

Preface

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This Special Issue of Topics in Catalysis contains contributions from the participants of the *IX International Conference “Mechanisms of Catalytic Reactions” (IX MCR)*, held in St. Petersburg, Russia from October 22–25, 2012. The Conference was organized by the Boreskov Institute of Catalysis, Novosibirsk, under the auspices of the European Federation of Catalysis Societies (EFCATS). The *IX MCR* followed an established tradition, with earlier meetings held in Moscow (1974, 1979, 1986, 1990, 2002), Saint-Petersburg (2006), and Novosibirsk (1982, 2009). Since 2009, the conferences of this series adopted a status of a regular international event held every 3 years. To date, it is the only international scientific event entirely focused on mechanisms of various catalytic processes, irrespective of the nature of catalysts: homogeneous, heterogeneous or enzymic.

The IX Conference addressed both mature fields and urgent topics of modern catalysis. Its scientific program included the following sections: (1) Catalysis: from first principles; (2) Mechanisms of heterogeneous catalysis; (3) Mechanisms of homogeneous catalysis; (4) Catalytic processing of renewables; (5) Electrocatalysis, photocatalysis, biocatalysis. The conference hosted 240 participants from

27 countries across the globe, working in all fields of catalysis, who contributed 110 posters, 80 oral presentations, 7 keynotes and 5 plenary lectures, as well as a commemorative lecture in memory of pre-eminent Russian and American catalytic chemist, Professor Vladimir N. Ipatieff (1867–1952).

Those contributors who gave invited lectures and oral presentations were encouraged to submit their original manuscripts which were further peer-reviewed internationally according to standard procedures. Overall, we have assembled here 19 full papers focusing on various fundamental aspects of mechanisms of heterogeneous and homogeneous catalytic processes. The Guest Editors are grateful to the authors for their first-rate contributions and for their cooperation during preparation of the Issue. We would also like to thank Prof. Norbert Kruse and Prof. Gabor A. Somorjai, Editors-in-chief of “*Topics in Catalysis*”, and the Editorial Board for publishing this volume.

Finally, we cordially thank all the participants for making the *IX International Conference “Mechanisms of Catalytic Reactions”* a successful and inspiring symposium. We look forward to reconvene at further events of this series.

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