were presented during three days, centering on the following 10 themes, many of them around topics of high societal and economical impact:

- Recent Advances in Macromolecular Synthesis
- Complex Macromolecular Structures
- Dynamic and Supramolecular Polymers
- Stimuli-responsive and Functional Polymer Architectures
- Self-healing and Reprocessable Polymer Systems
- Polymers at Surfaces and Interfaces
- New Industrial Developments for Polymeric Materials
- Polymers meet Biology/Biochemistry
- Polymers from Renewable Resources
- Polymers for Energy Applications

APME 2017 offered an interdisciplinary platform for scientists with an interest in polymer science. While the oral presentations were mainly given by academic speakers (about 90 %), a small number of industrial researchers was invited on the first afternoon of the conference to underline the importance of state-of-the-art applications for newly designed polymer structures. When filling in the scientific program, emphasis was given to current trends and future developments in many fields of polymer synthesis, in which advanced polymeric structures play a key role.

In general, the feedback was extremely positive: 87 % of the participants rated the event as good to excellent compared to other similar events they have attended, 90 % rated the relevance of the topics as good to excellent, and 94 % rated the scientific content as good to excellent. Already, 61 % are considering attending the event in 2019, while 32 % are not yet sure.

We heard numerous times that APME2017 was "without any doubt the best international polymer meeting of this year". This was exemplified by the continuous strong interactions during the conference, including during the poster sessions. In summary, APME2017 was a quite successful meeting, highly appreciated by the participants. The FWO is explicitly acknowledged for financial report.

The next APME meeting will take place in Stellenbosch, South Africa, 15-18 April 2019.

Filip Du Prez <filip.duprez@ugent.be> was co-chair with Richard Hoogenboom of the Program Committee.

Development of chemistry within planetary boundaries

by Dimitry I. Mustafin

The **7th International IUPAC Conference on Green Chemistry** took place from 2-5 October 2017 in Moscow, hosted by Mendeleyev University of Chemical Technology of Russia. 158 delegates from Germany, Italy, France, Japan, China, Turkey, Estonia, Romania, Belgium, Poland, Brazil, India, Thailand, South African Republic, and, of course, from Russia took part in the conference. Within the IUPAC Conference, separate events also took place, each of which deserves special mention: a School of Young Scientists and Symposia devoted to the memory of outstanding Russian scientists who introduced the ideas of green chemistry and sustainable development in society, in the USSR and Russia, and all over the world.

The unique topic of this conference was the development of chemistry within planetary boundaries. In 2009, a 'planetary boundaries' concept was suggested by Rockström, *et al.* One of the nine planetary boundaries (chemical pollution) is directly related to the release of human-made chemicals into the environment. The estimation of the limits of this technogenic impact is one of the systemic technological challenges that is to be jointly solved by scientists with diverse specializations. The increase in the variety and the volume of production and the wide application of chemicals has potential ramifications. The emergence of longer and more complex supply chains, including the extraction, transportation, and storage of raw materials, the systems of distribution of chemicals, and the disposal of their waste, increase the risk of adverse effects on human health and the environment. In Global Chemicals Outlook (2012), UNEP pointed out that the world level of safety in the handling of chemicals is inadequate. Research in the past two decades has shown that, in developed countries, the most important pollutants from chemical industries are not the untreated and unwanted waste water or emissions into the air, but the products of chemical industries themselves.

The assessment of the hazards of chemicals and the

minimization of the environmental impact were approved by the United Nations as one of 17 Sustainable Development Goals. Goal 12 "Ensure sustainable consumption and production patterns" in its target 12.4 proclaims: "By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment."

The main objective of the 7th IUPAC Conference on Green Chemistry was the exchange of experience and the discussion of problems connected to modern chemical technology to further the implementation, in practice, of the ideas of green chemistry for the benefit of sustainable.

The work of the IUPAC Conference was built on the following subject sections:

- Green Industrial Processes
- Sustainable Development Goals and Green Chemistry
- Nature-like Technologies
- Green Materials, Ionic Liquids, Supercritical Fluids

In addition, there was a session on "Capacity-Building: Education and Technical Cooperation Round Table", organized by Vaniya Zuin, Professor of the Federal University San Carlo, Brazil, and Liliana Mammino, Honorary Professor of the University Venda (South Africa), both members of IUPAC. (see www.iupac.org/project/2013-041-3-300)

In total, 63 oral and 95 poster reports were submitted. During the IUPAC conference in Mendeleyev University, a meeting of the heads of grants of the Russian Science Foundation with the General Director of the Foundation A. Khlunov was convened, during which issues of examination of grants of the Russian Science Foundation, international cooperation within the Foundation projects, and the prospects of the development of a number of programs of the Foundation were discussed.

