

Preface

The 18th IUPAC International Conference on Chemical Thermodynamics (ICCT-2004), concurrent with the 12th National Conference on Chemical Thermodynamics and Thermal Analysis, was held 17–21 August 2004 at the Fragrant Hill Hotel, Beijing, China. Professor Haike Yan was Conference Chair, Prof. Zhiwu Yu was Conference Co-chair, and Prof. Xibai Qiu was Secretary. The 395 participants came from 40 countries.

During the official opening ceremony, there was a presentation of the first Doctorate Awards to be given by the International Association of Chemical Thermodynamics, with sponsorship from Elsevier. The three recipients were Dr. Lin Chen, Tsinghua University, Beijing; Mr. Dirk Wandschneider, University of Rostock, Germany; and Mr. Weiguo Xu, Liaoning University, China. They each received a certificate plus a cash prize of USD 500.

The conference began with the Rossini lecture, presented by Prof. Jean-Pierre E. Grolier on “Advanced experimental techniques in polymer thermodynamics”. The conference program consisted of eight symposia and three workshops. In Symposium 1, Electrolyte and Nonelectrolyte Solution Thermodynamics, Prof. Emmerich Wilhelm gave the plenary lecture “The fascinating world of pure and mixed nonelectrolytes”. There were invited lectures by Profs. Eckhard Vogel, Fumio Hirata, and Takayoshi Kimura. In Symposium 2, New Materials, Prof. C. Richard Catlow presented the plenary lecture “Computational approaches to the catalytic activation of carbon–hydrogen bonds”, and invited lectures were given by Profs. Mary Anne White and Vladimir Durov. The plenary lecture in Symposium 3, Phase Equilibrium, Supercritical Fluids, and Separation Technologies, was given by Prof. Pablo Debenedetti on “Thermodynamics of supercooled and glassy water”, with invited lectures from Profs. Cornelis Peters and Ding-Yu Peng. Symposium 4, Biological, Medical, Pharmaceutical, Agricultural, and Food Thermodynamics, had as its plenary lecturer Prof. Stephan Grzesiek, who spoke on “Biomolecular interactions in solutions”. Professors Lee Hansen and Ichiro Hatta were the invited lecturers.

Symposium 5 was on Colloid and Interface Science. Professor Bernard Cabane presented the plenary lecture “Solid–liquid separation”, and there were invited lectures from Dr. Gerd Olofsson and Profs. Watson Loh and Xueqin An. The title of Symposium 6 was Non-equilibrium Thermodynamics, Statistical Thermodynamics, and Molecular Simulation. The plenary lecture “Non-equilibrium pattern formation” was presented by Prof. Qi Ouyang, with an invited lecture by Prof. Zhen-Gang Wang. Symposium 7 considered Thermochemistry and Molecular Energetics, with Prof. Michio Sorai, the plenary lecturer, speaking on “Entropy diagnosis for phase transitions occurring in functional materials”. Professor Juliana Boerio-Goates gave the invited lecture. Symposium 8 was on Industrial Thermodynamics and Data Bases. Dr. Michael Fenkel gave the plenary lecture on “Global communications and expert systems in thermodynamics: Connecting property measurement and chemical process design”. Invited lectures were given by Profs. Pertti Koukkari and Zhoulun Yin.

There were three workshops. Prof. Kazuya Saito was invited lecturer for the Workshop on Thermodynamic Frontiers and Education. Professors Joan Brennecke and Andreas Heintz were invited lecturers for the Ionic Liquids Workshop. Professors Joon Won Park and Junko Morikawa gave invited lectures at the Workshop on New Experimental Techniques, including Nanotechnology.

In addition, there were over 180 oral presentations, spread over the symposia and workshops, and about 280 poster presentations.

The Rossini lecture and plenary lectures, with the exception of the paper by Prof. P. Debenetti where the field was recently reviewed [1,2], are published in this issue, together with the invited paper by Prof. Lee Hansen entitled “A thermodynamic law of adaptation of plants to environmental tempera-

tures". Selected papers from individual symposia will be published in the *Journal of Molecular Liquids* (Symposium 1), *Fluid Phase Equilibria* (Symposia 3 and 6), the *Journal of Chemical Thermodynamics* (Symposia 1, 2, and 7), *Thermochimica Acta* (Symposium 4), or in the *Journal of Chemical and Engineering Data* (Workshop on Ionic Liquids).

After the previous weeks when it had been very hot and humid, the temperature dropped and the weather was most pleasant for the conference. This change in weather, together with the attractive setting of the hotel, the excellent hospitality, which included a welcome reception, an evening of acrobatics entertainment, a conference banquet in the Summer Palace, and the high standard of the presentations, made this conference memorable. In addition, there was a full program of tours for accompanying persons. Our thanks are extended to the Conference Chair and Co-chair, and to all members of the local Organizing Committee, the International Advisory Committee, and the International Scientific Committee. We are most grateful to IUPAC, the International Association of Chemical Thermodynamics, the China Association for Science and Technology, the National Natural Science Foundation of China, and the Chinese Academy of Sciences for sponsoring the conference.

Thermodynamics will continue to be an important area of research for many years to come, with a wide range of applications from chemical engineering to the biosciences. We look forward to the presentation and discussion of the results of further advances in chemical thermodynamics at the next ICCT, which will take place in Boulder, Colorado in 2006.

1. P. G. Debenedetti. *J. Phys.: Condens. Mater.* **45**, R1669–1726 (2003).
2. P. G. Debenedetti and H. E. Stanley. *Phys. Today* **56**, 40–46 (2003).

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