Overview of the 25th International Conference on Vacuum Technique and Technology

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Abstract. In this overview key features and main results of the 25th International Conference on Vacuum Technique and Technology that was held on 5–7 June 2018 in Saint Petersburg, Russia are discussed.

From 5 to 7 June 2018 the 25th anniversary International Conference on Vacuum Technique and Technology was held in the Saint Petersburg Electrotechnical University “LETI”. The Conference was organized by the Saint Petersburg Electrotechnical University “LETI” together with the Peter the Great Saint Petersburg Polytechnic University, All-Russian Research Institute of Metrology n. a. D. I. Mendeleev, Euro-Asian Cooperation of National Metrological Institutions (COOMET) and Russian Scientific and Technical Vacuum Society n. a. Academician S. A. Vekshinskii.

The aim of the Conference was to review the results of research in the field of vacuum physics, vacuum measurement, mass spectrometry and tightness control. The Conference was attended by over 80 specialists from leading universities, research institutes and enterprises of Russia, as well as representatives of the scientific community from Ukraine and Turkey.

The Conference began with a moment of silence in memory of the recently deceased scientists: the chairman of the Conference, D. Sc., professor of the Department of electronic instruments and devices of Saint Petersburg Electrotechnical University “LETI” Alexander A. Lisenkov, D. Sc., professor, head of the research department of the Research Institute of Electrophysical Equipment n. a. D. V. Efremov Georgy L. Saksaganskii; general director of LLC “Vacuum and cryogenic systems” and head of the cryogenic and vacuum laboratory of the Peter the Great Saint Petersburg Polytechnic University Marxen P. Larin. These well-known scientists made a significant contribution to the development of vacuum technology and the creation of the Conference.

Almost all of the life and work of Alexander A. Lisenkov (figure 1) was associated with Saint Petersburg Electrotechnical University “LETI”. After graduating from school and service in the Soviet Army, he entered the evening Department of radio electronics at Leningrad Electrotechnical Institute “LETI” and worked at the Department of gas discharge devices as a laboratory assistant. In 1991 he entered the full-time graduate school. In 1995 he defended his Ph. D. thesis, in 2007 – D. Sc. thesis. For work "Creation of scientific bases, development and introduction of new technologies, equipment and materials in the production of powerful generator lamps" in 2000 he was awarded the title of Laureate of the state prize of the Russian Federation in the field of science and technology.
Working in the field of vacuum and plasma technologies, he was able to solve any technical and scientific problems. During his research, significant progress has been made in the field of special coating technology. In scientific and professional activities Alexander A. Lisenkov was distinguished by the highest professionalism, hard work and the desire to do any work with maximum quality. Alexander A. Lisenkov is the author of more than 300 scientific works, including 25 patents for invention, 9 monographs.

![Figure 1. Alexander A. Lisenkov (1956–2018).](image)

Since 2001, Alexander A. Lisenkov actively participated in the educational process of the Department of electronic instruments and devices, transferring his knowledge and experience to students and graduate students.

Optimism, the desire to help colleagues in any situation and high professionalism that distinguished Alexander A. Lisenkov, will always be an example of a teacher and a researcher who devoted his life to the University.

In his welcoming speech to the participants of the plenary session, the Vice-rector for research of the Saint Petersburg Electrotechnical University “LETI” Dmitrii V. Gaivoronskii stressed that from the very beginning in the Saint Petersburg Electrotechnical University “LETI” direction associated with "hollow devices", as at that time was called the vacuum technology, was one of the priority and key in the activities of the University. He also noted the leading position of the faculty of electronics of the University in Russia and World in the development of materials and technologies related to vacuum devices and technologies for creating devices based on them.

“For 25 years the Conference has established itself as a meeting of professionals of extra-class, who have the knowledge and competence to look into tomorrow. It is very nice to see young people in the audience, which emphasizes the link between generations and the transfer of experience” – Vice-rector for research of the Saint Petersburg Electrotechnical University “LETI” Dmitrii V. Gaivoronskii.

President of the Russian Scientific and Technical Vacuum Society n. a. Academician S. A. Vekshinskii Sergei B. Nesterov told about the main events that took place in the field of vacuum technology over the last year, including the results of the 14th International Exhibition of Vacuum Equipment “VacuumTechExpo”, which was held in Moscow from 24 to 26 April, and the 24th Scientific and Technical Conference "Vacuum Science and Technique" (Crimea), which in September 2018 will celebrate the 25th anniversary.

Plenary reports of the Conference were devoted to theoretical and practical aspects of vacuum technology (figure 2).
Figure 2. Discussion of the reports at the 25th International Conference on Vacuum Technique and Technology.
In the report of Vladimir V. Sleptsov, D. Sc., associate professor, head of the Department "Radioelectronics, telecommunications and nanotechnology" of the Moscow Aviation Institute (National Research University) were presented promising developments of the chemical sources of current (CSC) and ultra-high-volume capacitor structures (UCS) for energy storage.

“Vacuum technology is a very serious prospect. Vacuum technology has created electronics. Now, apparently, a period has come when they will actively develop in medicine, energy and other areas that will determine the next level of economic development” – Head of the Department "Radioelectronics, telecommunications and nanotechnology" of the Moscow Aviation Institute (National Research University) Vladimir V. Sleptsov.

Foreign colleagues – chairperson of the TC 1.6 COOMET Institute from Ukraine (Kharkiv) Irina A. Kolozinska and the head of the vacuum laboratory of the TÜBİTAK UME University from Turkey (Kocaeli), Dr. Rifat Kangi highlighted in the reports the development of vacuum technique and technology in their countries.

“There is a motto: vacuum is nothing, but in principle, vacuum is everything. Without vacuum it would be impossible to get into space, nanotechnology is impossible – clean environment is needed everywhere” – Head of the vacuum laboratory of the TÜBİTAK UME University Rifat Kangi.

On June 7, the Conference continued at the All-Russian Research Institute of Metrology n. a. D. I. Mendeleev. In the format of the round table the participants of the Conference discussed the aspects of the development of vacuum equipment and technologies in Russia.

In just three days of the Conference, more than 100 oral and poster presentations were presented on topical issues of vacuum generation, vacuum equipment creation and development of new technological processes. The participants of the Conference paid special attention to solving problems of vacuum technology in the formation of films and coatings by plasma and related methods, study of the properties of coatings and methods of their research, new coating materials, including nanomaterials, new areas of their use, development of modern equipment and technological processes.