IN MEMORIAM

Professor Joonhong Ahn

Professor of Nuclear Engineering
UC Berkeley
1958 – 2016

Professor Joonhong Ahn of the Department of Nuclear Engineering at the University of California, Berkeley, died in Kobe, Japan, on June 19, 2016. He was 57 years old.

Joonhong was internationally admired for his work on the nuclear fuel cycle, particularly nuclear waste disposal, and the societal and ethical challenges associated with nuclear power. He was diagnosed with advanced liver cancer in April 2015; throughout his treatment, he continued his relentless pace of work and service to society, the profession, the university, and his students.

Joonhong was born on September 25, 1958, in Osaka, Japan, to a family that had lived in Japan for a century, but was still considered Korean. In time, he became a citizen of the United States, a point of great pride. While still in high school, Joonhong recalled, "I was fascinated by the fact that the nuclear waste issue was not solved or even considered at that time, so I knew that was what I wanted to pursue." He received B.S., M.S. and D.Eng. degrees at the University of Tokyo, where he later became the first ethnically non-Japanese accorded tenure in Japan's national university system. In 2009, the University of Tokyo named him a Fellow of the College of Engineering. Joonhong also matriculated at UC Berkeley, completing his Ph.D. thesis in nuclear engineering in 1988, under Paul Chambré and Thomas Pigford. In addition to being part of the nuclear engineering department, where he served recently both as vice chair and head graduate adviser, he was a geological faculty scientist in the Earth Sciences Division of the Lawrence Berkeley National Laboratory, and a core faculty member of the Center for Japanese Studies within the Institute of East Asian Studies.

In addition to his technical research on the nuclear fuel cycle, Joonhong was very active in the field of nuclear power utilization and was concerned with the dynamic

engagement between science, technology, and society that influences hopes and failures in the use of nuclear power, generously sharing his expertise with specialists in the field and with the general public. Upon joining the UC Berkeley faculty in 1995, he inaugurated a series of international symposia on nuclear power that rotated through most major Asia–Pacific countries over a decade. Joonhong also played a key role in establishing an engineering ethics program at UC Berkeley and was the first recipient of a Warren and Marjorie Minner Faculty Fellowship in Engineering Ethics and Social Responsibility, in June 2011. In March 2015, he organized an international workshop on engineering ethics education and engineering resilience, with researchers from the United States, France, and Japan, and the following month the Institute for Resilient Communities was established at Lawrence Berkeley National Laboratory, under the leadership of Joonhong, Kai Vetter, Rebecca Abergel, and Jens Birkholzer.

Joonhong's research broadly engaged with the entire nuclear fuel cycle, with particular emphasis on mathematical modeling and computational analyses for assessment of geological disposal, safeguards, and radiological safety. He was a leading expert on Asia's nuclear powers and traveled often to the region, advising governments and industry, and maintaining extensive academic collaborations. After the March 2011 accident at the Fukushima Daiichi Nuclear Power Plant, his research converged on the topics of engineering resilience, resilient communities, and the science-technology-society nexus. Between the Fukushima accident and the time of his death a little more than five years later, Joonhong traveled to Japan more than 50 times to lend his expertise to recovery efforts, and to help shape a path forward for safely restarting nuclear power. Japanese-born, but seen as a foreign expert, Joonhong was able to address leaders, policy makers and society at large with an impartiality, credibility, and authority that the nation's industry and government no longer possessed. His lectures, panel discussions, and interviews were widely followed in the press and television. The 2015 edited monograph which he spearheaded, *Reflections on the Fukushima Daiichi Nuclear Accident: Toward Social-Scientific Literacy and Engineering Resilience*, was a fitting capstone to a courageous career.

In spite of his tireless efforts to bring good out of the Fukushima disaster, Joonhong also found time to contribute to renewal of the "Agreement for Cooperation Between the Government of the United States of America and the Government of the Republic of Korea Concerning Civil Uses of Atomic Energy", the so-called "123 Agreement", which was signed in 2015. Although already gravely ill, Joonhong was able to join a December 2015 panel discussion organized by the Consul General of Korea in San Francisco, celebrating this historic cooperation.

Joonhong served on numerous national and international advisory and editorial boards, including the editorial board for the American Nuclear Society journal *Nuclear Technology*, and the Nuclear and Radiation Studies Board of the National Research Council, the executive branch of the National Academies of Sciences. He was named an International Fellow of the Japan Nuclear Cycle Development Institute in 2002. In March 2011, he received the Outstanding Achievement Award from the Division of Nuclear Fuel Cycle and Environment of Japan's Atomic Energy Society.

A hallmark of Ahn's scholarship in the nuclear fuel cycle, waste management, and nuclear chemistry was his visionary engagement with the social sciences; enduring societal goods could not be attained solely by technical optimization, but by technical progress informed and guided by a deep humanity. Poignantly, it was on the very evening of the final day of the workshop *Resilience: A New Paradigm of Nuclear Safety* which brought together researchers from France, Japan and the U.S., of which he was co-organizer, that Joonhong felt the first abdominal pain that signaled the illness which soon was to claim his life. It was characteristic of him that after his diagnosis he visited his department chair to inquire, completely dispassionately, what he should do with his remaining time to best serve his profession, the university and his students. His treatment was unavailable in the United States, requiring him to return to Japan almost monthly, but he remained cheerful and optimistic. He kept up his teaching, research, and service commitments, generally downplaying the gravity of his situation. Even during his brief final hospitalization, he had one of his Ph.D. students send him his thesis by express mail to Kobe; he was able to complete his editing work and sign the thesis the day before he died.

In 1990, Joonhong Ahn married his wife, Masae, also ethnically Korean and born and raised in Japan. Masae was a graduate of Osaka University of Pharmaceutical Sciences, and worked as a laboratory assistant in the Osaka City University Faculty of Medicine. Currently she is a teacher at the San Francisco Japanese School, and a library assistant in an Oakland elementary school. Their two children are both proud University of California graduates, Taewoo (Physics, Berkeley, 2013), and Jise (Economics and Administrative Studies, Riverside, 2016).

Professor Ahn was predeceased by his father and one brother.

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