

# Tributes of Our Great Professors on the Occasion of Centennial (±2) Birthday Anniversary Professor SATO Takashi 佐藤 俊, Kyoto University

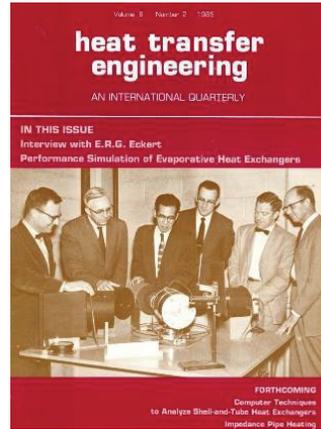


(1919.11.3–1987.6.27)

Professor SATO Takashi was born in 1919, and graduated from Kyoto Imperial University 京都帝国大学 in 1943. His supervisor was Professor SUGAWARA Sugao 菅原菅雄 (1896-1983) who was one of Japanese pioneers in steam engineering.

Just after finishing his graduate study there, he started his academic career as a lecturer at Kyoto Imperial University in 1945. He was promoted to Associate Professor in 1947 and received the Doctorate degree in 1954. He was a Professor at Kyoto University for 24 years until his retirement in 1983 and served as Dean of the Faculty of Engineering, Kyoto University, from 1981 to 1983. During this period, he supervised 23 Doctorate candidates. More than half of them were professors at Japanese universities. Particularly at Kyoto University, Professors MICHİYOSHI Itaru 岐美 格, KUNITOMO Takeshi 國友 孟, SUZUKI Kenjiro 鈴木 健二郎, and MAKINO Toshiro 牧野 俊郎 were members of his Heat Transfer Laboratory. After retirement from Kyoto University, he was a Professor at Setsunan University 摂南大学 in Osaka Prefecture until his death.

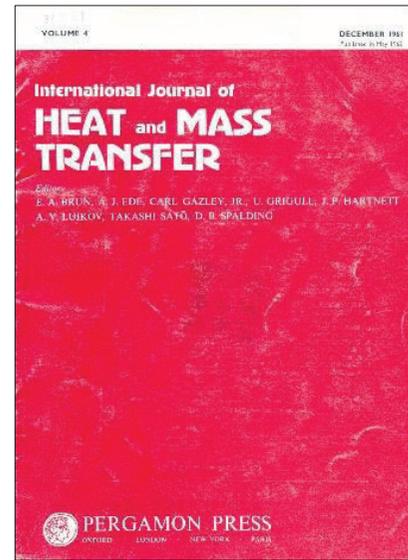
He stayed for one year at the University of Minnesota in 1957. A photograph taken in his stay was posted on the cover of *heat transfer engineering*, Volume 6, Issue 2 (1985). At IHTC-8 in 1986, the follow-up photo was again taken and posted on the cover of Volume 7, Issue 3-4 (1986); although they tried the same alignment sequence with the past one, their memories were regrettably incorrect. After Minnesota, he was also a Visiting Professor at the University of California, Berkeley, in 1966.



In the E.R.G. Eckert heat transfer laboratory at the University of Minnesota in 1956. (Left to right) Professors Warren Ibele, E.R.G. Eckert, Takashi Sato (Kyoto University), Roger Eichhorn, James P. Hartnett, and Thomas F. Irvine, Jr. (See HTE Interviews, page 8.)  
N.B. According to Prof. Sato, the photo at Minnesota was taken in 1957; 1956 is incorrect.



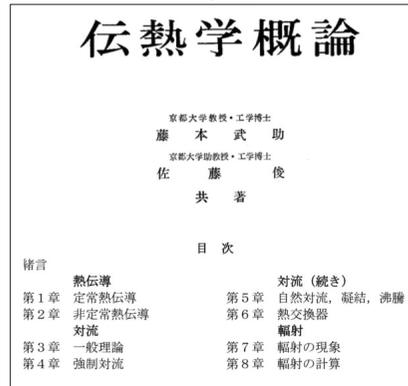
Thirty years later: more beards and less hair! The 1985 cover of HTE Vol. 6 No. 2 featured a picture taken in 1956 of (left to right) Professors Warren Ibele, Roger Eichhorn, Takashi Sato, James P. Hartnett, E. R. G. Eckert, and Thomas F. Irvine, Jr. This sextet met again at the Eighth International Heat Transfer Conference in San Francisco in 1986. Dr. K. Suzuki, Kyoto University, Japan took the follow-up photograph.



