

Reminiscences of Prof. Masahiro Wakatani

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Abstract

I am deeply grieved at the sudden death of Professor Masahiro Wakatani on January 9th 2003. His great contributions to the worldwide fusion research, the development of Heliotron programs and the education of next generation are reminisced along with his thoughtful and warm personality.

Keywords:

Professor Masahiro Wakatani, acclaimed plasma physicist, Hasegawa-Wakatani equation, Heliotron, thoughtful and warm personality

This speech is dedicated to a great friend of mine, Prof. Masahiro Wakatani of Kyoto University (Fig. 1), who passed away about a year ago.

On the January 6th this year, I was hit by shocking news that Prof. Wakatani was in coma under critical condition. Despite our desperate prayers, he passed away on January 9th. What a great loss it was to the fusion community that he left us in the middle of many unresolved technical issues. He was only 57 years old, way too young to end his life.

Prof. Wakatani was an internationally acclaimed plasma physicist and provided leadership in the worldwide fusion

community for a long time, including his recent contribution to ITER physics activities. His pioneering work on plasma theory helped us understand the experimental data to a great deal. The RMHD equation he came up with became a standard technique for helical plasmas, widely used for experimental data analysis, especially anomalous transport in a confinement magnetic field. Also, he explained the drift instability at the periphery of plasma, predicting that there was a reverse cascade to transfer energy from short to long waves. Hasegawa-Wakatani equation is well known to prove this type of plasma instabilities, and used frequently to describe plasma turbulence behavior.

Prof. Wakatani was truly an asset of Kyoto University. Wakatani laboratory was always full of graduate students. Those students are promised to become future leaders of their areas of research.

Prof. Wakatani received his doctor's degree in 1973 at Kyoto University. He worked as a research associate at the Japan Atomic Energy Research Institute from 1973 to 1976, and then worked at the Plasma Physics laboratory, Nagoya University from 1976 to 1978. He then became Associate Professor at the Plasma Physics Laboratory, Kyoto University in 1978 and was promoted to full professor in 1985. He served as a member of the council of Kyoto University and was nominated as an APS fellow in 1990.

In 1978 he was recruited to the head of plasma theory group in the Heliotron E program (Fig. 2) when I was the head of the experiment. Until 1989 when I moved to NIFS, he and I worked together very closely. In fact, we had lunch together almost everyday, talking about teaching, research, and life as a scientist etc.. NIFS was decided to be located in Toki to inter-relate University fusion activities, constructing

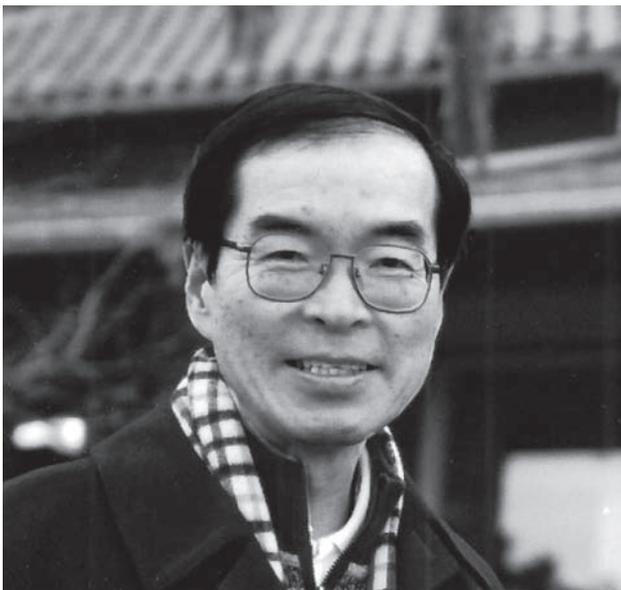


Fig. 1 A photograph of Prof. Masahiro Wakatani.

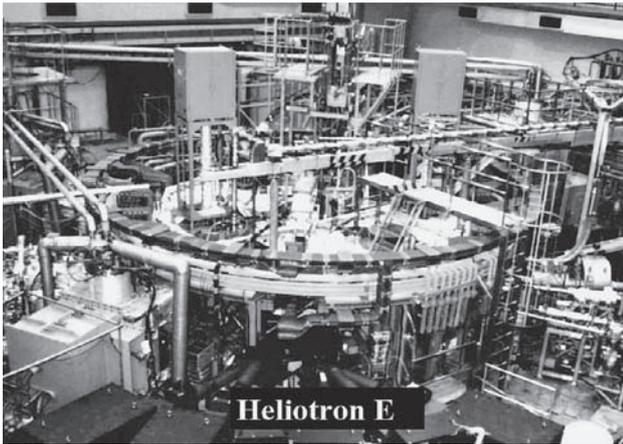


Fig. 2 A photograph of Heliotron-E device.



