

## Preface

The selected papers published in this issue of Catalysis Today were presented at the Fifth International Workshop on Catalytic Combustion, which was held in Seoul, South Korea during 29 April–1 May 2002.

The focus of the workshop and this issue of Catalysis Today has been on those concentrating on the rapid publication of papers devoted to currently important topics in catalysis and related subjects. Both fundamental and applied aspects of catalysis involved the catalytic combustion related to heterogeneous catalysts and its applied reaction.

In the last decade, advancements in catalytic combustion technology have come a short way, providing with new ways of improving the catalytic applications to higher temperature. At the beginning step, catalytic combustion had been known as a flameless combustion that was utilized at a lower temperature process. With the progress of catalytic material processing, this new emerging technology seemed to effect the conventional combustion through unexpected developments. Among all of those developments, the rapid improvement of new heat-resistant materials and combustors of new concepts, will bring highly regarded benefits to the human race and influence society in way of utilizing these combined technologies.

However, global environment problems, including global warming, acid rain, destruction of the ozone layer and desertification as well as problems including matters concerning energy and resources have also expanded remarkably in the last half of the 20th century. To solve these problems, it is necessary to approach them using knowledge of the entire field of science through mutual cooperation between various countries. It is essential to promote a cooperative system for scientific research that goes beyond the framework of single nations. The catalytic combustion is especially believed to materialize the ultra-low  $\text{NO}_x$  combustion in near future of the 21st century.

However, the development of catalytic combustion does not stem simply from the availability of catalysis technology. Rather it evolved in harmony or in combination of catalysis with combustion. It brought together the diverse scientists and engineers in catalysts and in combustion.

Topics covered are in a wide range. They are high temperature heat-resisted catalytic compounds, catalytic burners, as well as applications of catalytic combustion in industry, and commercialization of low emissions gas turbine catalytic combustors. New concept of fuel-rich catalytic combustion, which is applicable to reduce the fuel  $\text{NO}_x$ , has sprouted up. It is expected that the contributions of combustion catalysis technology will continue in the upcoming workshops.

We would like to thank all the authors who contribute to this issue for working with us diligently in meeting the deadlines. The excellent editorial assistance from Dr. Jung Min Sohn is greatly appreciated. We also thank Gaz de France, Catalytica Energy Systems, Korea Science and Engineering Foundation, Combustion Engineering Research Center, Catalytic Combustion Research Center, Korea Research Foundation, Korea Society of Combustion and Korea Institute of Chemical Engineering for the financial support provided for the workshop.

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