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## Retirement

Professor KOMATSU, Koichi

(Structural Organic Chemistry, Division of Synthetic Chemistry)



On March 31st, 2006, Dr. Koichi Komatsu retired from Kyoto University after 35 years of service and was honored with the title of Professor Emeritus of Kyoto University.

Dr. Komatsu was born in Kyoto on May 24th, 1942. After spending one year at Davidson College, USA, as a Richardson Scholar, he graduated from Faculty of Engineering, Kyoto University, in 1966. He studied mechanisms of carbocation reactions at the Graduate School of Engineering under the supervision of Professor Kunio Okamoto, and was granted a doctoral degree with a thesis titled “Mechanistic Study on the One-Electron Reduction of Carbonium Ions” in 1974. In 1971, he was appointed an Assistant Professor of Department of Hydrocarbon Chemistry, at the Graduate School of Engineering, Kyoto University. On leave from Kyoto University from 1974 to 1976, he studied synthesis and properties of electron-deficient  $\pi$ -conjugated systems, polyquinocyclopropanes, in the laboratory of Professor Robert West at the University of Wisconsin, Madison, as a postdoctoral research associate. Dr. Komatsu was promoted to a Lecturer in 1984 and to an Associate Professor in 1989 in the School of Engineering, Kyoto University. In 1993 he moved to Institute for Chemical Research, where he was promoted to a full Professor in 1995 and directed the Laboratory of High-Pressure Organic Chemistry (presently re-named Structural Organic Chemistry).

Throughout his academic career, Dr. Komatsu has devoted himself to the fundamental studies on two- and three-dimensional  $\pi$ -conjugated compounds, pursuing the creation of organic  $\pi$ -systems with ultimate novelty in their structures as well as their properties.

His research subjects, carried out based on his firm background of physical organic chemistry, are classified into three major themes, that is, super-stabilization of organic cationic species, creation of  $\pi$ -conjugated systems with novel structures, and organic chemistry of fullerenes.

In the first two themes, he found that the combined use of  $\sigma$ - $\pi$  conjugation and steric protection by bicycloalkene units entirely surrounding cyclic  $\pi$ -systems is highly effective for realization of organic compounds with novel electronic structures, which could have never been attained by any other conventional method. Thus, various types of carbocations and radical cations with a broad structural range, possessing extraordinary stability have been synthesized, together with novel cyclic  $\pi$ -systems with unusual bond alternation.

In the third theme, Dr. Komatsu also made great achievements, which are now widely recognized as landmarks in the development of fullerene chemistry. First, by his invention of the mechanochemical solid-state reaction, he succeeded in the first and highly selective synthesis of dumbbell-shaped fullerene dimer,  $C_{120}$ . This achievement was followed by the discovery of efficient cage opening and closing reactions on fullerenes, which led to the success of the first organic synthesis of endohedral fullerenes encapsulating molecular hydrogen in a macroscopic amount.

These achievements, which are results of the contribution of his dedicated colleagues and students, have been published as 223 original articles in international journals and 34 accounts and reviews.

For these distinguished accomplishments, he was honored with The Divisional Award of The Chemical Society of Japan for 1998 (Organic Chemistry), Alexander von Humboldt Research Award in 2002, and The Chemical Society of Japan Award for 2005.

His contribution to Kyoto University through his scientific and educational activities is hereby gratefully acknowledged. His warm and sincere personality will remain deep in the hearts of his colleagues and students.

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## Retirement

Professor KOHJIYA, Shinzo

(Chemistry of Polymeric Functionality Materials,  
Division of Materials Chemistry)



On 31st of March 2006, Dr. Shinzo Kohjiya retired from Kyoto University after 13 years of service. Dr. Kohjiya was born in Osaka on December 23, 1942. He graduated from Department of Polymer Chemistry, Faculty of Engineering, Kyoto University in 1965. He started his research career on kinetic study of ionic polymerization in Graduate School of Engineering, Kyoto University under the supervision of late Professor S. Okamura. After completing his Master's degree in 1967, he proceeded to the doctoral program. During the doctoral study, in 1969, he was appointed as an Instructor of Faculty of Engineering and Design, Kyoto Institute of Technology. He continued his study and was granted a doctoral degree for a thesis entitled "Kinetic studies on the cationic polymerization of cyclic dienes" in 1975. In 1977, he was promoted to an Associate Professor, and in 1991, to a full Professor, of Faculty of Engineering and Design, Kyoto Institute of Technology. On leave from Kyoto Institute of Technology, from 1978 to 1979, he studied on chemistry of calixarenes under Professor C. David Gutsche at Department of Chemistry, Washington University in St. Louis as a Research Associate. In 1993, he was transferred to Institute for Chemical Research, Kyoto University.

During his academic carrier, Dr. Kohjiya devoted himself to the studies on synthesis, modification, analysis and characterization of elastomer and rubbery materials. He started his study from determination of rate constants in ionic polymerization of dienes, especially cyclic diens such as cyclopentadiene. Then, he extended his field of study to the fabrication of functional diene polymers and their cross-linking reactions. He synthesized novel ionene elastomers which possess ionic groups, and investigated the relationship between their structures and properties. He studied also on polyurethane elastomers, and on the basis of these studies, he developed functionality elastomers having blood compatibility or ionic conductivity.

He further extended his focus of research to fundamental understanding of elastomeric properties of polymer network systems. He investigated the structural changes during the process of gelation from chemical and structural viewpoints, and presented significant results in terms of the relationship between the chemical cross-linking and physical entanglement. He contributed also for the understanding of filler reinforcement of rubber materials, which is important from both industrial and scientific viewpoints. He developed the in-situ silica formation technique, which utilized the sol-gel reaction in a rubber matrix. This technique enabled silica particles with controlled size to accomplish the better dispersion using the lower energy. He also studied on the strain-induced crystallization, which is regarded as smart in-situ nano-compounding. In his recent work, he applied the electron tomography to the analysis of three-dimensional dispersion of carbon black particles in the natural rubber matrix, and presented significant results concerning the effect of dispersion of nanoscopic particles on physical properties. For the contribution of his works to the rubber science, he received, in 1987, the Best Paper Award from the Society of Rubber Industry, Japan, and in 1994, The Oenslager Award from the Chemical Society of Japan and the Society of Rubber Industry, Japan.

He gave many lectures in Kyoto University and Kyoto Institute of Technology, and supervised the dissertation works of graduate students. From 1998 to 1999, he served as the president of the Society of Rubber Industry, Japan. He served also as a member or a chairman of several international conferences on the rubber science.

His contribution to Kyoto University through both Scientific and educational activities is hereby greatly acknowledged.