

## Preface

The 16th Symposium on Thermophysical Properties was held at the University of Colorado, Boulder, Colorado, USA from July 30 to August 4, 2006. This conference was part of a major international forum designated as THERMO International 2006, which also included the 19th International Conference on Chemical Thermodynamics (ICCT) and the 61st Calorimetry Conference (CalCon). This is the first time that these three conferences have been held jointly at the same site and was scheduled as a one-time event. The technical program of THERMO International 2006 consisted of joint sessions as well as independent sessions of each of the individual conferences.

Because of the overlap among areas of interest of these individual conferences and because each of the conferences was slated for North America this year, they were joined to create this unique event. THERMO International 2006 provided opportunities for researchers and practitioners worldwide to meet and discuss a broad spectrum of scientific problems in the fields of thermodynamics and thermophysical properties for a wide variety of systems, together with applications in chemistry, biology, chemical engineering, mechanical engineering, physics, and other areas of science and engineering.

This event was organized and sponsored jointly by the National Institute of Standards and Technology, the American Institute of Chemical Engineers (AIChE), the Heat Transfer Division of the American Society of Mechanical Engineers (ASME), the International Union of Pure and Applied Chemistry (IUPAC), and the International Association of Chemical Thermodynamics (IACT). There were approximately 1,000 presentations on the program, representing 750 speakers from 54 countries and 2,000 authors from 62 countries. The participation at the conference was

global, with about 75% of the attendees from outside the US. The featured work impacts some of the larger themes and policy issues of our time: energy efficiency/self-sufficiency, hydrogen-based economy and alternative fuels, global warming, ozone depletion, informatics, simulation, biophysics, etc.

The Touloukian Award, a major honor within ASME and the Symposium on Thermophysical Properties for outstanding achievement in thermophysical properties research, was presented to Dr. Anneke Sengers of NIST. The Touloukian Award was awarded "for advancing the theoretical understanding of thermodynamics of pure fluids and mixtures near critical points, and for applying that understanding to improve practical predictions and correlations of the thermodynamic properties for industrial processes and electrical power cycles." Before the award was presented, Nobel Laureate Prof. Carl Wieman of the University of Colorado gave the Touloukian Memorial Lecture, "A Scientific Approach to Teaching Science."

The Symposium was the 16th in the well established series of conferences held roughly every 3 years since 1959. It brought together leading international experts presenting papers on state-of-the-art research associated with the theoretical, experimental, and applied aspects of the thermophysical properties of gases, liquids, and solids, including biological systems. Studies of the thermodynamic and transport properties of fluids and solids were broadly represented, as evident from the list of sessions.

The Proceedings of the Symposium are being published in special issues of this journal and a special issue of *Fluid Phase Equilibria*. Selection of papers for publication is based on established journal policies of favorable independent reviews by referees. A preprint volume of all manuscripts was prepared on CD-ROM and distributed to participants at the conference. Information on the 16th Symposium is available on the Symposium Website at <http://www.symp16.nist.gov/>. Planning for the 17th Symposium on Thermophysical Properties is already underway, with this event scheduled for June 21–26, 2009 in Boulder, Colorado.

It is a pleasure to acknowledge the expertise and dedication of many individuals who contributed to the successful organization of the Symposium and to the preparation of the Proceedings. Among those are the authors and invited speakers, the chairs and organizers of the sessions (see list of sessions and organizers), the referees of the papers, and the members of the Standing Committee on Thermophysical Properties of the ASME Heat Transfer Division. We gratefully acknowledge the cordial partnerships with the organizers of ICCT and CalCon, in particular, Michael Frenkel, Rob Chirico, and Joe Magee. We acknowledge the support of the Physical and Chemical Properties Division of the National

Institute of Standards and Technology and are indebted to many staff members of the Division. Special thanks are due Gary Hardin, Chris Muzny, Marcia Huber, and Marilyn Yetzbacher for their yeoman efforts on behalf of the Symposium: their expertise, dedication, and energetic efforts played major roles in the success of the conference.

D. G. Friend

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Chairs of the 16th Symposium  
on Thermophysical Properties

W. M. Haynes

President, Executive Board  
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