



Information Technologies  
and Mathematical Modelling  
named after A.F. Terpugov

**2022**  
October 25-29  
Karshi, Uzbekistan  
online/offline

**21th International Conference named after  
A. F. Terpugov**  
**INFORMATION TECHNOLOGIES AND MATHEMATICAL  
MODELLING ITMM – 2022**

**Karshi, Uzbekistan**  
October 25-29, 2022



**Opening ceremony of the 21th International Conference «Information  
Technologies and Mathematical Modelling» (ITMM – 2022)  
named after A.F. Terpugov.**

Assalomu alaykum aziz hamkaslar va do'stlar!  
Hurmatli Xonimlar va Janoblar!  
Konferentsiya muvaffaqiyatli o'tishini tilayman!



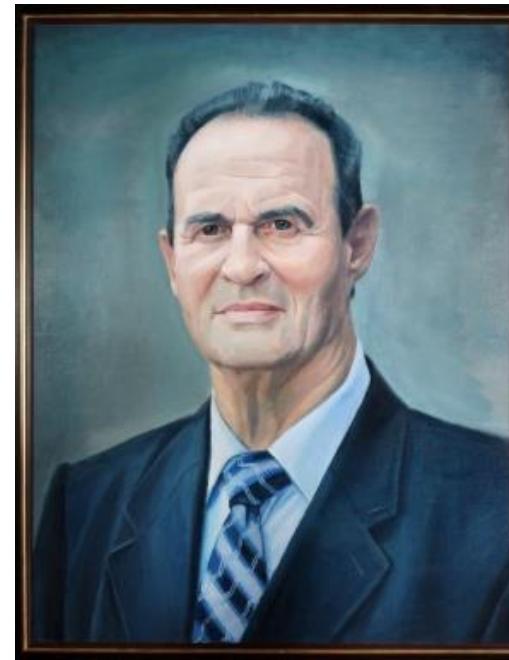
## **21th International Conference (ITMM – 2022) named after A.F. Terpugov.**

Honorable rectors of the co-organizing universities, honorable distinguished speakers and guests, conference participants!  
Ladies and gentlemen!

On behalf of Organizing and Steering Committees, on behalf of academician Novikov D.A., director of Institute of Control Sciences of Russian Academy of Sciences, it is my great pleasure and privilege to welcome you to the 21th International Conference named after great scientist A. F. Terpugov Information Technologies and Mathematical Modelling ITMM – 2022.



A.F. Terpugov is the founder of the scientific school  
in the field of applied probabilistic analysis.



Выпускник радиофизического факультета Томского университета (1961).  
Профессор ТГУ (1974–2009). Заслуженный профессор Томского университета (2004).  
Заслуженный деятель науки РФ (1999).  
Награды: медали «За трудовое отличие» (1981), «За доблестный труд.

**А.Ф. Терпугов является основателем научной школы  
в области прикладного вероятностного анализа.**



A.F. Terpugov in the mantle of the  
Honored Professor of TSU  
together with G.V. Mayer

# ОРГАНИЗАТОРЫ КОНФЕРЕНЦИИ

# CONFERENCE ORGANIZERS

	<p><b>National Research Tomsk State University</b> Национальный исследовательский Томский государственный университет <a href="http://www.tsu.ru">http://www.tsu.ru</a></p>
	<p><b>Peoples' Friendship University of Russia</b> Российский университет дружбы народов <a href="http://www.rudn.ru">http://www.rudn.ru</a></p>
	<p><b>V.A. Trapeznikov Institute of Control Sciences of Russian Academy of Sciences</b> Институт проблем управления им. В.А. Трапезникова РАН <a href="http://www.ipu.ru">http://www.ipu.ru</a></p>

 <b>КАРШИНСКИЙ ГОСУДАРСТВЕННЫЙ УНИВЕРСИТЕТ</b>	<p><b>Karshi State University, Uzbekistan</b> Каршинский государственный университет, Узбекистан <a href="https://qarshidu.uz/ru">https://qarshidu.uz/ru</a></p>
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	<p><b>INSTITUTE OF MATHEMATICS named after V.I. ROMANOVSKY UNDER THE ACADEMY OF SCIENCES OF THE REPUBLIC OF UZBEKISTAN – TASHKENT</b> ИНСТИТУТ МАТЕМАТИКИ имени В.И.РОМАНОВСКОГО ПРИ АКАДЕМИИ НАУК РЕСПУБЛИКИ УЗБЕКИСТАН - г. ТАШКЕНТ <a href="https://">https://</a></p>
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## Истоки математической науки в Узбекистане

Истоки математической науки в Узбекистане уходят далеко вглубь истории. Узбекистан является родиной великих ученых Средневековья математиков, имена их сегодня известны всему миру, и прежде всего имя Аль-Хорезми, основателя современной алгебры, другого крупного ученого, представителя узбекской науки Аль-Фаргони, создавшего уникальный прибор ниломер, который и сегодня используется для замеров на великой реке Нил в Египте. Вызывает огромный интерес жизнь и научные свершения еще одного великого ученого Средневековья, Абу Райхана Беруни. Их наследие сегодня в руках коллектива не только этих институтов, но и многих других научных центров Узбекистана.

## The origins of mathematical science in Uzbekistan

The origins of mathematical science in Uzbekistan go far back into history. Uzbekistan is the birthplace of the great scientists of the Middle Ages - mathematicians, their names are known to the whole world today, and first of all, the name of Al-Khwarizmi, the founder of modern algebra, another prominent scientist, a representative of Uzbek science Al-Fargoni, who created a unique nilometer device, which is still used today for measurements on the great river Nile in Egypt. The life and scientific accomplishments of another great scientist of the Middle Ages, Abu Rayhan Beruni, are of great interest. Their heritage today is in the hands of the staff of not only these institutes, but also many other scientific centers of Uzbekistan.

