

## Editorial

### Preface — nanomaterials in catalysis

Nanostructured materials present great promises and opportunities for a new generation of materials with improved and tailorable properties for applications in sensors, optoelectronics, energy storage, separation and catalysis. Catalysts being mostly nanoparticles are typical nanomaterials, perhaps the first nanomaterials in wide applications. Catalysis is a nanoscale phenomenon that has been the subject of research and development for many decades, but only recently become a nanoscale science of materials and chemistry involving more investigations on the molecular level. The new millennium presents opportunities as well as challenges to scientists and engineers working in this dynamic field of nanomaterials in terms of tailor-design, synthesis and characterization of these materials.

This issue featuring the theme on Nanomaterials in Catalysis contain 27 papers including special invited contributions and those selected from papers presented at the workshop on nanostructured materials and catalysis, 9–12 July 2000 in Perth, Australia as part of Chemeca 2000. The workshop was organized to provide a forum for scientists and engineers from industries, academe, and research institutions to present their latest research results, exchange ideas and discuss important issues in order to address the opportunities and challenges in the dynamic field of nanostructured materials and their implications on catalysis science. Participants in this workshop explored many areas of potential applications of nanomaterials in industries, particularly in catalytic processes. The papers presented in this issue cover the following interesting topics:

- Synthesis and characterization of nanoporous materials such as zeolites, mesoporous molecular sieves, pillared clays (Y. Wang et al., Zhao et al., Chae and Nam, Ahn et al., Yao et al., van der Voort et al., and Hwang et al.).
- Surface chemistry and surface modifications of nanoporous materials (Galarneau et al., Froeba and Koehn, Tezuka et al., Liu and Yan, and Liu et al.).
- Applications of nanomaterials in adsorption, environmental catalysis, photocatalysis (Thammachart et al., Gil et al., D.K. Zhang et al., Kawai, Chen and Kawi, Xia et al., Hu et al., Ding and Yan, Tse et al., and Zhu et al.).
- Nanosized particles of metal and metal oxides in porous hosts and other new methods (J.A. Wang et al., Depurkar et al., Kuang et al., Y. Zhang et al., Ding, et al., and Xu et al.).

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G.Q. Lu

*Department of Chemical Engineering  
and The NanoMaterials Centre, The University of  
Queensland, St. Lucia, Brisbane  
Qld 4072, Australia*

Tel.: +61-7-3365-3735; fax: +61-7-3365-4199  
E-mail address: maxlu@cheque.uq.edu.au (G.Q. Lu)