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Catalysis Today 50 (1999) 1



# Catalysis in fuel processing and environmental protection. An Introduction

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Catalysis plays an important role in fuel processing for production, upgrading and refining of liquid and gaseous fuels and for environmental protection related to fuel conversion and utilization. The compositions and quality of fuels and emission control during fuel utilization are strongly dependent upon the application of heterogeneous catalysis. The production of alternate fuels from non-traditional energy sources also relies largely on the catalytic processes.

As we move into the 21st century, it will become increasingly more important to produce environmentally benign clean fuels from various sources and to promote pollution prevention. In order to foster the research and development in this area, we organized a symposium on Catalysis in Fuel Processing and Environmental Protection as a part of the 214th American Chemical Society (ACS) National Meeting in Las Vegas, NV, during 7–11 September 1997. This symposium was co-sponsored by the ACS Divisions of Petroleum Chemistry, Fuel Chemistry and Environmental Chemistry. The call-for-papers of this ACS symposium resulted in a good response worldwide; it was a truly international symposium with 39 papers accepted from contributions by research groups in eight countries in America, Asia, and Europe. It brought together scientists and engineers in many countries who are engaged in research and development in this area. Graduate students from many universities also participated in this symposium. The

broadly defined topic areas of the five sessions of this symposium are listed below:

1. Catalytic Fuel Processing and Pollution Prevention
2. Catalytic Fuel Processing and Reformulated Fuels
3. Conversion of CO<sub>2</sub>, Methane and Environmental Catalysis
4. Environmental Catalysis and Alternate Fuels
5. Computer Simulation and Modeling

This special issue of Catalysis Today consists of papers selected from the above-mentioned five sessions of the symposium. All of the papers in this issue have been referred by peer reviewers. The selected papers cover a variety of interesting topics including fuel production, upgrading, refining, alternate fuels, pollution control, CO<sub>2</sub> conversion, and computer modeling.

We wish to acknowledge ACS Divisions of Petroleum Chemistry, Fuel Chemistry and Environmental Chemistry for co-sponsoring the symposium on Catalysis in Fuel Processing and Environmental Protection. We are grateful to all the people who contributed to the ACS symposium and to this special issue, especially the authors and peer reviewers of the papers. We would also like to thank Dr. J.J. Spivey, Prof. J.R.H. Ross and Dr. Huub Manten of Elsevier for their support in publishing this special issue.