

# Preface

HTMC-X is part of a series of conferences that are held every two to three years and are sponsored by IUPAC. The previous three conferences have been in Orléans (CNRS), France, 1991; Vienna, Austria, 1994; and State College, University Park, Pennsylvania, USA, 1997. This time at Aachen, Germany, the organizers brought together the various groups working on fundamental aspects of high-temperature materials chemistry and applied aspects. Bridging the gap between fundamentals and technical applications was a major goal of HTMC-X, which was also reflected in the topics of the conference.

Major topics of HTMC-X were as follows:

- gas-phase chemistry, molecules, clusters, and vaporization;
- interface processes (e.g., corrosion, oxidation);
- synthesis of advanced high-temperature bulk materials, composites, and coatings;
- thermodynamic and kinetic measurements (e.g., phase equilibria, thermodynamic data, diffusion coefficients);
- high-temperature devices (light sources, combustion, fuel cells); and
- thermodynamic databases and their use in materials and process modeling.

Most of the fundamental contributions belong to the fields of thermodynamics, vaporization, and solid-state diffusion. Emphasis of the technical contributions was on synthesis, high-temperature light sources, and corrosion. Contributions were submitted from universities, research centers, and industry, reflecting the broad scope of the conference. Seven major suppliers of thermodynamic databases and computer software presented their products and allowed hands-on demonstrations, which gave attendees a unique opportunity for direct comparison of their products.

The conference consisted of 8 main lectures, 17 keynote lectures, 41 short oral presentations, and 179 posters. About 240 scientists from 27 different countries visited HTMC-X and contributed to its success. The conference, following tradition, was held without parallel sessions, which stimulated vibrant and sometimes controversial discussions. This issue of *Pure and Applied Chemistry* contains 7 contributions from invited main lecturers and 1 contribution from a selected invited keynote lecturer. Full conference proceedings containing about 190 contributions will be published elsewhere at the end of the year 2000.

As with the previous conferences, many people and institutions made significant contributions to the success of HTMC-X. The excellent work of the members of the International Advisory Board, the National Advisory Board, and the Organizing Committee is highly appreciated. Generous financial support by the German Science Foundation and the Research Center Jülich is gratefully acknowledged. Thanks also to IUPAC for sponsoring HTMC-X.

**Klaus Hilpert, F. W. Froben, and Lorenz Singheiser**  
Conference Editors