# Conference Objectives:

- to discuss the latest research and practical results on information and telecommunication technologies, mathematical modelling, artificial intelligence, digital economy and other important areas of scientific research and technical developments;
- to integrate scientific knowledge and practice;
- to define important advanced long-term directions of scientific research and practical developments;
- to enhance the role of higher educational institutions and scientific research organizations in establishing educational environment.

## **21th International Conference «Information Technologies and Mathematical Modelling» (ITMM – 2022) named after A.F. Terpugov.**

Authors from more than 20 countries have joined the conference. We express our deep gratitude to all co-organizers: TSU, RUDN University, Institute of Control Sciences of RAS, INSTITUTE OF MATHEMATICS and KSU.

We highly appreciate the dedicated work of the local and international organizing committees made up of faculty and staff from the co-organizing universities. Special efforts were made by the TSU University team, many thanks to Professors: Alexander Dudin, Anatoly Nazarov, Svetlana Moiseeva, Azam Imomov for their comprehensive support. All worked together and extremely hard for the same goal to prepare an outstanding conference. As a result, we have prepared Keynote, Tutorial and Technical Sessions to discuss the Challenges, Opportunities and Theoretical Foundations, Fundamental Problems of Application of ICT in various fields.

## **21th International Conference «Information Technologies and Mathematical Modelling» (ITMM – 2022) named after A.F. Terpugov.**

We express sincere gratitude to our International Peer-Review team who volunteered and allocated big chunk of their time to review papers – their contribution is invaluable.

Building on the success of previous conferences were held in Anzhero-Sudzhensk, Katun, Kazan, Tomsk, Saratov we hope ITMM will be one of the most spectacular events in area of –  
**«QUEUING THEORY AND APPLICATION»,**  
**«MATHEMATICAL MODELLING OF COMMUNICATION NETWORKS»,**  
**«INFORMATION TECHNOLOGIES AND SOFTWARE ENGINEERING»,**  
**«MATHEMATICAL AND COMPUTER MODELLING OF TECHNOLOGICAL PROCESSES»**  
**«Intelligent systems and robotics.».**

## **21th International Conference «Information Technologies and Mathematical Modelling» (ITMM – 2022) named after A.F. Terpugov.**

The objective of the five days Conference is to learn and share knowledge among all and those who have rich experience and expertise in relevant areas of science and technology. The ITMM International Conference is a forum to bring together business people, researchers, scientists, software architects, and industry professionals to discuss innovative ideas and diverse topics on next generation of information technologies and application.

Before giving the floor to keynote speakers, I will take this opportunity to take a photo tour of the conference in recent years – 2014 - 2021:

13th International Conference named after A. F. Terpugov

**INFORMATION TECHNOLOGIES AND MATHEMATICAL MODELLING**

**ITMM – 2014**

Anzhero-Sudzhensk (Russia), November 2014.



Professor  
Bong  
Dae Choi

I returned back to Korea safely with wonderful memories on warm hospitality of organizers and nice snowy scenery of Siberia land &etc.

I would like to express my gratitude to Prof. Nazarov and Prof. Gortsev and organizers for inviting me to present my research topics at ITMM-2014...



Professor  
Krishnamoorthy

I was invited to give a Key Note Talk to the 13th ITMM 2014.

On the 20th November 2014 early in the morning I landed at Tomsk airport without much of winter wear. It was extremely cold (-20 Celsius or even below) . However the reception I had at the Airport was really WARM--Professor Alexander Nicholovich came with fur coat and fur-cap for my use, on wearing which I felt quite comfortable. ...

14th International Conference named after A. F. Terpugov  
**INFORMATION TECHNOLOGIES AND MATHEMATICAL MODELLING**  
**ITMM – 2015**

Anzhero-Sudzhensk (Russia), November 18–22, 2015

**Conference Organizers:**



Anzhero-  
Sudzhensk  
Branch  
of Kemerovo  
State University

Tomsk State  
University

Kemerovo  
State  
University

V.A. Trapeznikov  
Institute  
of Control  
Sciences  
of Russian  
Academy of  
Sciences

Computational  
Technologies  
of Siberian Branch  
of Russian  
Academy of  
Sciences

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**INFORMATION TECHNOLOGIES AND MATHEMATICAL MODELLING**  
**ITMM – 2015**

Anzhero-Sudzhensk (Russia), November 18–22, 2015

Professor  
Rein  
Nobel



Our trip to Tomsk has been a great success, especially due to the hospitality of all the organizers. Outside it was very cold, but nevertheless we now have a good impression of Tomsk and its surroundings. It is really an intellectual and cultural city of great importance, which we never realized before. ....



Professor  
Michele  
Pagano

It was a pleasure to attend for the second year in a row the ITMM conference and enjoy once again the warm Siberian hospitality!  
I would like to express my gratitude to all the people involved in the organization, in Tomsk and in "Anzherka", for their invitation and their help before, during and after the conference...

14th International Conference named after A. F. Terpugov  
**INFORMATION TECHNOLOGIES AND MATHEMATICAL MODELLING**  
**ITMM – 2015**

Anzhero-Sudzhensk (Russia), November 18–22, 2015



15th International Conference named after A. F. Terpugov  
**INFORMATION TECHNOLOGIES AND MATHEMATICAL MODELLING**  
**ITMM – 2016**

Katun, Russia, September 12–16, 2016

**Conference Organizers:**



[Tomsk State University](#)



[Kemerovo State University](#)



[V.A. Trapeznikov Institute of Control Sciences of Russian Academy of Sciences](#)



[People's Friendship University of Russia](#)



[Anzhero-Sudzhensk Branch of Kemerovo State University](#)

15th International Conference named after A. F. Terpugov  
**INFORMATION TECHNOLOGIES AND MATHEMATICAL MODELLING**  
**ITMM – 2016**  
Katun, Russia, September 12–16, 2016



15th International Conference named after A. F. Terpugov  
**INFORMATION TECHNOLOGIES AND MATHEMATICAL MODELLING**  
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Katun, Russia, September 12–16, 2016



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# Information Technologies and Mathematical Modelling

named after A.F. Terpugov

2017

September 29<sup>th</sup> –  
October 3<sup>rd</sup>  
Kazan, Russia





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Information Technologies  
and Mathematical Modelling  
named after A.F. Terpugov

2018

September 10–15  
Tomsk, Russia



Национальному  
исследовательскому  
**Томскому**  
**государственному**  
**университету 140 лет**



### Цели:

- обсуждение достижений в области информационных технологий и математического моделирования;
- интеграция научных знаний и практики;
- определение актуальных и перспективных направлений научных исследований и практических разработок;
- повышение роли высших учебных заведений и научных организаций в формировании образовательной среды.

