

## Professor Masahiro Kawaji on His 65th Birthday



**Professor  
Masahiro Kawaji**

Professor Masahiro Kawaji is one of the well-known names in the field of nuclear engineering and two-phase flow. He was born on Sept. 6, 1954 in Kagoshima, Japan. He received his B.A.Sc. in 1978 from University of Toronto, Canada and M.S. and Ph.D. degrees in 1979 and 1984, respectively, in nuclear engineering from the University of California, Berkeley, CA. His Ph.D. thesis title was entitled “Transient non-equilibrium two-phase flow: Reflooding of a vertical flow channel”<sup>1</sup> under the supervision of Professor Sanjoy Banerjee.

After finishing his Ph.D. in 1984, Professor Masahiro Kawaji returned

to Japan where he worked there for a short time in the Department of Reactor Safety Research, Japan Atomic Energy Research Institute (JAERI), Tokai-mura, Japan. In 1986, he joined the Department of Chemical Engineering and Applied Chemistry at the University of Toronto, Canada. He taught there until 2014, and became Professor Emeritus there. During his work at the University of Toronto, Professor Kawaji was involved in many activities. For example, in 1999, he was among the founding members of the Ice Slurry Working Group of the International Institute of Refrigeration (IIR). In 2002, the working group was broadened to Phase Change Materials and Slurries and in 2005 he co-edited the IIR Handbook on Ice Slurries [1] with Professors Michael Kauffeld and Peter Egolf. In June 2005, he hosted the ASME Third International Conference on Microchannels, and Minichannels (ICMM2005) at the University of Toronto. This was the first ICMM held the outside USA after ICMM2003 and ICMM2004 were held in Rochester, New York. After ICMM2005, the conference name was changed to International Conference on Nanochannels, Microchannels, and Minichannels (ICNMM) in order to also include nanochannels. In ICMM2005, over 250 persons attended the conference and 190 papers were presented. The participants included researchers from several different fields such as fluid flow, heat transfer, biofluidics, micro-TAS, microfluidics, molecular dynamics, and lab-on-chip. A special issue of Selected Papers from ICMM2005 was published in Heat Transfer Engineering Journal by the guest editor, Professor Satish G. Kandlikar [2].

Professor Kawaji also started teaching in the Mechanical Engineering Department at City College of New York (CCNY) in 2009 and is currently serving as an Associate Director of the CUNY Energy Institute. During his work at CCNY, Professor Kawaji has been involved in several activities. For instance, he

has run the nuclear engineering program for chemical and mechanical engineering students and conducted research projects on High Temperature Gas Reactors and microbubble bioreactors supported by the U.S. Department of Energy. Also, he was the co-chair of the eighth European-Japanese Two-Phase Flow Group Meeting (EJTPFGM) in Manhattan, New York, April 22–26, 2018 with Professors Paolo Di Marco and John R. Thome on the European side and Professor Akio Tomiyama on the Japanese side. EJTPFGM has been held alternately in Japan and Europe every three years to discuss the latest research in Japan and Europe.

During his years at Japan Atomic Energy Research Institute (JAERI), University of Toronto, and City College of New York (CCNY), Professor Kawaji has published more than 450 papers, reports, and books on nuclear reactor thermal hydraulics, multiphase flow, microgravity fluid physics, and heat transfer (Refs. [1,3], and [4]). His paper in the *International Journal of Multiphase Flow* titled “Investigation of two-phase flow pattern, void fraction and pressure drop in a microchannel” [5] is his most cited paper.<sup>2</sup>

Professor Kawaji has served on the Editorial Advisory Boards of the Process Mechanical Engineering and *International Journal of Multiphase Flow*. Currently, he is an Associate Editor of *Multiphase Science and Technology* journal and serving on the Editorial Advisory Board of the Experimental Thermal and Fluid Science. Furthermore, he has served on the scientific and organizing committees of many international conferences, including the ASME International Conference on Nanochannels, Microchannels and Minichannels (ICNMM) since its start in 2003.

Professor Masahiro Kawaji is a Fellow of the Canadian Society for Chemical Engineering (CSCHE), American Society of Mechanical Engineers (ASME), and Canadian Academy of Engineering. Also, he is the Recipient of several international awards including the Donald Q. Kern Award from the American Institute of Chemical Engineers (AIChE) in 2013 for contributions to the heat transfer field.

On the occasion of his 65th birthday, on behalf of his colleagues, friends, and students all over the world, we wish Professor Masahiro Kawaji a continuous active life in happiness and good health and a very happy birthday!

### References

- [1] Kauffeld, M., Kawaji, M., and Egolf, P. W., 2005, *Handbook on Ice Slurries: Fundamentals and Engineering*, International Institute of Refrigeration, Paris, France.
- [2] Kandlikar, S. G., 2006, “Selected Papers From the Third International Conference on Microchannels and Minichannels,” *Heat Transfer Eng.*, 27(4), pp. 1–2.
- [3] Hewitt, G., and Kawaji, M., 1999, “Fluid Mechanics Aspects of Two-Phase Flow,” *Handbook of Phase Change: Boiling and Condensation*, S. G.

<sup>1</sup><https://www.osti.gov/biblio/5045427>

<sup>2</sup>[https://scholar.google.com/citations?hl=en&user=i16D2rYAAAAJ&view\\_op=list\\_works](https://scholar.google.com/citations?hl=en&user=i16D2rYAAAAJ&view_op=list_works)

Kandlikar, M. Shoji, and V. K. Dhir, eds., Taylor & Francis, Philadelphia, PA, Chap. 9.

- [4] Hernandez-Alvarado, F., Kleinbart, S., Kalaga, D. V., Banerjee, S., and Kawaji, M., 2018, "Radial Void Fraction Profiles in a Downward Two-Phase Flow: Reconstruction Using the Surface of Revolution Method," *Multiphase Flow Phenomena and Applications: Memorial Volume in Honor of Gad Hetsroni*, G. Ziskind and G. Yadigaroglu, eds., World Scientific, Singapore.
- [5] Kawahara, A., Chung, P. M.-Y., and Kawaji, M., 2002, "Investigation of Two-Phase Flow Pattern, Void Fraction and Pressure Drop in a Microchannel," *Int. J. Multiphase Flow*, 28(9), pp. 1411–1435.

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