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## Preface

This issue includes the plenary lectures presented at the Second International G.K. Boreskov Memorial Conference. The conference was held in 1997 and was organised to coincide with the 90th anniversary of the birth of the late Academician G.K. Boreskov.

Academician Georgii K. Boreskov was an eminent scientist with world-wide recognition in the field of catalysis, chemical kinetics and technology. He was an outstanding chemical engineer and an organiser of chemical science in Russia. Boreskov formulated the theory of catalysis based on the concept of the chemical nature of the phenomena involved. The main ideas of the theory are: surface intermediate compounds are considered as the products of chemical interactions between a catalyst and reactant; the energy of reactant bonding to the catalyst is of key importance; the specific catalyst activity is assumed to be approximately constant; reaction medium has an effect on the catalyst. On the basis of this theory, Boreskov formulated a number of concepts which provide a scientific basis for understanding the mechanisms of catalytic reactions and the nature of catalytic action. From the very beginning of his scientific career, Academician Boreskov was equally interested in both fundamentals and applications of catalysis and chemical engineering. He originated methods for optimisation of catalytic processes and reactors. The Ba–Al–V catalyst designed by him as early as the 1920s and 1930s gave rise to a new generation of highly efficient catalysts for domestic sulphuric acid production. He generated a number of pioneering ideas in industrial catalysis and also suggested and developed such novel trends as the non-steady-state performance of catalytic processes and the design of catalytic heat generators (catalytic fluidized bed combustion reactors) for use in chemical technology. The main result of his life was the founda-

tion of the Institute of Catalysis in Novosibirsk. This Institute was established as an institution engaged in both fundamental and applied areas of catalysis. In 1992, by special decree of the Russian government, the Institute was renamed the Boreskov Institute of Catalysis.

The conference of which this issue contains the proceedings was organised by the Siberian Branch of the Russian Academy of Sciences, the Boreskov Institute of Catalysis, SB RAS, the Scientific Council on Catalysis and its Industrial Applications of the Russian Academy of Science and the Ministry of Science and Technologies of the Russian Federation, the International Association for the Promotion of Cooperation with Scientists from Independent States of the former Soviet Union (INTAS), and the Russian Foundation for Basic Research. The last two organisations were general sponsors of the Conference. There were 260 participants from 20 countries – USA, Netherlands, Japan, France, Sweden, Germany, UK, Greece, Denmark, Spain, Hungary, Poland, South Africa, Italy, South Korea, Belgium, Ireland, Ukraine, Kazakhstan and Russia; the number included 77 foreign scientists, 70 from different regions of Russia and the CIS, and more than 100 from the Boreskov Institute of Catalysis.

The scientific programme of the conference included 42 plenary lectures (27 invited lectures from Western countries and 14 from Russia) as well as 150 poster presentations and covered the following topics:

Structural and Mechanistic Characterisation of Heterogeneous and Homogeneous Catalysis on the Molecular Level. Methods of Quantum Chemistry and Molecular Dynamics;

Molecular Approaches to Design of New Homogeneous and Heterogeneous Catalysts and Processes;

Mechanisms of Selective Oxidation in Heterogeneous and Homogeneous Systems;

Molecular Sieve Effects in Catalysis;

Catalysis by New Materials and Non-Traditional Application Areas of Catalysis;

Innovations in Catalysis for Environmental Protection;

Innovations in Catalytic Technologies and Design of Catalytic Reactors.

The plenary lectures were presented by Prof. R.A. van Santen (Eindhoven University of Technology, Netherlands), Prof. I. Tkatchenko (CNRS – Institut de Recherches sur la Catalyse, France), Prof. J. Haber (Institute of Catalysis and Surface Chemistry, Poland), President of International Association of Catalysis Societies, Prof. H. Knoezinger (Munich University, Germany), Vice-President of American Catalysis Society, Prof. A.T. Bell (University of California, USA), President of European Association of Chemical Engineers, Prof. K.R. Westerterp (Twente University, Netherlands), Prof. G.F. Froment (Universiteit Gent, Belgium), Prof. R. Fehrmann (Technical University of Denmark, Denmark), Prof. J.M. Basset (CNRS – Laboratoire de Chimie Organométallique de Surface, France), Prof. J. Fraissard (Université Pierre et Marie Curie, France), Prof. W. Keim (Institut für Technische Chemie und Petrochemie, RWTH-Aachen, Germany), Prof. E. Schwab (BASF AG, Germany), Prof. C.G. Vayenas (University of Patras, Greece), Prof. J.R.H. Ross (University of Limerick, Ireland), Prof. F. Trifiro (University of Bologna, Italy), Prof. T. Inui (University of Kyoto, Japan), Prof. K. Tamaru (Science University of Tokyo, Japan), Prof. C.R.A. Catlow (The Royal Institution of Great Britain, UK), Prof. M. Boudart (Stanford University, USA), Prof. G.L. Haller

(Yale University, USA), Prof. C.L. Hill (Emory University, USA), Prof. C.H.F. Peden (Pacific Northwest Laboratory, USA), Prof. V.D. Sokolovskii (San Jose, USA), Prof. S.B. Ziemski (E.I. Du Pont, USA), Prof. J. Santamaria (University of Zaragoza, Spain), Representatives of Chemical Companies, Dr. A.K. Uriarte (Monsanto, Gonzalez, USA) and Dr. R.J. Farrauto (Engelhard, USA). Leading specialists from Russia presented their lectures: Prof. V.N. Parmon (Boraskov Institute of Catalysis, Novosibirsk), Prof. V.B. Kazansky (Zelinskii Institute of Organic Chemistry, Moscow), Prof. A.E. Shilov (Semenov Institute of Chemical Physics, Chernogolovka), Prof. V.M. Gryaznov (Russian University of People's Friendship, Moscow), Prof. M.G. Slin'ko (Karpov Institute of Physical Chemistry, Moscow), Prof. Z.R. Ismagilov (Boraskov Institute of Catalysis, Novosibirsk), Prof. G.M. Zhidomirov (Boraskov Institute of Catalysis), Prof. A.S. Noskov (Boraskov Institute of Catalysis, Novosibirsk), Prof. V.A. Likholobov (Boraskov Institute of Catalysis, Novosibirsk), Prof. T.M. Yurieva (Boraskov Institute of Catalysis, Novosibirsk), Prof. G.I. Panov (Boraskov Institute of Catalysis, Novosibirsk), Dr. V.V. Gorodetskii (Boraskov Institute of Catalysis, Novosibirsk), Dr. V.S. Muzykantov (Boraskov Institute of Catalysis, Novosibirsk), Prof. V.K. Duplyakin (Omsk Department of the Boraskov Institute of Catalysis, Omsk). This issue contains 20 papers presented by plenary lectures.

The Organising Committee expresses its sincere gratitude to the referees for their time and effort expended in the reviewing process.

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