### Objectives:

- Discussion of advances in information technology and mathematical modeling;
- integration of scientific knowledge and practice;
- determination of relevant and promising areas of research and practical development;
- increasing the role of higher educational institutions and scientific organizations in the formation of the educational environment.



Professor  
Velika  
Dragieva,  
Bulgaria

I had the opportunity to attend ITMM twice. First time was in 2015, when the conference took place both at Tomsk and at Anzhero-Sudzhensk, at the end of November. ...

Dear colleagues and friends, I wish you many successful ITMM conferences in the future and hope to have the opportunity to attend some of them!



Professor  
Janos Sztrik,  
Hungary

I was happy to visit your Conference and Tomsk. I got what I expected, warm welcome, good organization and helpful colleagues. I met old friends and got acquainted with new ones, especially talented your researchers. Tomsk is beautiful, I would like to see it in winter time, too.

Congratulations to the Organizers again, and I do my best to take part in the following ITMM Conferences.



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September 10–15  
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Information Technologies  
and Mathematical Modelling  
named after A.F. Terpugov

2019  
June, 26-30  
Saratov, Russia



**Saratov State University**  
**Саратовский национальный**  
**исследовательский государственный**  
**университет им. Н. Г. Чернышевского**



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June, 26-30  
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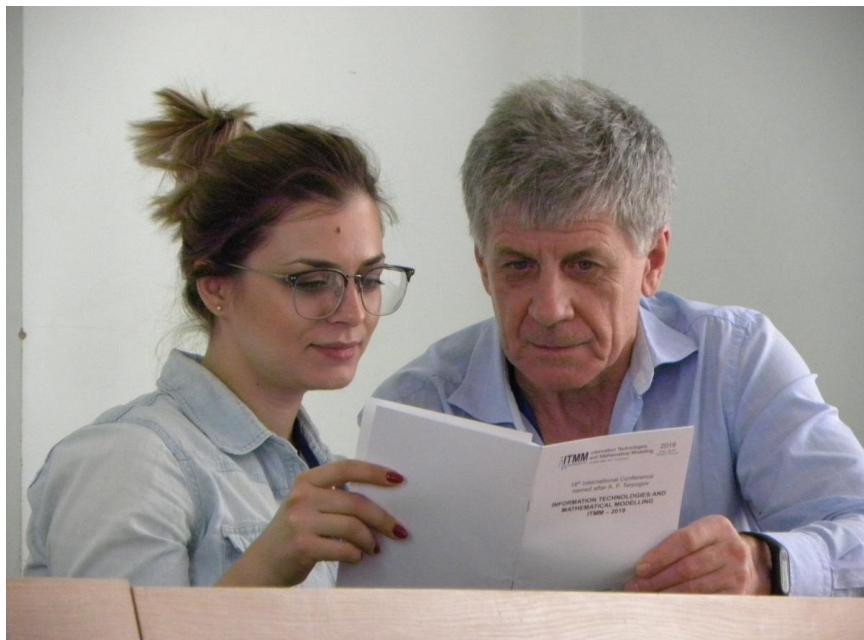


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2019

June, 26-30  
Saratov, Russia





Information Technologies  
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2019

June, 26-30  
Saratov, Russia



# ITMM conference

## Information Technologies and Mathematical Modelling named after A.F. Terpugov

2019

June, 26-30  
Saratov, Russia







Information Technologies  
and Mathematical Modelling  
named after A.F. Terpugov

**2020**  
December, 2-5  
Tomsk, Russia  
online

19<sup>th</sup> International Conference  
named after A. F. Terpugov  
**INFORMATION TECHNOLOGIES  
AND MATHEMATICAL  
MODELLING**

**ITMM – 2020**

**Tomsk, Russia**  
December, 2-5, 2020

# CONFERENCE ORGANIZERS

## ОРГАНИЗАТОРЫ КОНФЕРЕНЦИИ

	<p><b>National Research Tomsk State University</b> Национальный исследовательский Томский государственный университет <a href="http://www.tsu.ru">http://www.tsu.ru</a></p>
	<p><b>Peoples' Friendship University of Russia</b> Российский университет дружбы народов <a href="http://www.rudn.ru">http://www.rudn.ru</a></p>
	<p><b>V.A. Trapeznikov Institute of Control Sciences of Russian Academy of Sciences</b> Институт проблем управления им. В.А. Трапезникова РАН <a href="http://www.ipu.ru">http://www.ipu.ru</a></p>

# Цели

Целью проведения конференции является:

- объединение усилий российских и зарубежных университетов, академических и отраслевых НИИ, НИЦ, заинтересованных предприятий и коммерческих компаний по развитию и обобщению накопленного опыта,
- выявлению наиболее актуальных научных направлений в области инфо-телекоммуникационных технологий, математического моделирования, искусственного интеллекта, цифровой экономики и других важнейших направлений развития научных исследований и научно-технических разработок.

# Conference Objectives:

- to discuss the latest research and hands-on results in the field of information technologies and mathematical modelling;
- to integrate scientific knowledge and practice;
- to define important advanced long-term directions of scientific research and practical developments;
- to enhance the role of higher educational institutions and scientific research organizations in establishing educational environment.

