



Preface

Fuel cell chemistry and operation

The annual fall symposium on Fuel Cell Chemistry and Operation was held at the 232nd National Meeting of the American Chemical Society in San Francisco, CA on September 11–14, 2006. Similar symposia sponsored by the Fuel Division have been held every fall since 1999. Significantly, this symposium was part of an ACS Presidential Event on Hydrogen, and was sponsored by a number of other ACS divisions including, Polymer, Polymeric Materials: Science and Engineering, Petroleum, Industrial and Engineering Chemistry, and the Inorganic divisions. Additional support was provided by the Petroleum Research Fund and the 3M Fuel Cell Components Group.

Fuel cells represent a promising technology to provide clean, efficient electric power for a variety of applications including transportation, portable electronics, distributed and back-up power. The last few years have witnessed a tremendous increase in research and development in fuel cells including the development of new materials, new system designs, and new operating methods. While many breakthroughs have been made during this time, technical and economic barriers for commercialization still exist.

At this symposium, representatives from universities, industry, national laboratories and the US Department of Energy gave presentations on recent technical developments, programs aimed at the implementation of fuel cell technology, and visions of the future of fuel cells. Overall, more than 50 presentations were given on a variety of topics including new membranes and electrocatalysts for Proton Exchange Membrane (PEM) Fuel Cells, Solid Oxide Fuel Cells and Fuel Cell Modeling, Diagnostics and Durability. This symposium was organized by Andrew Herring of the Colorado School of Mines, Thomas Zawodzinski Jr. of Case Western Reserve University and Steven Hamrock of 3M's Fuel Cell Components Group.

Two special sessions were held to recognize achievements of individuals who have made important contributions in the

area of fuel cells. The first special session was held to recognize the many contributions of Professor James McGrath of Virginia Tech in the development of new membranes for PEM fuel cells. The second special session was held to recognize the pioneering work of Dr. Subhash Singhal of Pacific Northwest National Laboratory in the area of solid oxide fuel cells and to recognize his election to the National Academy of Engineering.

The papers submitted to this special edition were subjected to peer review and the accepted papers are presented here. We wish to thank all of the authors who submitted manuscripts and all of the referees for their efforts.

The next *Fuel Cell Chemistry and Operation* symposium is planned for the 236th ACS National Meeting and Exposition, August 17–21, 2008, Philadelphia, PA. We look forward to seeing you there!

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