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Heterogeneous Catalysis for Fine Chemicals

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EDITORIAL

Heterogeneous catalysis for fine chemicals

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Research in heterogeneous catalysis for fine chemicals, synthesis, preparative chemistry and drug discovery, is currently more active than ever before. Much has changed since 2003 when Cole-Hamilton (*Science*, 2003, **299**, 1702) lamented that only a few homogeneous Rh catalysts were known to have found practical application. Almost a decade later, we are now aware of a number of commercial processes using highly efficient and selective new solid catalysts.

One can now truly speak about heterogeneous molecular and metal catalysis for fine chemicals as being among the main field of contemporary chemical research. To celebrate the contribution of Professor Michele Rossi to this field on the occasion of his 70th birthday, this themed issue aims to grasp the current momentum in catalytic chemistry for fine chemicals and brings together contributions from experts in the field who are involved in either the fundamental development of new catalysts or in the multidisciplinary application of these organometallic entities.

Mallat and Baiker describe reactions in "sacrificial" solvents (DOI: 10.1039/C1CY00207D); Tsang *et al.* show how Pd with interstitial carbon atoms is an ultraselective hydrogenation catalyst (DOI: 10.1039/C1CY00257K); Avnir *et al.* demonstrate how the entrapment of a dye changes and enhances the catalytic activity of silver in methanol oxidation (DOI: 10.1039/C1CY00384D). Cadierno *et al.* show how to discriminate between homogeneous or heterogeneous nano-catalysis in the conjugate addition of arylboronic acids mediated by Pd(II) complexes (DOI: 10.1039/C1CY00214G). Wong Chi Man *et al.* describe the catalytic applications of imidazolium-derived organosilicas (DOI: 10.1039/C1CY00287B). Béland *et al.* explain how to enhance catalysis under flow conditions using functionalized silica gels (DOI: 10.1039/C1CY00232E); Pandarus *et al.* demonstrate how the selective hydrogenation of functionalized nitroarenes can now be carried out under ultra-mild conditions (DOI: 10.1039/C1CY00097G). Finally, Prati *et al.* show how Ru-modification of Au catalysts enhances the selective oxidation of aliphatic alcohols (DOI: 10.1039/C1CY00218J), and Della Pina and Falletta review the development of nanostructured Au catalysts, especially those developed by Rossi and co-workers since the early 2000s (DOI: 10.1039/C1CY00283J).

Overall, the nine contributions in the issue show the sophisticated and elegant level of these new materials and processes developed in this burgeoning field of chemical research. We are hopeful that within the next decade most fine chemicals in industry will be manufactured by heterogeneous catalytic processes. By stimulating new research in the field, this themed issue could contribute to this progress.

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