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# PREFACE

This issue of *Catalysis Today* presents a selection of contributions to the 12th International Symposium on the Scientific Bases for the Preparation of Heterogeneous Catalysts (PREPA12), that was held on the campus of the "Université catholique de Louvain" (UCLouvain) in Louvain-la-Neuve, Belgium, on July 8–12, 2018. This series of symposia was initiated in 1975 and occurred on a regular 4-year interval basis. Previous proceedings of these symposia have been published in *Studies in Surface Science and Catalysis*, and then in *Catalysis Today* for the PREPA11 edition. As for previous events, this 12th Symposium was made possible thanks to the organizational skills of the members of the research groups active in heterogeneous catalysis at the "Institute of Condensed Matter and Nanosciences" of UCLouvain, Belgium, and at the "Centre for Surface Chemistry and Catalysis" of KULeuven, Belgium.

A specificity of this series of symposia has always been a balanced participation of delegates from industry and academic spheres. As for the previous editions, the 12th edition of the Symposium provided an efficient platform for exchanges between these two worlds.

The topics covered by the symposium can be listed as: the design of new catalytic materials, shaping and upscaling and reactor design, bimetallic nanoparticles and mixed oxides, heterogeneization and study of active phase/support interfaces, zeolitic materials and alumina-based materials, new preparation methods for heterogeneous catalysts, electron microscopy characterization for synthetic problems.

252 abstracts were submitted, constituting a great success and confirming the interest for the preparation of catalysts in industry, research institutes and academia. The abstract selection criteria handled by the local Organizing Committee and the International Scientific Committee (which was constituted of delegates with an industrial appointment) were strongly focused on catalysts preparation aspects, privileging novelty and innovative procedures in the field. The discussion of physico-chemical characteristics and catalytic properties are limited to the identification of the influence and control of the preparation parameters.

A severe selection procedure allowed selecting 39 oral communications (among which 1 invited and 3 extended communications) and 130 poster presentations.

We thank all the members of the International Scientific Committee of PREPA12 for their thorough and conscientious work, and for their responsibility, efficiency and enthusiasm in selecting the abstracts that helped us to build the program of the symposium : Mr S. BARRADAS, SASOL South Africa; Dr J. BERGWERFF, Albemarle, The Netherlands; Dr P. DOURNEL, Solvay, Belgium ; Dr R. DUCHATEAU, SABIC-Europe, The Netherlands ; Dr J. FRONTELA DELGADO, CEPSA, Madrid, Spain; Dr J.J. HEISZWOLF, Lhoist R&D, Belgium; Dr K. JOHANSEN, Haldor Topsøe, Denmark; Dr E. LOX, Umicore, Belgium; Dr A. MERSCHAERT, UCB Pharma, Belgium; Dr M. MERTENS, ExxonMobil, Belgium; Dr G. MESTL, Clariant Produkte, Germany; Dr K. MÖBUS, Evonik/Degussa, Germany; Dr N. NESTERENKO, TOTAL Research, Belgium; Dr Chr. NICHOLAS, UOP, USA; Dr M. RIGUTTO, Shell Global Solutions, The Netherlands; Dr M. RUITENBEEK, DOW Benelux, The Netherlands; Dr R. TERORDE, BASF, The Netherlands; Dr D. UZIO, IFPEN, France; Dr M. WATSON, J. MATTHEY, UK; Dr I. YORK, Lucite Intl, UK.

Scientific results presented at PREPA12 were really up-to-date, innovative, and of a high insight and motivation for future works in catalysts preparation, and therefore fully justified the organization of this Symposium. As the organizers of PREPA12, we wish to express our sincere gratitude to all the individuals at UCLouvain (authorities, administrative and technical staffs, researchers, PhD and undergraduate students) who made the event possible. We particularly would like to thank Françoise Somers for her invaluable involvement and accountability in the organization of this meeting. We also thank all those outside our universities who encouraged, attended and animated PREPA12. In particular, we are indebted to some public and private sponsors who wished to perpetuate their financial support, and without whom the organization of this Symposium would have been difficult: C.G.B.-C.B.B. (ChemPubSoc), BASF, UCB-Pharma, IFP Energies Nouvelles, ExxonMobil Chemical, SASOL, Lhoist, Micromeritics, Evonik, and the Société Royale de Chimie (Belgium).

Only the authors of oral communications and some selected posters were invited to contribute to the present publication. The submitted full manuscripts then followed a systematic and strict peer-reviewing procedure carried out by recognized experts in the field in order to maintain a high scientific level. In the end, the issue gathers 27 contributions.

As editors, we wish to express our sincere gratitude also to the authors who accepted our invitation and contributed to this issue, as well as to the reviewers who contributed to bring this issue to the high level of quality we believe it presents.

This issue shows how the field of heterogeneous catalysts preparation is currently evolving at a fast pace. More and more advanced tools are available to identify, follow, and optimize the parameters that dictate the final catalyst performance. In particular, *in situ* electron microscopies allow scientists to visualize the transformation that catalyst undergo – *e.g.* during thermal treatments – in a time-resolved manner. The precise understanding of the phenomena that occur during the deposition of active elements onto catalyst supports gives access to optimized catalyst formulations, for example when different precursors are used to produce multimetallic particles, when introducing doping or stabilizing agents, or when leveraging on the addition of a salt to control the final properties of the supported metal. This special issue is also rich in innovative propositions, with unconventional preparation routes leading to catalyst formulations that cannot be reached with more classical methods. For example, plasma, milling, and spray-freeze processes are discussed and shown to give access to metal, oxide-, or

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