Fig. 5 Many students of Prof. Masahiro Wakatani gathered to remember him.

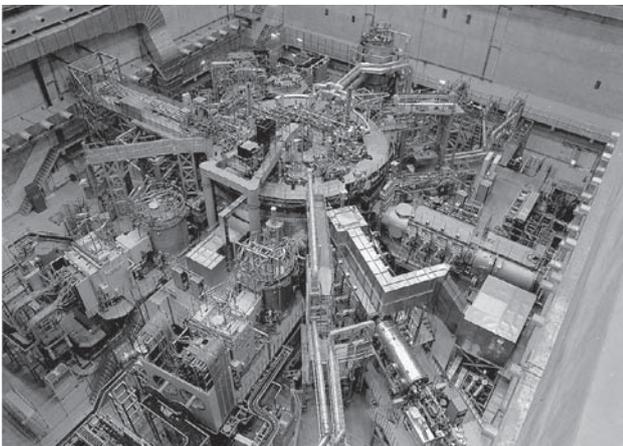


Fig. 3 A photograph of LHD.



Fig. 6 A photograph of Prof. Masahiro Wakatani and his wife, Yasuko.

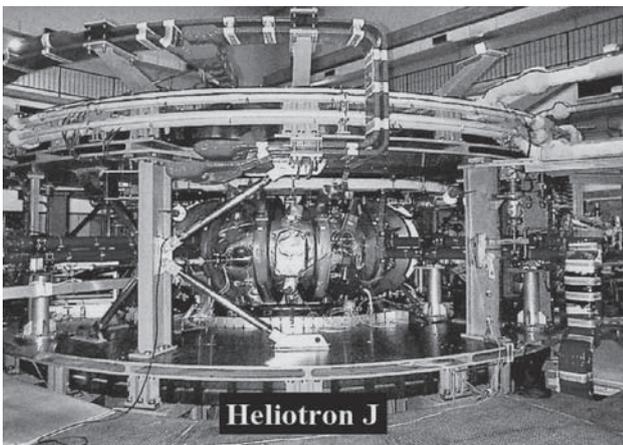


Fig. 4 A photograph of Heliotron-J device.

LHD for nation-wide collaboration (Fig. 3). Although Prof. Wakatani decided to stay in Kyoto, he made a tremendous contribution in the LHD design and construction program in terms of physics and optimization of the magnetic field. As such, he was the key supporter to the LHD program, and educated many brilliant students at the Kyoto University now are working in NIFS. Without his contribution, the LHD program wouldn't be this successful.

Recently, in 2000, Prof. Wakatani conducted to construct the Heliotron-J (Fig. 4) as an advanced heliotron in Kyoto University.

Prof. Wakatani was not only a marvelous scientist but also a person who really cares about the education of young physicists to be future leaders (Fig. 5).

His personality is very thoughtful and warm hearted to everyone around him. He was also a caring husband for his loving wife Yasuko and a great father for his 3 daughters (Fig. 6). I don't know how much they miss him. Once again, I would like to send my deepest condolence to his family.



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「夢の融合で、夢の火を」

昭和20年生まれ 若谷 誠宏さん

頭の融合で 夢の火を

「夢の融合で、夢の火を」

「夢の融合で、夢の火を」

Fig. 7 The article for Prof. Masahiro Wakatani when he was 36 years old (Jan. 9, 1981). (Courtesy Asahi Newspaper.)

Dear Masahiro, I would like to express my thanks to you. They say that a friend makes a person. I would not have achieved anything in my life without you. I am sure that all the students and friends of yours feel the same way.

Here, I promise you that your accomplishments will be passed on to many generations of scientists in the fusion community.

Lastly, I would like to show you some pictures of him. This picture is an article from the Asahi Newspaper when he was 36 years old (Fig. 7). On this page, he was telling us that fusion of human intelligence would eventually make our fusion dream come true.

Thank you very much.