Preface

IUPAC's vision statement declares that the Union advances the worldwide role of chemistry for the benefit of Mankind. And one of its long-range goals states "IUPAC will utilize its global perspective and network to contribute to the enhancement of chemistry education, the career development of young chemical scientists, and the public appreciation of chemistry". In pursuit of this spirit, the Union established in 2000 the IUPAC Prize for Young Chemists and has been honoring since then outstanding young research chemists at the beginning of their careers by making annual awards. The prizes are given for the most outstanding Ph.D. theses in the area of the chemical sciences, as described in 1000-word essays.

As immediate Past President of IUPAC, I was honored to chair the prize selection committee of eminent chemists, who enjoyed reading essays of 41 applicants from 22 countries. After critical evaluation of the originality and excellence of the essays and research results, the committee decided unanimously to award 2012 Prizes for the following six essays:

- "Study of the factors affecting the selectivity of catalytic ethylene oligomerization", **Khalid Albahily**, University of Ottawa, Ottawa, Canada (following earlier studies at King Saud University, Saudi Arabia and Texas A&M University, College Station, TX, USA)
- "Nanowire nanoelectronics: Building interfaces with tissue and cells at the natural scale of biology", **Tzahi Cohen-Karni**, Harvard University, Cambridge, MA, USA (following earlier studies at Technion Israel Institute of Technology and Weizmann Institute of Science, Israel)
- "Synthetic investigations featuring boron-rich and multidentate chalcoether-containing ligands", **Alexander Spokoyny**, Northwestern University, Chicago, IL, USA (following earlier studies at University of California, Los Angeles, CA, USA)
- "Quantification of virtual chemical properties: Strain, hyperconjugation, conjugation, and aromaticity", **Judy I-Chia Wu**, University of Georgia, Athens, GA, USA (following earlier studies at Tung-Hai University, Taiwan)
- "New materials for intermediate-temperature solid oxide fuel cells to be powered by carbon- and sulfur-containing fuels", **Lei Yang**, Georgia Institute of Technology, Atlanta, GA, USA (following earlier studies at Beihang University and Tsinghua University, China)
- "Transition metal catalysis: Activation of CO_2, C–H, and C–O bonds en route to carboxylic acids, biaryls, and *N*-containing heterocycles", **Charles Yeung**, University of Toronto, Toronto, Canada (following earlier studies at University of British Columbia, Vancouver, Canada)

All the awardees were invited to present posters on their research at the 44th IUPAC World Chemistry Congress, Istanbul, Turkey, 11–16 August 2012. Upon IUPAC's invitation, 4 of the 6 winners offered review papers on their research topics for consideration as publications in this issue of *Pure and Applied Chemistry*.

Finally, it is an honor and a pleasure to congratulate each of the winners and their supervisors for winning the 2012 IUPAC Prize for Young Chemists. It is hoped that each of them will continue to contribute to a bright future for chemical sciences and technologies and to take active roles in IUPAC bodies in the future.

Nicole Moreau
IUPAC Immediate Past President and
Chair of the IUPAC Prize Selection Committee