## Topics of the conference:

- Information technologies and their application (in engineering, natural sciences, economics, education, humanities and other fields);
- Mathematical and computer modelling of technological processes;
- Intelligent data analysis and visualization;
- Modelling and simulation of telecommunication networks;
- Applied probabilistic analysis;
- Queuing theory;
- Optimization and operations research;
- Computing and Software engineering;
- Information and computer security;
- Economic and mathematical modeling;
- Digital business; - Discrete systems;
- Geoinformatics;
- other scientific fields under the scope of the conference.

# International Program Committee

*Alexander Dudin (Belarus) – general chair*

*Anatoly Nazarov (Russia) – co-chair*

*Khalid Al-Begain (United Kingdom)*

*Ivan Atencia (Spain)*

*Pedro Cabral (Portugal)*

*Pau Fonseca i Casas (Spain)*

*Srinivas Chakravarthy (USA)*

*Bong Dae Choi (Korea)*

*Tadeusz Czachorski (Poland)*

*Rui Dinis (Portugal)*

*Dmitry Efrosinin (Austria)*

*Mais Farhadov (Russia)*

*Yulia Gaydamaka (Russia)*

*Erol Gelenbe (United Kingdom)*

*Alexander Gortsev (Russia)*

*Bara Kim (Korea)*

*Che Soong Kim (Korea)*

*Udo Krieger (Germany)*

*Achyutha Krishnamoorthy (India)*

*Krishna Kumar (India)*

*Quan-Lin Li (China)*

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*Evsey Morozov (Russia)*

*Valery Naumov (Finland)*

*Rein Nobel (The Netherlands)*

*Michele Pagano (Italy)*

*Tuan Phung-Duc (Japan)*

*Thomas B. Preußen (Germany)*

*Jacques Resing (The Netherlands)*

*Vladimir Rykov (Russia)*

*Konstantin Samuylov (Russia)*

*Daniel Stamate (United Kingdom)*

*Sergey Suschenko (Russia)*

*Janos Sztrik (Hungary)*

*Henk Tijms (The Netherlands)*

*Oleg Tikhonenko (Poland)*

*Gurami Tsitsiashvili (Russia)*

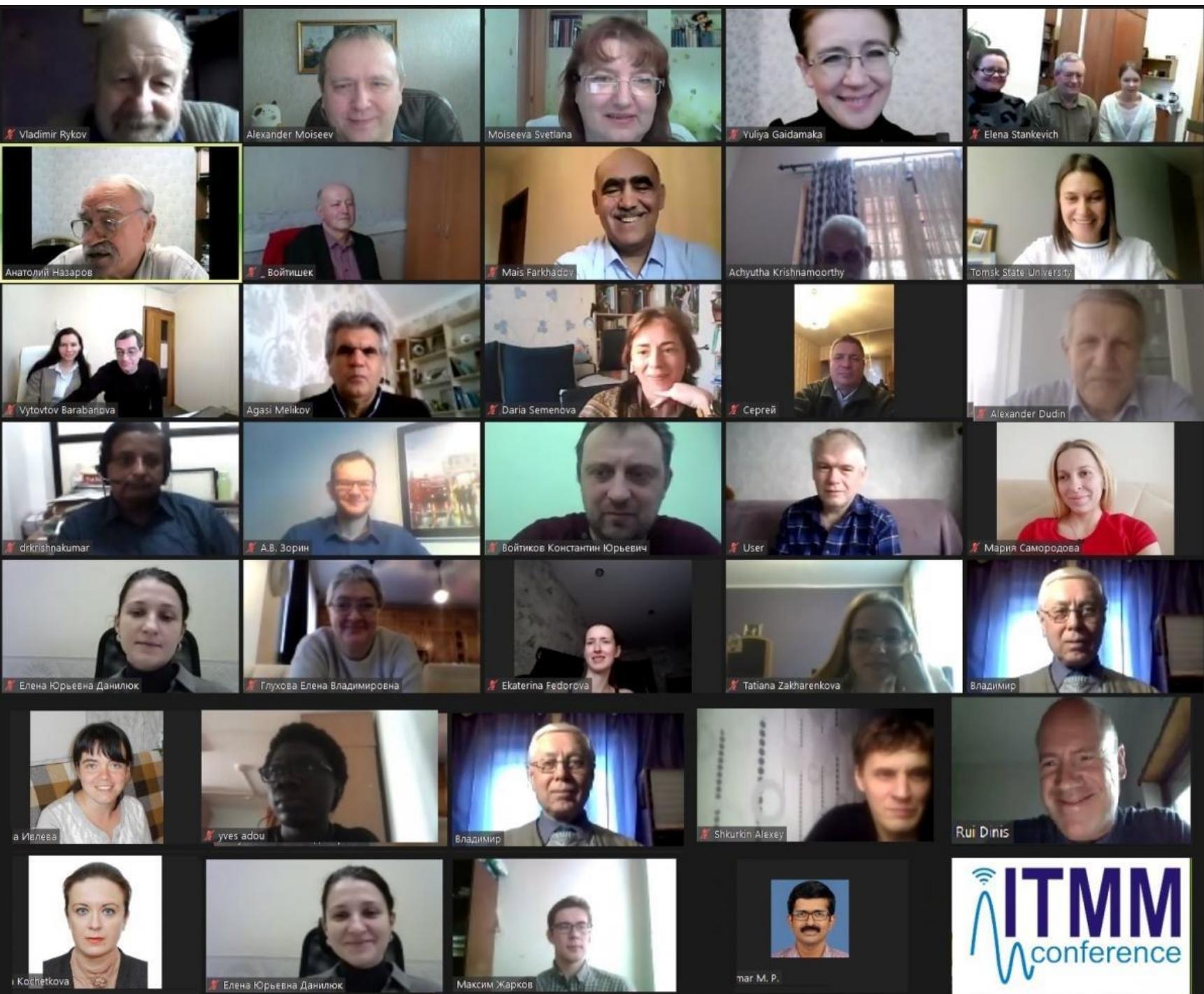
*Vladimir Vishnevsky (Russia)*

*Anton Voitishuk (Russia)*

*Vladimir Zadorozhny (Russia)*

*Alexander Zamyatin (Russia)*

*Andrey Zorin (Russia)*



**ITMM**  
conference





**Sigma mathematics**

an Open Access Journal by MDPI

Advances in Queueing Theory

**Guest Editors**  
Prof. Dr. Anatoly Nazarov, Prof. Dr. Alexander Dudin

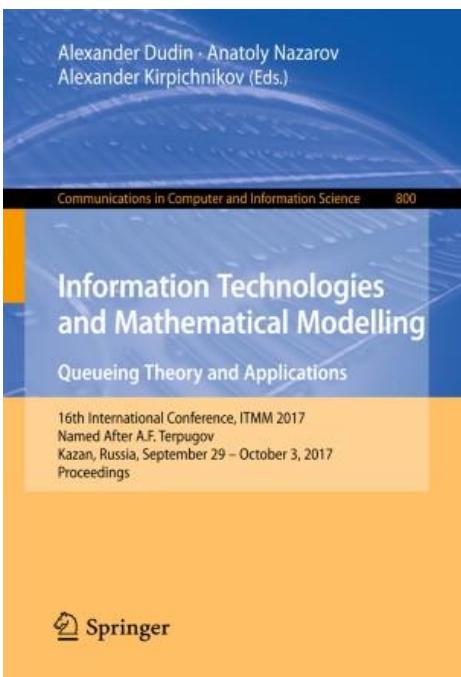
**Deadline**  
10 July 2022

[mdpi.com/si/98767](http://mdpi.com/si/98767)

