

APTP+MS'2018
**12th International Workshop on Applied Problems in
Theory of Probabilities and Mathematical Statistics
(Summer Session)**

*co-located with the
2nd International School on Enabling Technologies,
Applications, and Methods for Emerging 5G Systems*

*organised in the framework of the
Conference on Information and Telecommunication Technologies and
Mathematical Modelling of High-Tech Systems*

22 – 27 October 2018

IST, Lisbon, Portugal

Scope

The Workshop aims to discuss contemporary issues of applied probability theory, stochastic processes, mathematical statistics, stochastic analysis, queuing theory in their application to the performance analysis and quality of service in 5G networks. Nowadays, one can see that wireless solutions have moved beyond their traditional areas of application, and one can talk about a space where users can interact with various technologies services. As a consequence, the methods of the applied probability theory and mathematical statistics for the effective estimation of the wireless networks' performance parameters have received much attention in recent years and have become a key aspect of application development. Further development in this area creates opportunities for the development of theoretical foundations, new mathematical models and methods for the performance analysis of future wireless networks.

The Workshop will be co-located with the *2nd International School on Enabling Technologies, Applications, and Methods for Emerging 5G Systems*

Dates

The Workshop will take place from Monday, Oct. 22nd, to Saturday, Oct. 27th.

General Schedule

The following schedule will be held daily:

- 16h00 – 17h00: technical sessions
- 17h00 – 17h20: break
- 17h20 – 18h00: technical sessions

The School will be held daily, on time-slots before the Workshop (i.e., 09h30 – 16h00).

The last day will be dedicated to a round table.

The overall schedule is given below:

Time	Day					
	Monday, Oct. 22nd	Tuesday, Oct. 23rd	Wednesday, Oct. 24th	Thursday, Oct. 25th	Friday, Oct. 26th	Saturday, Oct. 27th
09:30 - 10:30	School Registration	School Lecture	School Lecture	School Lecture	School Student Seminar	Social Programme
10:30 - 11:00	School Opening					
11:00 - 11:30	Break	Break	Break	Break	Break	
11:30 - 13:00	School Lecture	School Lecture	School Lecture	School Lecture	School Student Seminar	
13:00 - 14:00	Lunch	Lunch	Lunch	Lunch	Lunch	
14:00 - 15:30	School Lecture	School Lecture	School Lecture	School Lecture	School Student Seminar	
15:30 - 16:00	Break	Break	Break	Break	Break	
16:00 - 16:20	Workshop Registr. & Opening	Workshop Session	Workshop Session	Workshop Session	Workshop Round Table	
16:20 - 17:00	Workshop Session					
17:00 - 17:20	Break	Break	Break	Break	Break	
17:20 - 18:00	Workshop Session	Workshop Session	Workshop Session	Workshop Session	Workshop Closing	
20:00 - 22:00			Dinner			

Programme

The programme is composed of the following papers:

Monday

- 16:20 – 16:40 *“Calculation of Probability Density Distribution of Ultracold Atoms and Molecules in Waveguide-like Traps”*, [Melezhik V.](#) (Joint Institute for Nuclear Research, Russia) and [Sevastianov L.](#) (RUDN University, Russia)
- 16:40 – 17:00 *“On quasi stationary probabilities for renewable system with Marshal-Olkin failure model of its components”*, [Rykov V.](#) (Gubkin Russian State University of Oil and Gas, Russia)
- 17:20 – 17:40 *“On the Rate of Convergence for a Class of Queueing Models”*, [Zeifman A.](#), [Kiseleva K.](#), [Kryukova A.](#), [Satin Ya.](#) and [Shilova G.](#) (Vologda State University, Russia)
- 17:40 – 18:00 *“Determination of the number of experiments to estimate the unknown distribution parameters for the given relative error and confidence level”*, [Platonova A.](#), [Gaidamaka Yu.](#) (RUDN University, Russia) and [Naumov V.](#) (Service Innovation Research Institute, Finland)

