



## Preface

This special issue of *Catalysis Today* contains a selection of papers presented at the 6th World Congress on Oxidation Catalysis (6WCOC), subtitled "Towards an integrated approach in innovation and development", which was held in Lille, France, from July 5 to 10, 2009.

The series of World Congresses on Oxidation Catalysis has its roots in the First European Workshop on Selective Oxidation held in Louvain-la-Neuve, Belgium in 1986. Due to the interest and the success of this workshop, the 1st World Congress on Oxidation Catalysis was organised in Rimini, Italy in 1989, and then every 4th year, successively in Benalmadena, Spain (1993), San Diego, CA, USA (1997), Berlin, Germany (2001) and the 5th in Sapporo, Japan in 2005.

Following the decision of the International Board of the World Congress in Sapporo, the 6th WCOC was organised by the "Unité de Catalyse et de Chimie du Solide", Université de Lille 1 – CNRS, France, and the "Institute of Condensed Matter and Nanosciences, Division "MOlecules, Solids and reactiviTy" – MOST", Université Catholique de Louvain, Louvain-la-Neuve, Belgium (formerly "Unité de Catalyse et Chimie des Matériaux Divisés").

The Congress was organised under the auspices of the Centre National de la Recherche Scientifique (France), the Fonds de la Recherche Scientifique and Fonds Wetenschappelijk Onderzoek – Vlaanderen (Belgium), the Société chimique de France, the Société royale de Chimie (Belgium), the European Network of Excellence IDECAT (Integrated Design of Catalytic Materials for a Sustainable Production) and the European Federation of Biotechnology.

The main objective of the 6th World Congress on Oxidation Catalysis was to offer an update of recent innovation in both fundamental and applied aspects, and it was focused on highlighting progress, new developments and new directions in catalytic oxidation. The intent was to promote an integrated approach of heterogeneous and homogeneous, as well as bio- and enzymatic catalysis by considering their level of maturity and thus of readiness for implementation in real processes. Contributions were asked on the following three bases:

- Fundamentals and analysis,
- Towards transferability: from fundamentals to applications,
- Transferred technologies & industrial processes,

among which contributions were distributed as a function of their domain or research strategy among sub-topics. All fields and applications of oxidation catalysis were addressed in each sub-topic in

order to foster cross-fertilisation. Importance was also given to homogeneous catalysis and biocatalysis, as well as to the relations between heterogeneous oxidation catalysis and homogeneous and biotechnological processes.

The program of the Congress consisted of five plenary lectures given by recognized scientists, 23 key-notes lectures selected among the proposals, 116 oral presentations and 325 poster presentations. All received (574) abstracts were evaluated by nine panels formed by recognized scientists from all around the world.

After a proper selection of papers, the most recent innovations in fundamental and applied aspects are addressed in this *Catalysis Today* special issue. The main sub-topics have been retained as a frame to show how the design of bulk, supported and nano-catalysts and characterisation by modern physico-chemical methods help to understand the mechanisms of catalysis, and how the knowledge about the reactivity and mobility of surface species, the nature and stability of intermediates, the mechanisms and reaction kinetics at the nano-scale, etc., can be increased. Recent advances in pollution abatement and remediation, as well as in the rejuvenated or new sustainable processes to make chemical intermediates at the least energy cost and in a cleaner, safer and environmental benign way for petrochemistry and fine chemistry are also highlighted.

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