E.A. BRUN A.J. EDE CARL GAZLEY JR. U. GRIGULL J.P. HARTNETT  
A.V. LUKOV TAKASHI SATO D.B. SPALDING  
N.B. PERGAMON PRESS was an Oxford-based publishing house. Originally called Butterworth-Springer, it is now an imprint of Elsevier. (from Wikipedia)

Professor SATO joined the Board of Editors of the *International Journal of Heat and Mass Transfer* in 1961, almost the first moment of its birth and worked as the first Japanese Editor until 1972. He remained on the Honorary Editorial Advisory Board of the Journal up to the beginning of 1987. He was President of the Heat Transfer Society of Japan in 1977 and Vice President of the Japan Society of Mechanical Engineers in 1979.

With Professor FUJIMOTO Busuke who studied fluid mechanics, he published the first Japanese textbook on heat transfer on October 20, 1956.



The research work of Professor Sato covered a broad range of thermal engineering topics: performance of steam turbine blades and steam ejectors, thermal properties of water and other substances, coal combustion and gas turbine combustors, combustion oscillation and instability, in addition to heat transfer which was his main concern. His studies in heat transfer included: heat transfer in packed beds, radiative heat transfer from a luminous flame, laminar and turbulent convective heat transfer, its augmentation, numerical computation of heat transfer with applications to the performance analysis of heat exchangers, turbulence structure and turbulence modelling, forced convection boiling heat transfer, two-phase flow study in the annular and annular-mist flow regimes, and critical heat flux.

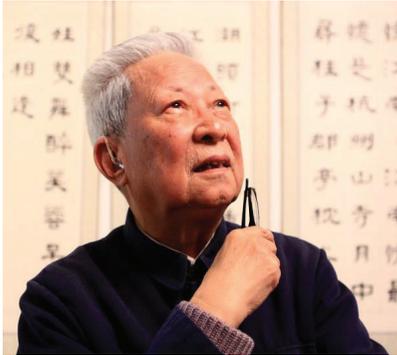


SENDA Mamoru, KAWAGUCHI Yasuo, SUZUKI Kenjiro, SATO Takashi, Study on a Turbulent Boundary Layer with Injection: Turbulent Scales, Trans. JSME, 1981.

At the end of Professor SATO's tribute, we are also grateful to Professor MIZUSHINA Tokuro 水科篤郎 (1920-1988) who was also a great leader of Department of Chemical Engineering, Kyoto University. Although his laboratory was succeeded by Professor OGINO Fumimaru 荻野文丸 until 2004, a research field in heat and mass transfer was changed to others in Department of Chemical Engineering. As a result, currently the participants to the T-S-K conferences from Kyoto University belongs to the departments relating to mechanical/nuclear engineering.

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 On the basis of the above references, edited by YOSHIDA Hideo 吉田英生 (sakura@hideoyoshida.com), September 28, 2022

## Tributes of Our Great Professors on the Occasion of Centennial ( $\pm 2$ ) Birthday Anniversary Professor WANG Buxuan 王补宣, Tsinghua University



(1922.02.05–2019.08.31)

Professor Wang Buxuan 王补宣 was born on February 5, 1922 in Wuxi, Jiangsu Province of China. He earned his bachelor's degree in 1943 from Southwest University 西南联合大学 in China and his Master's from the Department of Mechanical Engineering of Purdue University in 1949. Prof. Wang then returned to China and joined Beijing University in 1950. He returned to Tsinghua University in 1952 and was appointed full professor in 1961. In 1980, he was elected an Academician of the Chinese Academy of Sciences, the highest honor awarded to scientists in China.



Editorial Committee of Thermal Engineering Textbooks of the Ministry of Education in November, 1982 (Wang Buxuan, second from right front row).

As the leading pioneer and educator in the field of Engineering Thermophysics in China for many years, Professor Wang is credited with founding thermal engineering teaching and research in China and with

training many leaders in the field. He has made many outstanding contributions to China's science and technology education with many groundbreaking research projects which greatly influenced thermal engineering teaching and research throughout China.