Tuesday

- 16:00 – 16:20 *“On optimization of energy consumption in cloud computing system”*, [Daraseliya A.](#), [Sopin E.](#), and [Rykov V.](#) (RUDN University, Russia)
- 16:20 – 16:40 *“An Accurate Model of the 3GPP NR Access Point Service Process”*, [Begishev V.](#), [Sopin E.](#), [Samouylov K.](#), [Gudkova I.](#) (RUDN University, Russia), [Moltchanov D.](#) and [Samuylov A.](#) (Tampere University of Technology, Finland)
- 16:40 – 17:00 *“Critical Machine Type Communication in 5G networks”*, [Vikhrova O.](#), [Pizzi S.](#), [Molinario A.](#), [Araniti G.](#) (University Mediterranea of Reggio Calabria, Italy) and [Samouylov K.](#) (RUDN University, Russia)
- 17:20 – 17:40 *“Optimal Multicast Subgrouping in Mobility-Aware 5G Systems: Challenges, Modelling, and Opportunities”*, [Samouylov K.](#), [Gudkova I.](#), [Beschastnyi V.](#) and [Ostrikova D.](#) (RUDN University, Russia)

17:40 – 18:00 *“Using the Gini coefficient to calculate the degree of consensus in group decision making process”*, Chukhno N., Chukhno O., Gudkova I. and Samouylov K. (RUDN University, Russia)

Wednesday

16:00 – 16:20 *“On the performance measures of LTE radio access procedure under massive M2M communications”*, Medvedeva E., Chukarin A. and Gaidamaka Yu. (RUDN University, Russia)

16:20 – 16:40 *“On modeling the traffic of vehicles through the road intersection of a smart city”*, Bogdanova E., Khalina V., Rykov V. and Samouylov K. (RUDN University, Russia)

16:40 – 17:00 *“About One Principle to Identification of Shape of Object”*, Gostev I., Sevastjanov L. and Melezhik V. (RUDN University, Russia)

17:20 – 17:40 *“Improving the energy efficiency of the smart buildings with the boosting algorithms”*, Shchetinin Eu.Yu. (Decisions Making and Financial Technologies Financial University under the Government of the Russian Federation, Russia) and Melezhik V. (RUDN University, Russia)

17:40 – 18:00 *“Analyzing the Impact of ITS Mobile Node Antenna HPBW on Primary Network SINR”*, Shchesniak A. (ITMO University, Russia) and Ometov A. (Tampere University of Technology, Finland)

Thursday

16:00 – 16:20 *“Minimum Architecture of SDN Tolerant to Failures of a Switch”*, Grusho A., Timonina E. and Shorgin S. (Institute of Informatics Problems of the Federal Research Center Informatics and Control, RAS, Russia)

16:20 – 16:40 *“Applications of Program KANTBP 4M for Solving of Waveguide Problems”*, Vinitsky S., Gusev A., Chuluunbaatar O., Krassovitskiy P. (Joint Institute for Nuclear Research, Russia), Derbov V. (N.G. Chernyshevsky Saratov National Research State University, Russia), Hai L. (Ho Chi Minh city University of Education, Vietnam) and Gózdź A. (University of M. Curie-Skaodowska, Poland)

16:40 – 17:00 *“Analytical review of schemes models for wireless multiservice networks under shared access frameworks”*, Markova E., Golskaia A. and Moskaleva F. (RUDN University, Russia)

Proceedings

The electronic version of all papers will be distributed during the Workshop.

Language

The Workshop will be entirely held in English.

Location

The venue is “Centro de Congressos” at the Alameda Lisbon campus of IST (Instituto Superior Técnico), in room 02.1 at the ground floor.

A map of the campus is available at http://grow.tecnico.ulisboa.pt/wp-content/uploads/2017/01/IST_Campus_6.pdf, “Centro de Congressos” being located at the ground floor of “Pavilhão de Civil” (building #2 in the map).

General information on the location of the campus can be found at <http://grow.tecnico.ulisboa.pt/local-info/address>.

Accommodation

There is a wide choice of hotels nearby the campus. Take a look into <http://grow.tecnico.ulisboa.pt/local-info/accommodation>.

Registration

You can register by contacting Vera Almeida, until Wednesday, Oct. 17th, 2018.

The registration fee is 300 € for both the School and the Workshop.

Social Event

A dinner will be offered to participants on Wednesday, Oct. 24th.

The organisers provide support to the attendees that wish to book Lisbon city tour on Saturday, Oct. 27th.

Contacts

If you need any information or help, contact:

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Organisation and Programme Committee

The Workshop is organised jointly by:

- Luis M. Correia, IST - University of Lisbon, Lisbon, Portugal
- Konstantin Samouylov, Peoples' Friendship University of Russia (RUDN), Moscow, Russia
- Sergey Shorgin, Federal Research Centre "Computer Science and Control" of the Russian Academy of Sciences, Moscow, Russia