Polytech and the Ministry of the Federal State of Mecklenburg-Vorpommern held a seminar in the field of methane pyrolysis

The Polytechnic University and the Ministry of the Federal State of Mecklenburg-Vorpommern (Germany) continue a series of joint events. With the support of the Ministry, researches from SPbPU and The Leibniz Institute for Plasma Science and Technology (INP Greifswald, Germany) took part in a workshop on methane pyrolysis. Dmitry UTSCHITEL head of the St. Petersburg Foreign Economic Bureau in Germany traditionally became the moderator of the online event. “Our videoconference is taking place within the framework of the Year of Germany in Russia and is aimed primarily at creating new alliances for a future strategic partnership between Peter the Great St. Petersburg Polytechnic University and the Federal State of Mecklenburg-Vorpommern. I think that we will be able to build a platform for dialogue, exchange of views and new perspectives through joint projects in various sectors, "Dmitry Utschitel emphasized.

The entry into force of the Paris Agreement on climate change and the need to increase the competitiveness of companies in world markets determine the hydrogen theme today as one of the key ones. Currently, 76% of the world's hydrogen is produced from natural gas, the consumption of which for this purpose

is 205 billion m3 / year. The key goal of the joint seminar of researchers from SPbPU and INP became an opportunity to discuss technical solutions for the technology of hydrogen production from methane without greenhouse gas emissions - primarily in order to increase the efficiency of using pipeline gas.

Ralf SVOBODA, Head of the Department for Technological Cooperation of the Ministry of Economics, Labor and Health of Mecklenburg-Vorpommern underlined that he considers the seminar on methane pyrolysis to be a special one. “I would like to share my dream with you: I wish Germany and Russia would together make an effective contribution to the fight against global warming around the world. And this dream can come true thanks to the joint Russian-German cooperation in the field of research and development” Ralf Svoboda underlined. In turn, SPbPU Vice-Rector for International Affairs, Professor Dmitry ARSENIEV, in his welcoming speech, expressed the hope that the seminar would open a new page of cooperation between the Polytechnic University and the Federal State of Mecklenburg-Vorpommern. “I think that we will not only identify common points of contact in the field of science and technology, but also find an opportunity to invite business and industrial partners to support our research,” Dmitry Arseniev stressed.

The seminar program traditionally began with reports made by German colleagues. On behalf of INP, the Chairman of the Board of Leibniz Institute for Plasma Science and Technology and Head of the Research Division Plasmas for Environment and Health Professor Klaus Dieter WELTMANN made a short presentation of the Institute. He spoke about the main directions of the Institute's activities. INP is part of the Leibniz Association, one of the four largest research associations, along with the Fraunhofer, Helmholtz and Max Planck Societies. The Institute has a long history, and today its activities are focused on three areas - materials research, metallurgy and healthcare.

The series of reports was continued by Prof. Dr. Dirk Uhrlandt, Scientific Board Member, Head of the Division Manager Materials & Energy, INP. Professor Uhrlandt presented in every detail the directions devoted to welding and switching, methane pyrolysis and the possibilities of plasma research for methane pyrolysis. INP research groups are actively involved in thermal plasma and light emitters, electric circular welding and switching arcs of various types of voltage. The main focus of the work is on analysis, experiments related to a light arc, and intensive modeling of light arcs.

“Methane pyrolysis is a very interesting research area, especially when it comes to hydrogen production. Many scientists are wondering how it is possible to use natural gas and methane, and at the same time prevent carbon dioxide emissions into the atmosphere, "- Professor Uhrlandt said.

The Russian colleagues presentations began with a speech by Alexander CHUSOV, Associate Professor of SPbPU Higher School of Hydraulic and Power Engineering, Head of the Engineering Ecology Center. Alexander Chusov is a head of a research group that has been dealing with gas processing and methane pyrolysis for many years and has a unique experience in developing technologies. The main focus of

the group's projects lies in the processing of biogas, including that obtained from solid domestic waste. The researchers have developed technologies for the purification of high-grade methane and further production of hydrogen. A complete waste-free cycle of such production is a registered unique scientific complex.

Vladimir POLYANSKY, Professor of SPbPU Institute of Computer Science and Technology, Director of the Institute of Problems of Mechanical Engineering of the Russian Academy of Sciences, presented a completely different perspective on the approach to hydrogen topics. Professor Polyansky shared the experience of the university laboratories in mechanical engineering, oil and gas industry and construction. He told about research in the field of the influence of hydrogen on the structure and strength of materials, hydrogen technologies, as well as the interaction of hydrogen with various materials.

The participants of the seminar highly appreciated the scale of work and research and agreed to continue holding working meetings to discuss individual developments and potential projects in specific areas. In the near future a joint seminar in the field of means and methods of environmental protection is planned to be held. Researchers from SPbPU and The Leibniz Institute for Plasma Science and Technology, as well as representatives of the Fraunhofer Institute for Large Structures in Production Engineering IGP (Rostock, Germany).

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