**Special Issue**  
**Invitation to submit**

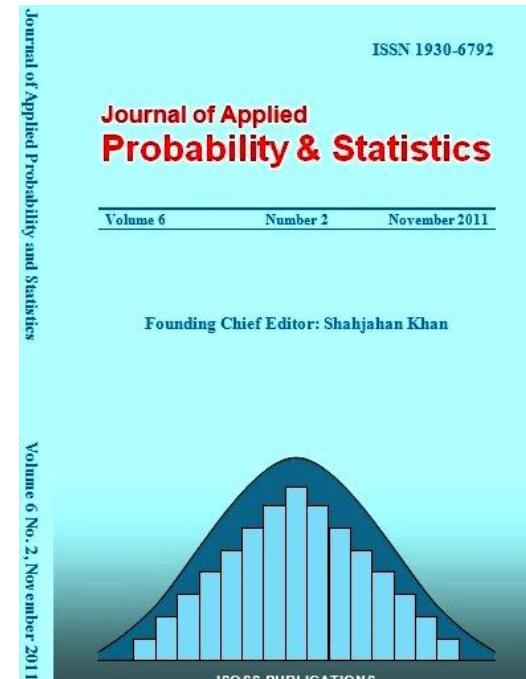
**IMPACT FACTOR  
2.258**

**CITESCORE  
2.2  
SCOPUS**



The revised selected papers on Queueing Theory and its applications will be published as a separate volume of the Communications in Computer and Information Science (CCIS) series Springer Verlag.

The revised selected papers in Probability and Statistics will be published in «Journal of Applied Probability and Statistics»  
<http://japs.isoss.net/index.htm>





Information Technologies  
and Mathematical Modelling  
named after A.F. Terpugov

**2021**  
December 1-5  
Tomsk, Russia  
online/offline

20<sup>th</sup> International Conference  
named after A. F. Terpugov

# **INFORMATION TECHNOLOGIES AND MATHEMATICAL MODELLING**

**ITMM – 2021**

**Tomsk, Russia  
December, 1-5, 2020**

## Цели

Целью проведения конференции является объединение усилий российских и зарубежных университетов, академических и отраслевых НИИ, научно-исследовательских центров, заинтересованных предприятий и коммерческих компаний по развитию и обобщению накопленного опыта, выявлению наиболее актуальных направлений научных исследований в области ИКТ, математического моделирования, искусственного интеллекта, цифровой экономики и других важнейших направлений развития научных исследований и научно-технических разработок.

## Conference Objectives:

The purpose of the conference is to unite the efforts of Russian and foreign universities, academic and industrial research institutes, research centers, interested enterprises and commercial companies to develop and summarize accumulated experience, identify the most relevant areas of research in the field of ICT, mathematical modeling, artificial intelligence, digital economics and other important areas of development of scientific research and scientific and technical developments.

## Topics of the conference:

- Informational technologies and software engineering.
- Telecommunication networks modelling.
- Data analysis and visualization methods.
- Mathematical teletraffic theory and queueing theory.
- Mathematical and computer modelling in engineering, natural science, economics, education, humanities and other fields.
- Intelligent systems and robotics.
- other scientific fields under the scope of the conference.

