

Preface

International, national, and regional chemical societies; national academies; and professional bodies recognize scientists for their outstanding contributions by, for example, the award of medals, prizes, endowed lectureships, invitation to present plenary lectures at conferences/symposia, invitation to contribute to scholarly works, and the election to leadership positions in such professional bodies. In chemistry, the highest accolade remains the award of the Nobel Prize in Chemistry, or the immortalization of a scientist in the naming of an element.

As an international nongovernmental scientific organization, IUPAC takes great interest in the worldwide achievements of chemists, particularly young chemists. Therefore, IUPAC established the annual prestigious Prize for Young Chemists. In doing so, we endeavor to encourage research in the chemical sciences and the participation of promising young chemists. The prizes are given for the most outstanding Ph.D. thesis in the general area of the chemical sciences, as described in a 1000-word essay; normally, IUPAC awards four of these prizes per year. An international panel of eminent chemists, chaired by the immediate Past President of IUPAC, adjudicates these essays, together with recommendations from senior scientists with whom the candidates collaborated. The prizewinners each receive a cash prize of USD 1000 and a free trip to an IUPAC Congress at which they are invited to present a poster describing their award-winning research findings.

At IUPAC, we are delighted that since its inception, the IUPAC Prize for Young Chemists has attracted substantial attention from exceptionally gifted research students and their supervisors. The IUPAC Bureau remains in full support of this undertaking and took the decision to continue with this meritorious program on a long-term basis.

It is heartening to note that we received 60 applications from 22 countries for the 2005 IUPAC Prize. The essays were of a very high standard and the adjudication process was a challenging task. All of the participants and their supervisors deserve the appreciation of the international scientific fraternity. Recipients of the 2005 IUPAC Prize for Young Chemists were:

- **Zev J. Gartner**, University of California, Berkeley, CA, USA; “Evolutionary approaches for the discovery of functional synthetic small molecules”
- **Jiaxing Huang**, University of California, Los Angeles, CA, USA; “Syntheses and applications of conducting polymer polyaniline nanofibers”
- **Hiromitsu Maeda**, Kyoto University, Kyoto, Japan; “A dozen years of N-confusion: From synthesis to supramolecular chemistry”
- **Xun Wang**, Tsinghua University, Beijing, China; “Solution-based routes to transition-metal oxide one-dimensional nanostructures”

Congratulations to the winners and their mentors. It is evident from the topics of their theses that chemistry, as a molecular-based science, remains the core science. Chemistry is important not only as a scientific discipline, but also for its role at the interphases of many scientific disciplines and in cutting-edge areas such as nanotechnology, new materials, and molecular biology. Young chemists are crucially important to the future well-being of chemistry as a discipline and to the future of mankind. Therefore, the prizes are awarded at the opening ceremonies of the IUPAC Congresses. The practice became well established at the IUPAC Congresses held in Brisbane, Australia, 2001, and in Ottawa, Canada, 2003. The tradition was continued at a grand function during the opening ceremony of the 40th IUPAC Congress in Beijing during August 2005, at which occasion the awards were made to the winners of the prizes for 2004 and 2005. On a personal level, it was a great pleasure to meet and to interact with the new generation of highly talented young chemists.

Since 2002, the winners of the IUPAC Prize for Young Chemists have been invited to submit manuscripts on aspects of their research topics, for consideration as short, critical reviews in *Pure and Applied Chemistry (PAC)*, the flagship publication of the Union. I am absolutely delighted that 2005 IUPAC prizewinners again enthusiastically responded to our invitation and submitted papers, culminating in the publication of the four critical reviews that appear on the ensuing pages. What a grand and laudable way to launch an illustrious career in the chemical sciences.

Chemistry worldwide has a bright future!

Piet Steyn

IUPAC Immediate Past President and Chairman of the IUPAC Prize Committee