Memorial Resolution of the Faculty of the University of Wisconsin-Madison
On the Death of Professor Emeritus Roger Write Boom

Roger Wright Boom was born in 1923 to Frank and Gladys Boom, in Bladen, Nebraska. He attended grade school and high school in Bladen, and then attended the University of Nebraska, where he earned a bachelor’s degree in Physics in 1944, Phi Beta Kappa, Pi Mu Epsilon, and Sigma Xi. He was then a research associate in the Harvard Underwater Sound Research Lab. He joined the Navy in 1945 and taught electronics at the Great Lakes Naval Training Center.

He continued his education after WWII at the University of Minnesota (M.S.-1950). In 1951 he married LaVerne Backdahl. He earned his PhD in Physics at UCLA in 1958, With Profs. Kenneth R Mackenzie, and Byron T. Wright, other graduate students and technicians, Roger helped bring up the new UCLA 49-inch cyclotron. He then did post-doctoral research at the University of Bonn for two years before returning to the U.S. and launching his career in cryogenic engineering and superconductivity.

Roger Boom’s career in cryogenic engineering and superconductivity spanned more than 30 years, during which he was one of the pioneers in superconducting magnet technology. He was known for being extremely supportive to his students and collaborative with his colleagues.

He began work in the field while at Oak Ridge National Laboratory in the early 1960s, shortly after the discovery of Nb3Sn high field superconductivity. Boom left Oak Ridge in 1963, awarded a commercial opportunity at Atomics International in Los Angeles. While there, he established a group known for many accomplishments developing superconductors for magnets, including development of some of the earliest composite superconductors using NbZr and NbTi. During this time Roger received the prestigious IR100 award for his work in cryogenics and superconductivity.

Boom left AI in 1968 to join the college of engineering at the University of Wisconsin–Madison. Upon arriving, he almost immediately collaborated with professors Harold Peterson and Warren Young, with the goal of establishing the UW-Madison energy storage project. The project, which became known as Superconducting Magnetic Energy Storage (SMES), continued for over 25 years and focused on the use of a very large superconducting magnet as a load-leveling storage device in the electric utility grid. Boom himself became almost synonymous with SMES, as throughout his career he was a tireless proponent of the concept. He started the project at UW, established a healthy funding stream from federal and commercial agencies and collaborated with US and international organizations. Boom and his colleagues also hold almost all the project’s patents, including one for its basic concept. The high-quality work produced by those around Roger flowed naturally, not out of pressure but because of the genuine enthusiasm that everyone caught from, and shared with, Roger regarding the exciting possibilities presented by SMES.

As the SMES project grew, Roger gathered a number of key personnel such as Professors David Larbalestier, and Steven Van Sciver, as well as a talented group of scientists and students, and established the Applied Superconductivity Center in 1983. Under Roger’s direction, the Applied Superconductivity Center drew enormous respect from scientists, industries, and government agencies in Wisconsin, in the U.S., and around the world. Roger’s infectious vision and persistent energy caused those around him to think beyond themselves and reach for grand possibilities. The center fostered a wide range of research and development activities, including practical
superconducting materials and helium cryogenics. Such efforts provided for research activities that have impacted a wide range of projects, including high energy physics particle accelerators, magnetic fusion, magnetic resonance imaging and space-based instruments in addition to SMES.

Boom also gave back to the superconductivity community in numerous ways. He was a member of the CEC and ICMC boards (1975 to 1981) and chaired a joint 1979 conference in Madison. He also served on the board of the Magnet Technology Conference and organized several SMES workshops in the US and Japan. He is known for feeling strongly about fostering an interest in superconducting applications in young people. In 1992, Roger was presented with a “family tree” at his retirement party consisting of over 50 students and postdocs, many of whom are now leaders in the field of superconductivity and cryogenics.

During his tenure at UW-Madison he received the Byron Bird Award from the College of Engineering in 1986. Roger was awarded 12 patents, primarily in the design of systems for cryogenic superconductivity. He retired and became Distinguished Professor Emeritus in 1993. In July 1993, the Cryogenic Engineering Conference presented Boom with the Samuel C. Collins Award for outstanding contributions to cryogenic technology.

Recognizing his accomplishments and his keen interest in nurturing new talent in the field, the Cryogenic Society of America established the Roger W. Boom Award in 1996. It is awarded biannually to a young professional who “shows promise for making significant contributions to the fields of cryogenic engineering and applied superconductivity.” The spirit of the R.W. Boom Award is to recognize young people for their pursuit of excellence, demonstration of high standards and clear communications.

Roger Boom was a very broad-minded applied physicist and a great developer of people. He made the SMES program in Madison very exciting and interdisciplinary and left behind many valuable memories. He was a man of great influence, full of life and adventure. He was a professor, advisor, colleague, mentor, and friend. His positive outlook had a genuine impact because he was so positive about what those around him might be able to do. He encouraged students, colleagues, friends and family to see that in themselves as well. Roger knew how to be supportive of others and wanted them each to believe in their own abilities.

Roger Boom died on August 8, 2018 in La Jolla, California, following a long bout with Alzheimer’s disease. He was 95 years old at the time of his death. For all those of us who knew Roger on a personal level, he will be missed and remembered with fondness.