# International Program Committee

*Alexander Dudin (Belarus) – general chair*

*Anatoly Nazarov (Russia) – co-chair*

*Khalid Al-Begain (Kuwait)*

*Ivan Atencia (Spain)*

*Pedro Cabral (Portugal)*

*Pau Fonseca i Casas (Spain)*

*Srinivas Chakravarthy (USA)*

*Bong Dae Choi (Korea)*

*Tadeusz Czachorski (Poland)*

*Rui Dinis (Portugal)*

*Dmitry Efrosinin (Austria)*

*Mais Farhadov (Russia)*

*Yulia Gaydamaka (Russia)*

*Erol Gelenbe (Poland)*

*Alexander Gortsev (Russia)*

*Bara Kim (Korea)*

*Che Soong Kim (Korea)*

*Udo Krieger (Germany)*

*Achyutha Krishnamoorthy (India)*

*Krishna Kumar (India)*

*Quan-Lin Li (China)*

*Yury Malinkovsky (Belarus)*

*Agassi Melikov (Azerbaijan)*

*Alexander Moiseev (Russia)*

*)*

*Tareq Hamadneh (Jordan)*

*Azam Imomov (Uzbekistan)*

*Svetlana Moiseeva (Russia)*

*Dmitri Moltchanov (Finland)*

*Paulo Montezuma-Carvalho (Portugal)*

*Evsey Morozov (Russia)*

*Valery Naumov (Finland)*

*Rein Nobel (The Netherlands)*

*Michele Pagano (Italy)*

*Tuan Phung-Duc (Japan)*

*Jacques Resing (The Netherlands)*

*Vladimir Rykov (Russia)*

*Konstantin Samuylov (Russia)*

*Sergey Suschenko (Russia)*

*Janos Sztrik (Hungary)*

*Henk Tijms (The Netherlands)*

*Oleg Tikhonenko (Poland)*

*Gurami Tsitsiashvili (Russia)*

*Vladimir Vishnevsky (Russia)*

*Anton Voitishek (Russia)*

*Vladimir Zadorozhny (Russia)*

*Alexander Zamyatin (Russia)*

*Andrey Zorin (Russia)*

*Amdjed Zraiqat (Jordan)*

*Mohammad Ahmad Alia (Jordan)*

*Stanislav Shidlovskiy (Russia)*



Achyutha  
Krishnamoort  
hy, Professor,  
CMS College,  
India  
Plenary talk  
«Reliability  
Inventory»



**Konstantin  
Samuylov**, Direct  
or of Institute of  
Applied  
Mathematics &  
Communications  
Technology,  
PFUR

Professor of Applied Mathematics,  
Department of Maths., Cochin University  
of Science & Technology. Member of the  
Technical Advisory / Programme  
Committee of several International  
Conferences and Workshops held  
abroad; has so far organized 12 (3  
National and 9 international) conferences  
& workshops at Cochin University of  
Science & Technology

His current research interests include  
applied aspects of probability theory and  
stochastic processes, queuing and  
teletraffic theory, performance analysis of  
5G/5G+ networks, resource allocation in  
heterogeneous wireless networks, social  
networks and big data analysis. He has  
authored and co-authored over 150  
scientific and conference papers and six  
books.



Professor Shahjahan Khan, PhD is the founding Professor of Statistics at the University of Southern Queensland (USQ), Australia.

Dr. Shahjahan Khan, Professor of Statistics School of Sciences University of Southern Queensland, Australia

**Plenary talk** «Impact of Computing and Data Revolution on Research, Science and Society»

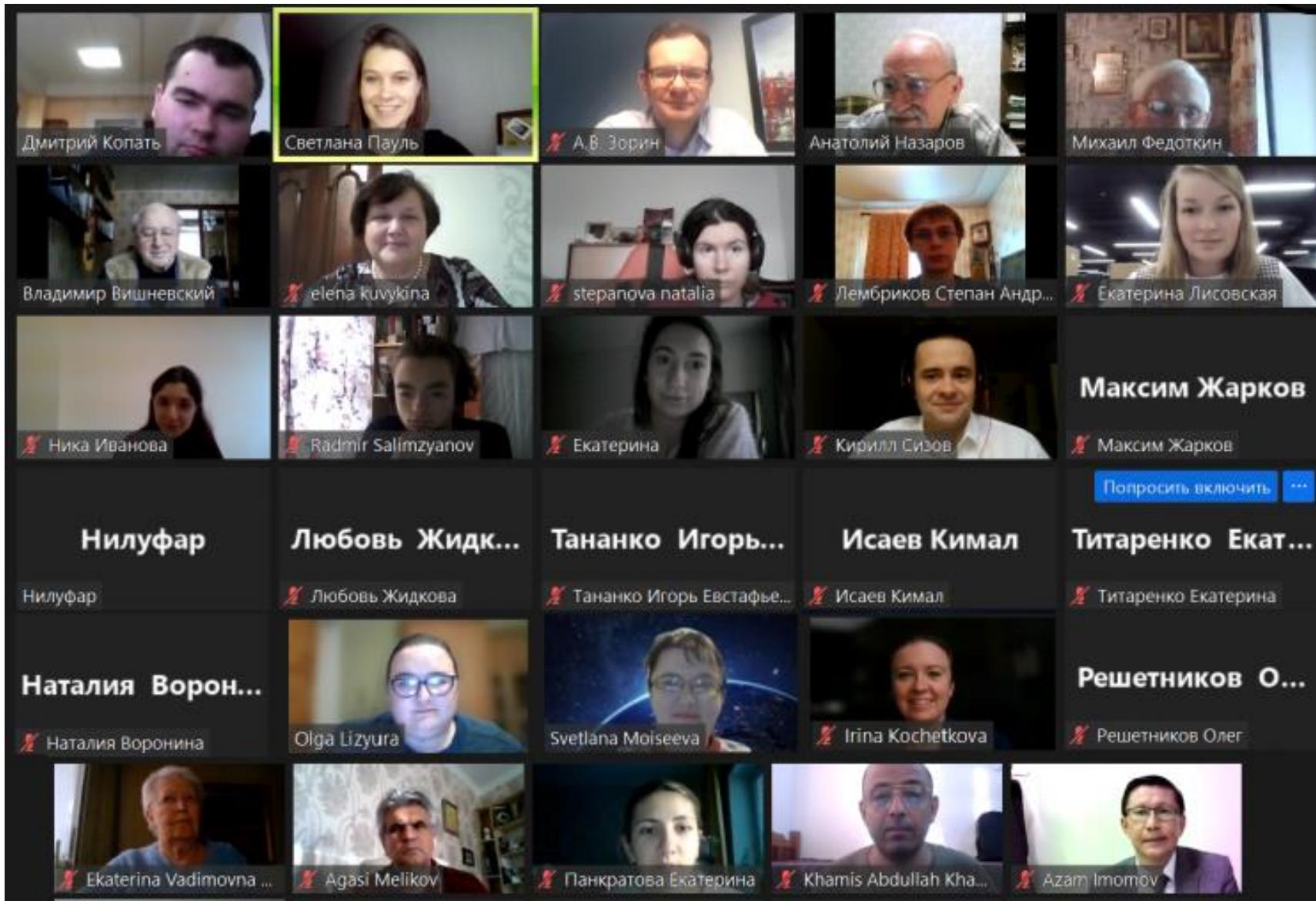
Presentation «Journal of Applied Probability and Statistics»



Erol Gelenbe, a Fellow of IEEE, ACM and IET (UK), is a Professor in the Electrical and Electronic Engineering at Imperial College.

