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Preface

On the occasion of Professor Yukio Imanishi's retirement from his Professorship and Editorship of *POLYMER*

In this special issue of the journal, the friends and professional colleagues of Professor Yukio Imanishi wish to mark his long and valued service to academic scholarship, his excellent contributions to research in polymer science, and his contributions to the success of the journal *POLYMER* over more than 20 years.

Professor Yukio Imanishi was born in Kyoto, Japan on September 19, 1934. He grew up in Taipei, Taiwan until the end of World War II, because his father worked as a professor of economy and commerce of Taihoku Imperial University. His family came back to Osaka in 1946, where he went to junior and senior high schools and graduated in 1953. In that year, he was admitted to the Department of Textile Chemistry, the Faculty of Engineering, Kyoto University, from where he graduated in 1957. He proceeded to the Master and then Doctor courses and degrees in the Division of Textile Chemistry, Graduate School of Engineering, Kyoto University. The Department of Textile Chemistry was reformed and renamed the Department of Polymer Chemistry in 1961. In the same year he was appointed Research Associate (Joshu) at the Faculty of Engineering, Kyoto University. He was promoted

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to Associate Professor in 1971 and to Full Professor in 1978 in the same Faculty. He remained a member of the Department of Polymer Chemistry. For one year from October 1985 to September 1986, he served additionally as Professor at Research Center of Medical Polymers and Biomaterials, Kyoto University. In 1993, the chemistry-related departments were reorganized and then he became a member of the Division of Material Chemistry, Graduate School of Engineering. He retired from Kyoto University in 1996, and became Emeritus Professor of Kyoto University in 1997. In 1996, he devoted himself to the foundation of the Graduate School of Materials Science in Nara Institute of Science and Technology (NAIST), and joined NAIST as Professor and Dean of the Graduate School of Materials Science. He will retire from NAIST on March 31, 2002. Professor Imanishi's research history is summarized briefly below.

In 1956, Professor Imanishi started his research under the guidance of Professor Seizo Okamura and Professor Toshimobu Higashimura (Associate Professor at that time) working on the cationic polymerization of α-methylstyrene. He continued studies of the cationic polymerization of vinyl compounds, and obtained his PhD degree from Kyoto University in 1965 for research entitled "Chain transfer reactions in cationic polymerization". His research subjects during this period can be summarized under the following headings.

A. Chain transfer reactions in cationic polymerization
B. Low temperature ionic polymerization of vinyl monomers
C. Low temperature cationic polymerization of cyclic dienes
D. Cation–radical polymerization and the hydrogen-migration anionic polymerization

In December 1964, Professor Imanishi visited Liverpool, UK to do postdoctoral research in the laboratory of Professor C.H. Bamford at the University of Liverpool. At that time, Professor Bamford was interested in the synthesis of poly(α-amino acid)s through anionic polymerization of acrylamide, and assigned that project to him. Professor Imanishi found that anionic polymerization of maleimide and mesaconamide produced peptide linkages but it was not possible to distinguish the α- and β-forms. It was demonstrated by using mesaconic acid methyl ester amide that both α- and β-peptide linkages were formed. He spent half his time in Liverpool working on the so-called 'chain effect'. Using preformed polysarcosine as initiator, he obtained evidence for block copolymer formation using a mixture of monomers, one of which associated with preformed polymer and could be preferentially polymerized to form a block. He recognized that his work on the chain effect represented a kind of polymerization in an organized system. At the time there was growing interest in such polymerizations, including biological systems.

The scientific knowledge and experiences obtained through the period of study in Liverpool greatly influenced the development thereafter of Professor Imanishi's research activities. After returning to Kyoto in April 1966, he became very interested in studying polymerizations initiated by polymeric initiators as enzyme-model reactions, and extended his work to include biomimetic polymer reactions and biospecific polymer reactions. His research along this line developed extensively and intensively, and paved a number of areas of polymer science, which are summarized under the following headings.

