



## Preface

This special issue of *Catalysis Today* contains selected papers from 18th National Symposium and Indo-US seminar on Catalysis held at Indian Institute of Petroleum, Dehradun, India during April 16–18, 2007. This symposium was organized by Indian Institute of Petroleum (IIP), Catalysis Society of India in cooperation with the Petrotech Society, and Indo-US Science and Technology Forum (IUSSTF). The organizers of the symposium not only exercised discretion but also made special efforts to select papers for consideration for publication in Journal “*Catalysis Today*” from plenary lectures, oral presentations and poster presentations. The special issue gives a glimpse of spread, scope and depth of catalysis research in India as reflected by the contents of the papers. In addition valuable contributions from other countries enriched the proceedings of the symposium as well as this special issue.

Catalysis Research in India is spread over in most of the national chemical laboratories, academic institutions as well as in some industries. The extent of representation of these institutions in generating new knowledge in the field of catalysis is truly reflected from the number of publications from each one category in this special issue. The national laboratories contribute more than the other two categories, this is so, since many national laboratories, like the National Chemical Laboratory in Pune, Indian Institute of Chemical Technology in Hyderabad, Indian Institute of Petroleum at Dehradun, and other chemical laboratories of the Council of Scientific and Industrial Research (CSIR) India have large research groups in the area of catalysis and also have special divisions devoted to research in the field of Catalysis. This is a reflection of the importance attached to this area in the National laboratories of India.

This special issue selected 39 papers covering wide ranging aspects of catalysis from the presented contributions. Burton Davis examined critically the mechanism that operates on typical Fischer-Tropsch catalysts. This has special significance in view of the renewed interest in this reaction in connection with the synthetic production of fuels. Henrik Topsoe in his inspiring lecture described intricate details about the role of atomic level researches in developing commercial ultra deep desulfurization catalysts. Michael Stoecker in his lecture delivered telephonically discussed comprehensively the details of role of catalysis in biomass conversion. Paul Ratnasamy examines the selective oxidation on zeolites and other mesoporous substances in terms of a few selected examples, this application gains importance is also reflected in other publications of similar nature by Bir Sain et al., Srinivas et al., and Murugesan.

The natural gas conversion over mesoporous SAPO's has been examined by Paul Berger to establish that it can be one of the best options available for this important conversions in the coming decade. Muneyoshi Yamada examines the opportunities available for the catalytic production of ultra clean fuels an area that has assumed importance due to the concerns with respect to environmental impact of conventional fossil fuels.

Photo- and Electro-catalytic activities of various substances have been examined in a number of publications (e.g., Gupta et al., Durga Kumari et al., Shanti et al., Ranga Rao et al., and ...). The photo-catalytic studies mainly concerned with the pollution abatement in line with the current activities in this area in literature. Electro-catalysis has assumed significance due to the intensified effort to make fuel cells as one of the viable sources for energy conversion devices.

Petroleum reforming and pollution abatement are the two areas which are reflected in a number of publications in this special issue. The papers related to petroleum refining examine various options for sulfur removal from feed stock (Mohan Rana et al., Souman Das Gupta et al.). There are a variety of publications dealing with pollution abatement including  $N_2O$  decomposition (Nitin Labhsetwar) and other organic pollutants like chlorophenol (Lingaiah et al.). Hydro cracking ability of Ti modified zeolites has been examined by Hiromichi Shimada, while Jasra et al. have presented results on the hydrodearomatization of toluene over Rh/Zelite system.

As usual there are a variety of catalysts that have been formulated and examined for fine chemical production. Various types of functionalization of organic molecules including chirality (Anand Pal Singh) induction have been probed. The catalysts investigated included layered double hydroxides (Kannan), heteropoly acids and shape selective clay catalysts (Yadav et al.) and silica supported systems (Ken Motokura).

Characterization of catalysts surfaces as well the phase composition of the catalysts have received attention in a number of studies especially employing spectroscopic techniques like IR, NMR and other techniques that examine the bulk and surface properties of catalyst systems. These type of studies have assumed importance in view of the drive to identify the molecular level of mechanism of catalytic reactions. (Komandur Chary et al., Jai Prakash et al., Viswanadham et al.). The breadth and coverage of topics discussed in this special issue reflect the strength and depth of Indian Catalysis research.

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