**Plenary talk** «Optimization of Energy Consumption in Computer and Communication Systems»

Professor Gelenbe has contributed pioneering research concerning the performance of multiprogramming computer systems, virtual memory management, data base reliability optimisation, distributed<sub>78</sub> systems and network protocols.



Дмитрий Колать

Светлана Пауль

А.В. Зорин

Анатолий Назаров

Михаил Федоткин

Владимир Вишневский

elena kuvyikina

степанова наталья

Лембриков Степан Андр...

Екатерина Лисовская

Ника Иванова

Rадмир Salimzyanov

Екатерина

Кирилл Сизов

Максим Жарков

Максим Жарков

Попросить включить

...

**Нилуфар**

Любовь Жидк...

Тананко Игорь...

Исаев Кимал

Титаренко Екат...

**Наталия Ворон...**

Наталия Воронина

Olga Liziura

Тананко Игорь Евстафьевич

Исаев Кимал

Титаренко Екатерина

**Решетников О...**

Наталия Воронина

Ekaterina Vadimovna ...

Agasi Melikov

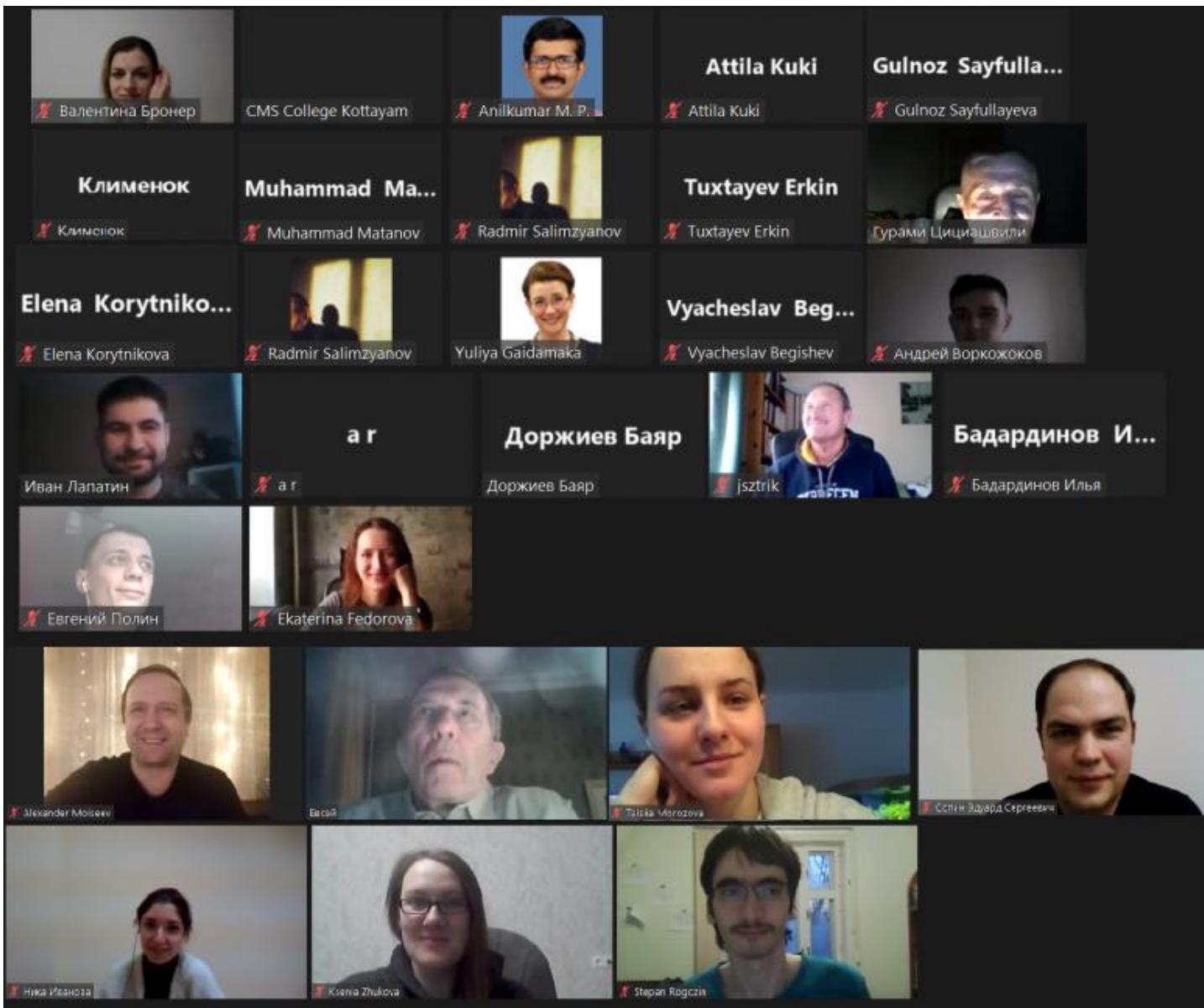
Svetlana Moiseeva

Irina Kochetkova

Решетников Олег

Khamis Abdullah Kha...

