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In Celebration

In Celebration of Professor Joon Sik Lee on his 65th birthday



Joon Sik Lee was born in Busan, Korea, on September 11, 1952. He spent elementary and middle school periods in Busan until he entered Gyunggi High School located in Seoul. Professor Lee received his Bachelor degree in mechanical engineering from Seoul National University in 1976. During the school days, he was involved in ROTC (Reserve Officers' Training Corps) for two years, and after graduation he served as a section commander in an army ordnance unit for two years until he left the army as first lieutenant. After finishing his military service, he was back to Seoul National University for his master's degree which he got in 1980. After then, he ambitiously challenged himself to soar to new heights in his career in the United States for his graduate study, and he continued studying at the University of California at Berkeley. During his graduate studies, he was fascinated by various heat transfer applications and carried out fundamental studies on convective and radiative heat transfer in particulate flows under the supervision of Professor Joseph Humphrey, and received his Ph.D. in 1985.

After spending 6 months as a Postdoctoral Fellow at Lawrence Berkeley Lab., Professor Lee returned to the Department of Mechanical Engineering at Seoul National University in September, 1985, as an Assistant Professor. He retired from the same department after 31 years of glorious and splendid professorship.

His research covers both fundamental and applied areas from basic heat transfer to gas turbine technology. Professor Lee developed thermal processes by analyzing the gas radiation and the solidification of multi-component liquid accompanied by complicated heat transfer phenomena. He also made great achievements in heat transfer technologies related to gas turbines. In the 1990s, he introduced the heat transfer measurement technique using

thermochromic liquid crystal and actively used the large eddy simulation for the convective heat transfer problems. As for the film cooling of gas turbine blades, the influences of the bulk flow pulsations and vortices embedded in the boundary layer, which are considered to be major challenges, have been clarified. For internal convection cooling, heat transfer enhancement mechanisms installing ribs and dimples were thoroughly elucidated based on large eddy simulation. He devoted himself to the micro/nano scale heat transfer problems in this century. Simulations based on the Boltzmann transport equation have been conducted to predict thermo-physical properties in a micro/nano scale and novel measurement techniques, such as 3ω method, have been developed to prove them. Various micro fluidic devices including micro mixers and pumps have been developed by studying channel design, cooling system, and conjugate heat transfer. Recently, his research interest has moved to advanced thermoelectric materials such as silicon-doped graphene.

For three decades, his research findings and those of his students, have contributed in various sectors of heat transfer and related fields. As a consequence, Professor Lee has published more than 180 archival journal papers in addition to many conference papers in the areas of heat transfer, thermoscience, micro/nano technology and energy systems. Using his special talent to relate his research to teaching, his lectures have been popular among students for decades and recognized through teaching awards.

With his enthusiasm on education, he put every effort in teaching undergraduate and graduate students. His soft and powerful guidance made many students respect him and still now great number of students are eager to follow him. So far, 116 Ph.D.'s and Masters were educated, and all of them are playing a great role at universities, enterprises, government offices, and diverse institutions.

In addition to his distinguished research and teaching career, Professor Lee has held many administrative positions as well. For ten years, he had directed the Micro Thermal System Research Center which was supported by Korean government and many industries. He also served as the Director of Institute of Advanced Machinery and Design at Seoul National University for two years.

Professor Lee has also devoted himself to various academic societies. He was the organizer/chair of various conferences, including the 11th International Heat Transfer Conference (1998), and the 18th International Symposium on Transport Phenomena (ISTP-18) (2007). He served as the Delegate of the Assembly for the International Heat Transfer Conferences, and Executive Committee Member of International Centre for Heat & Mass Transfer. He was also the Vice President of the Pacific Center for Thermal-Fluids Engineering.

Professor Lee's international activities include service as a member of the advisory/editorial boards or an editor of the *Nanoscale and Microscale Thermophysical Engineering*, the *Experimental Heat Transfer*, the *International Journal of Transport Phenomena*, the *Journal of Heat Transfer*, the *Computational Thermal Sciences*, and the *International Journal of Air-Conditioning and Refrigeration*.

He also contributed to a university administration as the Chief of the Office of Research Affairs and then as the Vice President on research affairs at SNU. He was appointed as a member of the National Science & Technology Council covering big science and green technologies. He also served as the Chair of the Creative Economy Division in the Presidential Advisory Council on Science & Technology. After his early retirement from Seoul National University, he served as the Deputy Prime Minister in the Korean government and as the Minister of Education as dual appointments.

In this occasion of his 65th birthday and retirement from Seoul National University, we would like to deeply recognize his professional, societal, and humane achievements and express our great wish for his everlasting good health and happiness from the bottom of our hearts.

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