During ICGC-7 and within the project of the Russian Science Foundation "Development of methodology for determination of chemical footprint in order to investigate the impact of chemicals on the environment and human beings taking into account planetary boundaries" a School for Young Scientists was organized, focusing on the "Assessment of planetary boundaries for chemical pollution." The main subjects concerned the concept of planetary boundaries, chemical pollution, green chemistry, and human health. 29 young scientists took part and the following leading scientists and experts from Russia and other countries taught classes:

- Nicholas Gazergud, Head of the Department of Green Chemistry of Tallinn Technical University;
- Liberato Kardellini, Professor, Polytechnic University Marche, Ancona, Italy;

- John Corish, Professor at Trinity College Dublin, Ireland;
- Natalya Pleshkova, the Associate Director of the Laboratory of Ionic Liquids, Queens University Belfast, United Kingdom;
- Sir Martin Polyakoff, Professor in the School of Chemistry of the University of Nottingham, United Kingdom;
- Janet Scott, Professor at the University of Bath, United Kingdom;
- Natalia Tarasova, IUPAC President and Professor and Director of the Institute of Chemistry and Problems of Sustainable Development at Mendeleyev University;
- Evgeny Rozanov, Senior Researcher at the Observatory of Davos, Switzerland. In 2007 he became a Nobel Peace Prize laureate as a member of the Intergovernmental Panel on Climate Change (IPCC).

In addition to regular lectures, a quiz, "Green Chemistry and Sustainable Development" was also organized, as well as training in modeling of tools for sustainable development and master classes in methods of analysis of chemical pollution.

A Symposium dedicated to the memory of Professor G.A. Yagodin was held. His disciples and colleagues remembered this remarkable person and great citizen of Russia. In Mendeleyev University, a plaque in memory of G.A. Yagodin was unveiled. Six students and graduate students of Mendeleyev University were solemnly handed certificates of Yagodin's grants.

On 4 October 2017, the Symposium dedicated to the memory of the Academician V.A. Koptyug took place. Academician V.A. Koptyug was an outstanding thinker, a great scientist, a very resolute person, and the talented organizer of scientific processes at the domestic and world levels, being President of IUPAC, the main legislature in the world of chemical science and technology, uniting chemists from practically all countries of the world.

The selection of Mendeleyev University of Chemical Technology of Russia to hold the 7th International IUPAC Conference on Green Chemistry demonstrates the outstanding scientific and world-class educational centered in the region, where the Department of Industrial Ecology was organized for the first time in the history of Russia, in 1983. In 1995, three years after a United Nations conference in Rio de Janeiro proclaimed the need to transition to sustainable development and pointed out that the sustainability of any society depends on its education level, Mendeleyev University created the first (in Russia and in the world) Department of Problems of Sustainable Development, which was headed by Professor N.P. Tarasova. The successful activity of that Department led to the creation of the Institute of Chemistry and Problems of Sustainable Development, two years before the United Nations declared the "Decade of Education for Sustainable Development." This places the Institute in the vanguard of modern science and education. In 2013, at the behest of the world scientific community, the UNESCO Department "Green Chemistry for Sustainable Development" was created, which became the basis for carrying out the 7th International IUPAC Conference on Green Chemistry. The main sponsors of the Conference were the Government of Moscow, PhosAgro, Sinopec, and the Organization for the Prohibition of Chemical Weapons (OPCW).

The 7th ICGC also constituted an unique opportunity for IUPAC President Natalia Tarasova to present to Ekaterina Lokteva her IUPAC 2017 Distinguished Women in Chemistry or Chemical Engineering award. Prof Lokteva was not able to attend to the IUPAC GA/ Congress in Sao Paulo in July 2017 where most of the awardees were present. Prof. Ekaterina Lokteva received this award for her outstanding research and teaching in green chemistry and environmental heterogeneous catalysis. In this photo, Prof. Lokteva is in the background while Professor Tarasova is showing the award to academician Valery V. Lunin, dean of the Chemistry Department of M.Lomonosov Moscow State University.

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