Azam Imomov



**Конференция посвящена  
50 летию кафедры теории  
вероятностей и математической  
статистики (ТВ и МС) Томского  
государственного университета.**

**Спасибо!**

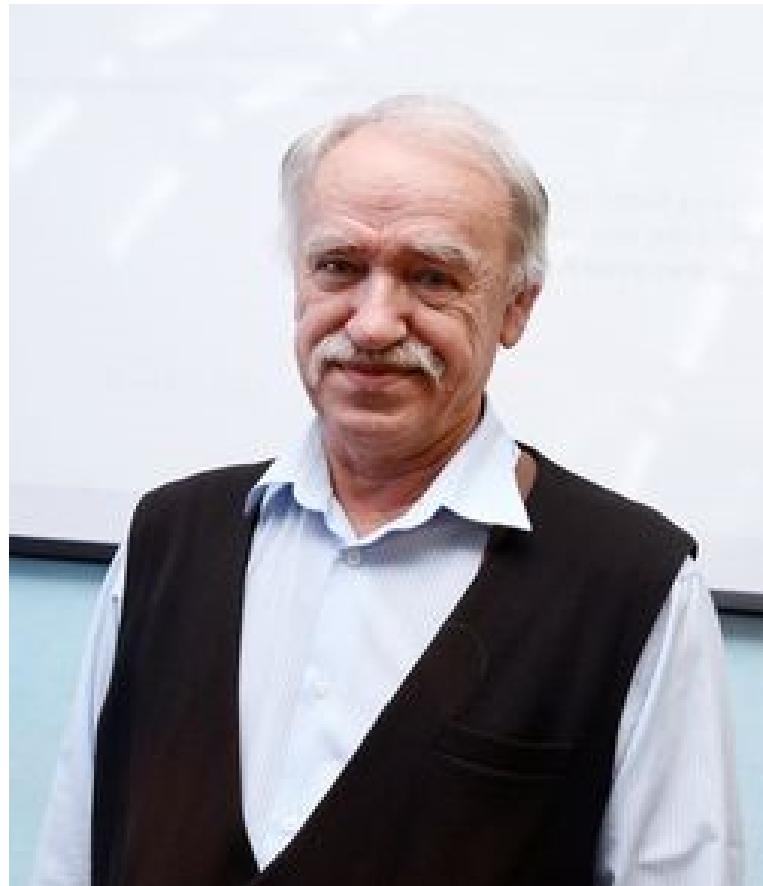
**Professor NAZAROV A.A. – 75**

**Professor MOROZOV E.V. – 75**

**Thank You!**

**Спасибо!**

# Professor NAZAROV A.A. – 75



## Thank You! Спасибо!

**Должность:** заведующий кафедрой теории вероятностей и математической статистики

**Учёная степень:** доктор технических наук

**Учёное звание:** профессор

**Почётный работник высшего**

**профессионального образования РФ**

Под руководством Назарова А.А. защищены 3 докторские и 26 кандидатских диссертаций.

Опубликовал 9 монографий и 2 методических пособия. Им опубликовано более 450 научных работ,

### Научная работа

Известный специалист в области теории телетрафика и массового обслуживания.

Является одним из основных разработчиков методов асимптотического анализа в теории массового обслуживания, метода просеянного потока и метода предельной декомпозиции,

широко используемых при исследованиях математических моделей телекоммуникационных систем в теории телетрафика и массового обслуживания.



# Professor MOROZOV E.V. – 75



## Thank You! Спасибо!

Почетная грамота ПетрГУ (2022)

Почетная грамота ПетрГУ (2015)

Почетная грамота г. Петрозаводска (2008)

Почетная грамота Министерства науки и  
высшего образования Российской  
Федерации (2000)

Монографии 2, публикации десятки,  
учебные пособия, подготовил кандидатов и  
докторов наук

Институт математики и информационных технологий - Кафедра  
прикладной математики и кибернетики

Профессор  
доктор физико-математических наук,





$$W_{n+1} = (W_n + S_n - T_n)$$

$$W_{n+1} = (W_n + V_n)$$

$$[x]_n = m(y \circ S)$$





Марина Михайлова



# **Дух ИТММ**

Думая о нашей замечательной конференции мне хочется сказать свои соображения о духе ИТММ и о важной значении данной конференции.

1. Это прежде всего здоровая, благоприятная творческая атмосфера.
2. Это увлечённое стремление к новым научным знаниям.
3. Это умение восхищаться талантами и способностями своих коллег и радоваться достижениями их результатов.
4. Это остроумие и глубокое чувство юмора.
5. Это умение генерировать идеи и реализовать их.
6. Это всегда сильные председатели и сопредседатели оргкомитета, замечательные члены организационного и программного комитета, и талантливые, всесторонние с широким кругозором участники и коллеги.
7. Это взаимовыручка, понимание, доброжелательность и дружба.
8. Никаких сплетен и никакой лжи!
9. Это огромный и добросовестный труд с энтузиазмом, неважно есть деньги или нет денег.
10. Это крепкий дух во имя сохранения и развития науки!!!

С глубоким уважением, Маис Фархадов<sup>0</sup>

# «ВЕК УЧИСЬ»

Век живи – век учись  
тому, как следует жить.

*Луций Анней Сенека*



# Нужные знания!

**С. Вургун:**

Уму непостижимо,  
как вселенная сотворена,  
Ее загадкам нет числа,  
и все же путь познанья есть!

**Низами**

Чтоб клады счастья обрести, прибегни ко всесилью слов  
Чтоб камень в злато обратить, из сердца слово извлеки.

# Нужные знания!



„Наука не скуча. Учёный, мудростью цвети, живя своей наукой,  
Пусть доля, данная Творцом, тебе не будет мукой.  
Имея долю, не мешай идущему к познаниям,  
Не ставь преград, а поощряй стремление быть с наукой.“

# Нужные знания!



**МИРЗО УЛУГБЕК**

Пророк сказал:  
Все восхваляют того,  
кто идёт на пути к  
знаниям.  
Восхваляют его  
даже рыбы на море»

Пророк сказал:  
«Проси Бога, Аллаха о нужных знаниях,  
и проси беречь от ненужных»

**ITMM – конференция о нужных знаниях!**

**Thank You very much!**

**Have a wonderful conference days!**

**Спасибо за внимание!**

**E'tiboringiz uchun sizga  
katta rahmat !**