

## Preface

Organic synthesis has long played a pivotal role in the chemical sciences. It is therefore unsurprising and appropriate that the International Conferences on Organic Synthesis (ICOS) continue to thrive. This series was initiated by IUPAC in 1976 and has since featured biennially as one of the core events of the Union. What is surprising is that 22 years have elapsed since an ICOS event was last hosted by Japan. On that occasion, ICOS-4 was held in 1982 at Shinjuku, Tokyo, and was acclaimed as a great success. The latest event (ICOS-15), in Nagoya, Japan on 1–6 August 2004, offered an opportunity to match or surpass the impact of its predecessor—a challenge that was taken up enthusiastically under the leadership of Profs. Minoru Isobe (Nagoya University) and Hisashi Yamamoto (now at the University of Chicago) as Conference co-Chairs.

Almost 1000 participants converged on Nagoya from all parts of the world. A noticeably high level of participation by delegates from East Asia in relation to those from North America and Europe attested to the growing capacity of this region to contribute to research at the forefront of this area of the chemical sciences. The scientific program of the Conference embraced all aspects of modern synthetic organic chemistry, inter alia, the invention of selective synthetic methods, asymmetric synthesis, total synthesis of natural products, design and synthesis of artificial agents for pharmaceutical and agricultural uses, and molecular assembly and materials based on molecular function. This topical breadth was also captured in a poster program, which was handsomely supported by no less than 466 displays on every conceivable facet of the subject. Overall, it is evident that organic synthesis has expanded its boundaries increasingly toward biological and material sciences, in response to the new challenges arising from rapid progress in molecular biology and applied physics during recent years.

A lecture program comprising 10 plenary and 20 invited presentations, in addition to the Thieme/IUPAC award lecture and two Nagoya medal lectures, contributed to a truly exciting Conference experience, and the 21 speakers who kindly agreed to contribute papers based upon their presentations have made it possible to capture some of the excitement in this issue of *Pure and Applied Chemistry*. The Nagoya Gold Medallist, J. F. Stoddart, used the occasion to share an absorbing and very personal perspective on molecular assembly and materials, a theme on which M. Fujita also disclosed new insights and developments. The perennial theme of total synthesis of natural products, provided scope for presentation of highly creative accomplishments by S. Ley, J. Cossy, Y. Langlois, R. Pilli, and S. Kozmin on a variety of challenging targets. Such advances in the total synthesis of biologically active natural products having extremely complex structures, often necessitate development of novel synthetic methods, and H. Overkleeft, P. Chiu, V. Nair, T.-P. Loh, S. Martin, T.-Y. Luh, E. Juaristi, and M. Catellani did justice to this theme with presentations on a variety of extremely elegant and sophisticated new developments in methodology, based upon organometallic catalysts and/or reagents. Finally, the broad theme of asymmetric synthesis using organometallic complexes with chiral ligands or chiral organocatalysts was developed in conjunction with combinatorial methodology, which is shown to be highly effective in optimizing catalytic systems. Those who contributed to the topic of asymmetric synthesis are K. Ding, A. Charette, S. H. Kang, A. Berkessel, and K. Maruoka, the recipient of the Nagoya Silver Medal.

What is the future of organic synthesis? The invention of unprecedented drugs and materials has enriched and expanded the horizons of the human experience in formerly unimagined ways, and owes much to the ever increasing ingenuity of organic synthesis, and recognition and attainment of new synthetic targets. The impact of organic synthesis on cognate disciplines and on general advancement of science and technology is definitely enormous and will be further strengthened by future challenges and opportunities. Thus, it is hoped that younger generations will be inspired to participate in tapping this

rich potential, in the cause of advancing science and contributing to the enrichment of future life. These aspirations may yield incalculable rewards. Such progress will certainly be reflected in the scientific program of the next Conference in the ICOS series, which will take place in Merida, Yucatan, México on 11–15 June 2006, under the chairmanship of Dr. Eusebio Juaristi, Instituto Politecnico Nacional, México.

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