors. That is why the Tashkent Institute of Irrigation and Agricultural Mechanization Engineers (TIAME) considers one of its vocations to unite people around a common cause, thereby creating a field for the exchange of views, knowledge and mutual cooperation, and accordingly, having the opportunity to improve the quality of education and scientific work.

Obviously, it can be stated that the role and importance of institute science will only grow every year. At the same time, from the point of view of scientific value - and this is the other side of the coin - the production results from research will come to the forefront but not the amount of new knowledge produced.

In other words, the most demanded will be the depth and quality of research and development, both in terms of recognition by the professional scientific community, and their practical significance.

It should be noted that in our university the research work of the faculty members and students is conducted at all stages of the educational process and at all organizational levels - the department, faculty and institute.

The inexhaustible flow of new information and the modern reference point for lifelong education dictate their own rules, rules of the cooperation.



**Prof. Uktam Umurzakov**  
Rector of TIAME, Co-Chairman



