1997

38. Hiromichi Kawai

Otto Vogl
University of Massachusetts - Amherst, vogl@polysci.umass.edu

Takeji Hashimoto

Personalities in Polymer Science

Hiromichi Kawai

Hiromichi Kawai was one of the first scientists to introduce polymer physics in Japan. He devoted his scientific life in the study of **rheo-optics**, **x-ray diffraction** of crystalline polymers and **deformation** of polymers.

Hiromichi Kawai was born in Kyoto on October 24, 1919 as the son of Matakichi Kajiura and Hatsue Kawai. He has two younger brothers and one younger sister. Hiromichi grew up in Kyoto and went to Elementary School there; he attended a High School which specialized in art and industry and graduated in 1941. He then decided to study in Tokyo, and entered the Department of Textiles Engineering at the Tokyo Institute of Technology and graduated in September 1944. After graduation he joined the TOYOBO Co., Ltd and worked there for over two years.

In March 1946, Hiromichi Kawai was appointed Instructor (Jo-shu) in the Department of Textile Chemistry at the Faculty of Engineering, Kyoto Imperial University. In 1949, Kyoto Imperial University changed its name to Kyoto University.

In September 1950 Kawai was appointed Lecturer (Koshi) at Kyoto University, and, in March 1952 he was promoted to Associate Professor (Jo-Kyoju) at Kyoto University.

During those days it was not necessary to have a doctoral degree to have a teaching position at the University. During his appointment at Kyoto University, Kawai pursued his work toward the doctoral degree and, in October 1957 received his degree of Doctor of Engineering. The title of his Dissertation was "Viscoelastic Properties of Textile Fibers"

While Kawai was an Associate Professor of Kyoto University he chose to go abroad from August 1958 to 1960 to the University of Massachusetts which was at that time a budding center of polymer physics. He decided to work with Richard S. Stein on "Rheo-optical Studies of Crystalline Polymers" and together they developed a "Dynamic X-Ray Diffraction Technique for the Interpretation of α-Mechanical Relaxation of Crystalline Polymers". Hiromichi Kawai was the first Japanese visiting scientist who had chosen to work at the University of Massachusetts.

Upon his return to Kyoto University, Kawai found that further changes were occuring in the structure of the University. In 1961 the Department of Textile Chemistry changed to the Department of Polymer Chemistry, Faculty of Engineering. Takeji Hashimoto was one of the first B.S. students who entered the new department.

In April 1964 Hiromichi Kawai was appointed Full Professor at the Department of Polymer Chemistry, Kyoto University. Again, Hashimoto became one of the first students who worked under the guidance for the thesis work with Kawai. Hashimoto joined Kawai's research group as an Instructor (Jo-shu) in 1971.

In March 1983 Kawai retired from Kyoto University at the age of 63, the mandatory age of retirement in a national University of Japan, and became a Professor Emeritus of Kyoto University.

As is common for a Full Professor (Koza Professor) Kawai chose to continue his teaching and research in a another institution which allows their Professors to stay active until the maximum age of 70 which again requires retirement.

From April 1983–1988, Hiromichi Kawai was Professor at Hyogo University of Teachers Education. He not only was teaching the required courses, but he also conducted research on moisture sorption behavior of fibers, and he and his research group studied PET, Nylon, Kevlar.

Over the years Hiromichi Kawai's research interests were concerned with: a.) Viscoelastic Properies of Polymers; b.) Rheo-optical Studies, especially Dynamic X-Ray Diffraction of Crystalline Polymers; c.) Characterization and Orientation and Deformation Mechanisms in Polymers; and d.) Structure and Mechanical Properties of Block Copolymer and Microphase Separation Mechanism of Block Copolymers.

Kawai's work is recorded in 180 papers, 15 co-authored books, book chapters and 30 reviews. He is or was on the editorial board of Polymer Journal (Tokyo) and Polymer.

With his extensive knowledge of Material Science and Fiber Technology, Hiromichi Kawai became a national figure in these fields. From May 1965 to May 1971, he was a member of the Executive Committee of the Society of Fiber Science and Technology, Japan and from April 1970 to March 1974 he was the Chairman of the Kansai Section of the Society of Fiber Science and Technology, Japan. In further succession, Kawai was, from April 1974 to March 1976 the Vice President of the Society of Fiber Science and Technology, Japan and ultimately, from April 1977 to March 1979, he was the President of the Society of Fiber Science and Technology, Japan.

As indicated before, Hiromichi Kawai filled other national positions in prestigeous professional societies. From April 1966 to March 1974 he served on the Executive Committee of the Society of Material Science, Japan. From April 1977 to March 1983 he also served on the Executive Committee of the Society of Rheology, Japan.

Awards and honors came to Kawai for his scientific and personal achievements. In May 1977 he received the Award for Distinguished Service for the Advancement of Polymer Science, the Society of Polymer Science, Japan, in May 1981, the Award for Outstanding Service to the Society of Fiber Science and Technology, Japan; in April 1983 the Award of the Chemical Society, Japan and in June 1983 the Award of the Society of Rheology, Japan.

Kawai was internationally recognized in March 1987 by the Award of the High Polymer Physics Division, American Physical Society (Ford Prize). This prize was jointly awarded with Takeji Hashimoto "for their outstanding contributions by scattering techniques to the elucitation of phase and order-disorder transitions in complex polymeric systems

Polymer News, 1997, Vol. 22, pp. 280 – 289

with particular emphasis on structure, morphology and kinetics".

In 1946 Hiromichi Kawai married Haruko Kawai; they have 3 children and 3 grandchildren.

Over the years Kawai was not only interested in the science of polymers but he also had developed a number of hobbies, especially photography and gardening. Hisomichi Kawai lives now in retirement in Kyoto enjoying private life, reading books and listening to classical music.

This article was prepared by **Otto Vogl***, Monbusho Professor Kyoto Institute of Technology, Matsugasaki, Sakyo-ku, Kyoto 606, Japan, and **Takeji Hashimoto**, Department of Polymer Chemistry, Graduate School of Engineering, Kyoto University, Sakyo-ku, Kyoto 606, Japan.