Professor Wang was the first chairman of the Academic Degrees Committee of the Chinese State Council. He served on the 1956 National Long-term Scientific Planning Commission, he initiated the engineering thermal physics discipline in China in 1962 and he worked on the 1978 National Science and Technology Planning Commission. He founded and led the nation's first thermal physics undergraduate program at Tsinghua University in 1957. Prof. Wang wrote 10 textbooks related to thermodynamics, heat transfer, and thermal engineering, one of which Engineering Heat and Mass Transfer (1<sup>st</sup> edition, Science Press, Beijing 1982) won the National Outstanding Textbook Prize in 1987.



Textbook by Wang Buxuan: *Engineering Heat and Mass Transfer* 工程传热传质学, 1st edition published by Science Press 科学出版社.

Professor Wang served on the National Committee of the China Association for Science and Technology, was the vice chairman and chairman of the Chinese Society of Engineering Thermophysics, and led the creation of the Solar Energy Society of China in the 1970s, serving as chair from 1979 to 1987.

In 1981, Professor Wang established the China Branch of the International Solar Energy Society (ISES). He set up the Professional Committee of Thermophysical Property Testing of the China Metrology and Testing Society In 1982, and served as the Chairman of the Professional Committee. He helped establishing the Asian Thermophysical Center, one of the world's three largest

academic centers and served as one of the chairmen and then an honorary chairmen.

In 1985, Professor Wang founded and chaired the Beijing International Symposium on Heat Transfer, which has been held regularly since then in Beijing every three to four years. So far, the symposium has been held nine times as an important platform for international exchanges on heat transfer research.



First Beijing International Symposium on Heat Transfer in 1985, Wang Buxuan (second from left).

Professor Wang productively participated in international activities in the field of thermal science and technology. He was elected a member of the Executive Committee of the International Center for Heat and Mass Transfer (ICHMT) in 1982 and again until 1987. He chaired the International Conference on Solar and Wind Energy Applications in 1985. In 1986, he was a delegate to the Assembly for International Heat Transfer Conference (IHTC) and was the Chinese representative to the board until 2002. He won China's First Lifetime Achievement Award for Heat and Mass Transfer in 2016 and Lifetime Achievement Award at the Ninth Asian Thermophysical Conference in 2010.



Attending the 8th International Symposium on Heat Transfer Organized by Tsinghua University in Beijing.

During 1982–2004, Prof. Wang was editor of the International Journal of Heat and Mass Transfer (IJHMT) and the International Journal of Thermophysics since

1984. He was also a member of the editorial boards of International Journal of Thermophysics and Drying Technology. He was the Associate Editor-in-Chief of the Chinese Journal of Mechanical Engineering, since 1990 its Editor-in-Chief.



Lifetime Achievement Award at the Ninth Asian Thermophysical Conference in 2010.

Professor Wang's research activities covered a wide range of topics, including heat transfer with/without phase change, heat and mass transfer in porous media, thermophysical properties of matter, measurement techniques, biomedical heat transfer, energy planning and solar energy utilization. His basic research on the film boiling of subcooled liquid flow and on the evaporation of liquid drops from 1981 to 1987 won the 4th National Natural Science Prize in 1989, the most prestigious Chinese award in natural science.

Professor Wang was actively involved advising graduate students and supervised many graduate students since the national degree system was established. He authored or coauthored over 400 scientific papers on heat and mass transfer, energy conservation and thermodynamics that have been cited more than 2000 times. He also published various monographs and eight International Conference Proceedings.

At the end of Professor Wang's tribute, we thank Professor Wang for the great contribution and long-lasting influence on heat transfer community in China and all over the world. We cherish the memory of Professor Wang Buxuan.

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## Tributes of Our Great Professors on the Occasion of Centennial (±2) Birthday Anniversary Professor LEE Taik Sik(李 澤植), Seoul National University



(1924.7.8–2000.2.1)

Professor LEE Taik Sik was born on July 8, 1924, in Korea. He entered Kyungsung Imperial University on April 1945 and faced independence of his motherland after 4 months, on August 1945. He graduated from the Department of Mechanical Engineering of Seoul National University and started working as a high school teacher in 1948. In 1949, he started his career at Seoul National University as a part-time lecturer. In 1952, during the Korean war, he was appointed as a full-time lecturer at the Department of Mechanical Engineering of Seoul National University. Even in the chaotic decades of modern Korean history, he grew up to be a great scholar in engineering and science.