E. Functional polymers
F. Polymerization by polymer catalysts
G. Stereoselective polymerization of α-amino acid *N*-carboxyanhydrides
H. Hydrolytic enzyme models
I. Intrachain reaction of a pair of functional groups attached to polymer ends
J. Interaction of linear and cyclic peptides with small molecules
K. Conformation and physical properties of polypeptides
L. Design and synthesis of biocompatible polymer materials
M. Photofunctional polymers and molecular assemblies
N. Membrane-active peptides and tumor promoters
O. Stimuli-responsive systems
P. Control of cell function by hybrid membranes
Q. Biosynthesis and semisynthesis of mutant proteins and protein hybrids
R. Molecular assemblies of proteins and peptides
S. *In vitro* selection

Through these research activities, Professor Imanishi achieved numerous leading results in the field of bio-related polymer science. By the creation of novel functional molecular materials, he made remarkable progress in fundamental sciences of photoenergy-conversion systems, molecular-recognition processes and biosignal transduction. Furthermore, his studies on the constructions of dipolar supramolecular polypeptide assemblies, the synthesis of artificial proteins by chemical methods and protein engineering, and the development of cell-engineering materials have given strong impacts on the progress of materials chemistry. It is expected that these research achievements proceed toward the development of molecular devices and nano-machines, which are continuing to attract intense interest in science and technology research.

As stated above, Professor Imanishi joined NAIST in 1996, where he started a new field of research on "olefin polymerization using homogeneous metal complex catalysts" in addition to his continuing works on various functional and bio-related polymers.

Professor Imanishi published very actively. He is the author of over 370 original papers and ca. 170 review articles. He was also involved in the publication of ca. 60 monographs.

Professor Imanishi received numerous awards. He won the Award of the Society of Polymer Science, Japan (SPSJ) in 1975. He served as President of SPSJ from 1994 to 1996. He was given the Award for distinguished Service for the Advancement of Polymer Science of SPSJ in 1999, and further nominated as Honorary Member of SPSJ. He obtained an Honorary Doctoral Degree from the University of Siena, Italy in 1997. He had the titles of Visiting Professor from South China Normal University, China conferred in 1987 and from Nankai University, China in 1994.

Professor Imanishi started his editorial work of *POLYMER* on September 1, 1980 on the basis of the recommendation of Professor Bamford, who was the founding Editor of *POLYMER*. Professor Imanishi was a sole Editor in charge of Asia for a long period of time. He earnestly dealt with a jumble of brilliant and mediocre manuscripts. The number of the papers sent to him increased year by year, and reached almost 400 per year for many years. Professor Hashimoto assisted him in editing communications from 1997, and Professor Masuda and Professor Ito joined the editorial work a few years ago. Professor Imanishi retired as Asian Editor for Chemistry on December 31, 2001 after serving as an Editor of *POLYMER* for more than 20 years and a sole Editor in Asia for most of that time. In view of his considerable contributions to the journal, he has become the first ever Honorary Editor of *POLYMER* since January 1, 2002. We are very glad and proud of his remarkable and long period of dedication to *POLYMER*.

To mark his retirement from both the University and the journal, we planned to organize a Special Issue of *POLYMER* in his honor aiming at publication in spring, 2002. The Guest Editors of the special issue are W. James Feast, Takeji Hashimoto, Shinzaburo Ito, and Toshio Masuda. We, the guest editors, thank the present and former editors of *POLYMER*, members of the editorial board and professional colleagues for their excellent contributions to this issue. Professor Imanishi has been a source of advice and inspiration to many of his younger colleagues in Japan, a generous and humorous host to visitors from many parts of the world whom he has hosted in Kyoto and a welcome guest in many parts of the world during his extensive travels. On this occasion, we would like to express our appreciation and hearty celebration of Professor Imanishi's brilliant career and his great contributions to *POLYMER* through the publication of this special issue dedicated to him.

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