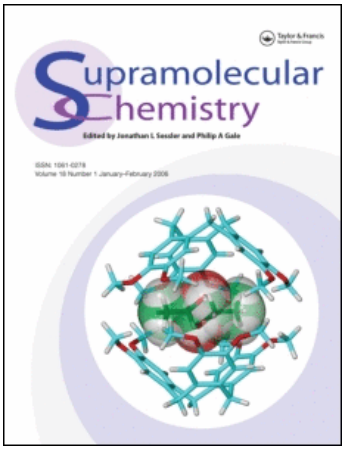

Supramolecular Chemistry
Publication details, including instructions for authors and subscription information:
http://www.informaworld.com/smpp/title~content=t713649759

Preface

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Online publication date: 23 June 2010

To cite this Article Radecka, Hanna and Ozawa, Takeaki(2010) 'Preface', Supramolecular Chemistry, 22: 7, 387
To link to this Article: DOI: 10.1080/10610278.2010.489632
URL: http://dx.doi.org/10.1080/10610278.2010.489632

Supramolecular Chemistry
Vol. 22, Nos. 7–8, July–August 2010, 387

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Preface

Special issue of *Supramolecular Chemistry* honouring Professor Yoshio Umezawa

It is our great pleasure and privilege to introduce the articles that make up this special issue of *Supramolecular Chemistry* dedicated to Professor Yoshio Umezawa, who retired from the University of Tokyo, Japan, in 2007. On behalf of all the contributors of this issue and all those who knew and admired Professor Umezawa, we would like to take this opportunity to express our sincere thanks to Professor Umezawa for his tremendous work in the fields of molecular recognition at membrane/solution interfaces, electrochemistry, bioanalysis and molecular imaging. He has provided outstanding leadership in all these areas and educated a large cadre of graduate students to be independent researchers; his contributions to the next generation of science are thus both manifest and important. Indeed, he will be an inspiration for future generations of scientists.

Professor Umezawa graduated from, and completed his PhD at, the University of Tokyo. In 1984, he moved to Hokkaido University to work as an Associate Professor. The following year he was promoted to a Full Professor at the age of 39 – then the youngest professor at the Department of Chemistry. He directed the Laboratory of Analytical Chemistry at the Graduate School of Sciences in Hokkaido University for 8 years. His research activity at the time was focused on molecular recognition at membrane/solution interfaces, including those of solid-state and liquid-membrane-type ion-selective electrodes (ISEs). He was also instrumental in the development of new chemical sensors, such as ion-channel sensors and uphill transport sensors, including biosensors based on membrane proteins. He discovered the phenomenon of potentiometric response generated by neutral (uncharged) molecules.

Professor Umezawa's contribution to fundamental research concerning ISEs cannot be overestimated. His *Handbook of Ion Selective Electrodes: Selectivity Coefficients* (CRC Press) has been reprinted several times. This book provides comprehensive data regarding the selectivity coefficients for ISEs, including ISEs published from 1966 to 1988. Nearly 200 ionic species are discussed, with over 1600 electrode membranes cited. Professor Umezawa was an author of a chapter on ISEs in *The Encyclopaedia of Supramolecular Chemistry* published by Taylor & Francis in 2004, where he summarised the current status of both liquid and solid membrane ISEs as to their response mechanisms and sensor developments. He was also one of the titular members of the IUPAC Division of Analytical Chemistry.

Professor Umezawa moved back to the University of Tokyo in 1992. His outstanding work at the University of Tokyo involved the development of methods for 'seeing what was unseen' in single living cells. He explored extensively low invasive methods for the analysis of cellular signalling processes in living cells. The genetically encoded fluorescent and bioluminescent probes he generated are now widely used in the fields of basic biology and medicine. Chemically facilitated intermolecular electron tunnelling is another approach to molecular imaging that Professor Umezawa first reported. Specifically, he demonstrated chemical imaging with a chemically modified scanning tunneling microscope tip and was able to achieve the selective imaging of analyte molecules that alter the tunnelling current.

He has published over 300 research articles and is also an inventor of record on over 15 patents related to the methods for determining or visualising cellular signalling pathways and molecular imaging.

We would like to thank Professors Phil Gale and Jonathan L. Sessler for giving us the opportunity to edit this special issue of *Supramolecular Chemistry.* Also, we are grateful for the kind assistance of Mrs Kateri Aragon, the Journal Secretary, who made our task easier. Finally, we would like to express our appreciation to all the authors and reviewers whose hard work made this special issue. Congratulations to them for their outstanding contributions and to Professor Umezawa on this happy occasion.

Hanna Radecka and Takeaki Ozawa
Guest Editors

ISSN 1061-0278 print/ISSN 1029-0478 online

DOI: 10.1080/10610278.2010.489632
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