**The College of Engineering in Busan:** During the Korean war, Seoul National University conducted the open-air classes in Busan, the place of evacuation. Professors and students then worked together to build temporary buildings where classes could be held. That's when Professor Lee was appointed as a full-time lecturer.

From 1956 to 1957, he conducted joint research with the University of Minnesota in the United States. He became a professor at the College of Engineering of Seoul National University in 1965 and obtained his Ph.D. from Seoul National University in 1969. From 1980 to 1983 he served as a Dean of Engineering at Seoul National University. He has served as a professor in the Department of Mechanical Engineering for a total of 37 years; during his tenure, 3,000 bachelors were educated and 58 masters/5 doctoral students were directly tutored.



**Professor Lee's retirement ceremony:** On August 22, 1989, a ceremony was held to commemorate the retirement of Professor Lee. The event was hosted by the Seoul National University College of Engineering Alumni Association. The event was grandly held and many people including academia and industry, took part in the ceremony to honor Professor Lee's accomplishments and contributions.



**A collection of papers commemorating the retirement of Professor Lee Taik Sik:** The book was issued by the Seoul National University College of Engineering Alumni Association to commemorate the retirement of Professor Lee.

Professor Lee's career was full of various activities within and outside academia. He has served many mechanical engineering and professional societies, organized several conferences and seminars, and served on many governmental and social committees established to guide engineering policies. From 1973 to 1975, he served as president of the Korean Society of Mechanical Engineers. From 1989 to 1991, he served as a board member of the Korea Center for Machinery and Materials and became a member of the National Academy of Sciences in 1993.

In recognition of his contributions to academia, he received numerous awards, including the Silver-star Hwarang Medal of Merit in 1953, the Academic Award of the Korean Society of Mechanical Engineers in 1971, the Presidential Citation in 1977, the Thermal Engineering Memorial Award by the Japanese Society of Mechanical Engineers in 1988, and the National Order of Civil Merit Moran Medal in 1989.

Professor Lee hoped that Korea, which had been globally invisible in the field of thermal engineering, would be able to fulfill its role in the international community. On October 16th-22nd, the first Korea-U.S. Joint Heat Transfer Seminar was held at Seoul National University. Professor Lee was the one who hosted the seminar and he worked as a Co-Chairman. The theme of the seminar was heat transfer in thermal engineering and high technology systems. World-renowned professors in the field of thermal engineering from Korea and the U.S. participated in the seminar.



**Korea-U.S. Seminar on Thermal Engineering and High Technology:** It was the first large-scale international engineering event held in Korea. Professor Lee from SNU and Jong H. Kim from Electric Power Research Institute took the role of Co-Chairman. Masters of thermal engineering such as Robert J. Moffat, Chang-Lin Tien, Raymond Viskanta, and Adrian Bejan attended the seminar. Professor Lee is sitting in the first line at the center.

He has set a cornerstone for the foundations of Korean thermal science and engineering, particularly in the areas of heat transfers and fluid mechanics. He wrote various books including 'General Mechanical Engineering' (1959), 'New Hydraulics' (1963), 'New System of Hydraulic Machines' (1963), 'Fluid Mechanics' (1980), 'Differential Equations Workbook' (1982), 'Introduction to Mechanical Engineering' (1985), and more. His papers

mainly cover topics on natural convection, including 'Interferometric Study of the Laminar Free Convection from a Vertical Plate with Periodic Heat Input in Air' (1968), 'Stability and Transition of the Free Convection Layer along a Vertical Flat Plate with Periodic Heat input' (1970) and many others.



**Introduction to Mechanical Engineering:** Professor Lee wrote a book for the course called 'Introduction to Mechanical Engineering' along with other professors in the Department of Mechanical Engineering of Seoul National University. It was a course designed for freshman students to get a sense of the fundamental subjects of mechanical engineering.



**Differential Equations Workbook:** Professor Lee wrote a book for basic mathematical courses in which differential equations are covered. He was highly interested in building a strong foundation such as basic mathematics for engineering and science.

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