

Taming of the Flame. The 50th Anniversary of the Invention of Self-Propagating High-Temperature Synthesis

The year of 2017 has brought science city of Chernogolovka several anniversary dates, including the 50th anniversary of the discovery of self-propagating high-temperature synthesis – SHS. In honor of this event, the International Conference “SHS-50” was held on November 20–21, in the Great Assembly Hall of the House of Scientists at Scientific Center of the Russian Academy of Sciences in Chernogolovka. The main organizer of the event was Merzhanov Institute of Structural Macrokinetics and Problems of Materials Science of RAS (ISMAN), with the support of the Russian Foundation for Basic Research and the Scientific Center of the Russian Academy of Sciences in Chernogolovka.

During the two days of the conference, a total of 110 reports, including 67 oral presentations and 43 poster presentations were made.

The conference was opened by the Director of ISMAN, Corr. Member RAS, Professor Mikhail Ivanovich Alymov. In his opening speech, M.I. Alymov greeted speakers and delegates of the conference, and expressed special gratitude to the keynote speakers – Professor Jerzy Lis, Corr. Member of Polish Academy of Sciences, Vice-Rector of the Mining Academy of the University of Science and Technology in Krakow, Poland; Dariusz Sala, Coordinator for the Development of Co-operation between the Mining Academy of the University of Science and Technology in Krakow, Poland; Prof. Onuralp Yücel, the head of the Department of Metallurgy and Material Science at the Istanbul Technical University. The conference attracted a number of international researchers, including Prof. Elazar Gutmanas (Technion, Israel), Professor Alexander Shteinberg (ALOFT, USA), Professor Oscar Rabinovich, Professor Pavel Grinchuk, Andrei Malinovsky and Alexander Hort (A.V. Lykov Institute of Heat and Mass Transfer NAS, Belarus), as well as young researchers - Sofia Aydinyan (Institute of Chemical Physics of NAS, Armenia), Aizhan Seydualieva and Aisulu Batkal (RSE “Institute of Combustion Problems”, Kazakhstan). The delegates from Russia came from all the the country Moscow, Tomsk, Sergiev Posad, Samara, Apatity, Khanty-Mansiysk, Vladivostok, Novosibirsk, Penza, Belgorod, Vladimir, Tambov.

The Director of ISMAN exchanged greetings with Academician V.E. Fortov, Academician Zulkhair Mansurov – Director of the Research Institute of Combustion Problems in Kazakhstan, Professor Yu.M. Maksimov from Tomsk Scientific Center of the SB RAS, D.Sc. M.Kh. Ziatdinov from Tomsk State University.

The welcoming speeches at the opening ceremony were given by Academician S.M. Aldoshin, the Director of IPCP RAS, Academician A.L. Buchachenko, Chairman of the NCHR RAS, Professor Jerzy Lys, Corresponding Member of the Polish Academy of Sciences, Professor Onuralp Yudel and other guests.

Professor Alymov solemnly handed over the award of *Honored Scientist of the Moscow Region* to Professor V.I. Yukhvid, the head of the ISMAN laboratory, the award from Federal Agency of Scientific Organizations to O.K. Kamynina, ISMAN Scientific Secretary, and a certificate of honor from the Ministry of Education and Science to Professor A.S. Rogachev, the head of the ISMAN laboratory.

After the Opening ceremony, Professor M.I. Alymov gave a plenary speech, focusing on the latest scientific results and perspectives of the research of the Institute's employees working on a number of research projects supported by Russian foundations. The main specializations for all 15 ISMAN laboratories were described briefly. The program of the conference included speakers' presentations in two concurrent sessions. The general program



M.I. Alymov, Corresponding Member of the Russian Academy of Sciences, Director of Merzhanov Institute of Structural Macrokinetics and Materials Science, Chernogolovka

included 13 meetings, each of which started with a key lecture and included at least five oral presentations. The reports covered the following topics: the theory and modeling of the processes of solid flame combustion, the synthesis of functional and structural materials, protective coatings, layered composite materials, powder materials (including nanosized) by SHS methods, new hybrid processes, such as combustion with impact, hot pressing, additive 3D technologies, as well as work on the application and industrialization of the SHS method.

The program conference and abstracts are available from the ISMAN website: <http://www.ism.ac.ru/events/SHS-50/indexr.php>

At the closing ceremony, many conference speakers stressed the high scientific level of the conference, the excellent organization, warm and friendly atmosphere and the opportunity for scientists and specialists to communicate, discuss the 50-year development of SHS, and outline joint research plans for the future.

At the end of this review, we would like to quote the words of Academician Anatoly Leonidovich Buchachenko said at the opening ceremony of the conference: “It is a noble tradition to keep and share memories. It is important that we do remember Academician A.G. Merzhanov, his fellow researchers, and the science that they created”.

Summing up the results of the International Conference “SVS-50”, we want to emphasize that the self-propagating high-temperature synthesis (SHS) method is a unique invention of Russian scientists, and its research potential is still enormous. The obtained results of scientific research are the basic knowledge for the further development of applied research aimed at producing new materials with unique properties for new models of equipment.

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