

**MEMORIAL RESOLUTION OF THE FACULTY
OF THE UNIVERSITY OF WISCONSIN-MADISON**

ON THE DEATH OF PROFESSOR EMERITUS HAROLD A. PETERSON

Professor Emeritus Harold A. Peterson died May 8, 2001 in Green Valley, Arizona at age 92. Professor Peterson joined the University of Wisconsin in 1946 as professor of electrical engineering after a distinguished career in industry. He later served as chairman of the department for 20 years, 1947-1967. He retired as professor emeritus in 1973.

He was born on a farm outside of Essex, Iowa on December 28, 1908. He earned bachelor and master degrees in electrical engineering from the University of Iowa, where he met and married fellow student Marion Pray of Lake City, Iowa. Their marriage was blessed with three children, sons David Peterson, Pittsboro, North Carolina and Gilbert Peterson, Madison, Wisconsin, and daughter Joye (deceased in 1957). He is survived by his sons and wife Marion.

While studying toward a Ph. D. at the University of Iowa during the Great Depression in the 1930s, he received an offer of employment from the General Electric Company that he could not refuse. Jobs for engineers were scarce and he joined General Electric in Pittsfield, Massachusetts. He later joined the small, select group of engineers and analysts in General Electric's Analytical Engineering Department in Schenectady, New York. His General Electric experience was the start of a distinguished career in the electric power industry, and later, to a second equally distinguished career in engineering education.

He contributed to the design of GE's mechanical differential analyzer, a predecessor to electronic analog computers and the digital computers that developed later in time. He used the mechanical differential analyzer in the solution of a wide variety of engineering problems, including the design of aircraft landing gear during World War II. He also contributed to the Manhattan Project that produced the first atomic bomb.

Harold was a specialist in the analysis of the complex technical problems in the design and operation of electric power systems and in the applications of computers to the solutions of engineering problems, in general. He took great pride in his development of GE's Transient Network Analyzer, a special purpose analog computer used for the analysis of transients in electric power systems and he is internationally known for his book "Transients in Power Systems".

He joined the University of Wisconsin in 1946, and after becoming chairman in 1947, guided his department in providing quality education to unprecedented numbers of ex GIs and other students flooding the campus. These were difficult years. Almost everything needed was in short supply, except students. There was an acute shortage of faculty, the laboratory equipment was old and outdated and inadequate for the developing areas of electrical engineering, and with insufficient budgets to match. This was also an era of great change in curricula mandated by the explosion in new developments in electrical engineering; in electronics, in computers, in solid state devices and other areas. Under his leadership the department met the undergraduate education challenges, restarted the Ph.D. program, and nurtured the research programs that continue to grow today. He was a catalyst in gaining legislative support for the Engineering Building (1950) that provided greatly improved facilities for the department's educational and research programs

He was instrumental in the development of computer technology in the Department of Electrical Engineering. He encouraged Professor Rideout in developing instruction and research in analog computers. Two Ph.D. students in physics, Dr. Gene Amdahl and Dr. Charles Davidson, came to Peterson in 1950 with the idea of building a digital computer. Professor Peterson encouraged them,
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provided space and a home in the department, and assisted in finding financing for the development of the Wisconsin Integrally Synchronized Computer (WISC), the first digital computer built in Wisconsin. Numerous electrical engineering graduate students did the research for their MS and Ph.D. degrees on the WISC project, and many went on to key positions in the computer industry.

Peterson continued his involvement with computers in power system studies after he joined the university. He was key to the donation by the Wisconsin Electric Utilities Research Foundation and the Allis-Chalmers Company of a specialized analog computer, a Westinghouse A. C. Network Calculator, for power system studies. This unique type of computer, one of only five in the United States, was used 1955-1965 for instruction on electric power systems and by numerous graduate students of Professors Peterson, Reitan and Skiles in their research. They also assisted Wisconsin and other electric utility engineers in the use of the A. C. Network Calculator in long range planning for expansion of utility generation and transmission systems.

When it became apparent that there was a need for direct current (DC) transmission for moving large blocks of electrical energy long distances, Professor Peterson provided the foresight and secured the financing to construct a DC systems simulator. Graduate students of Professor Peterson and Professor Reitan used the simulator for research and instruction in a laboratory course for 13 years. They also worked with engineers from the utility industry in using the simulator in studies essential to the development of DC transmission facilities in the US and abroad.

Harold's last research area was superconductive magnetic energy storage (SMES), working with Nuclear Engineering Professor Roger Boom and graduate students, advancing the possibility of building huge superconducting magnets on electric utility systems for the storage of electricity.

Professor Peterson authored or co-authored more than 60 technical papers and served as the major professor for more than 20 Ph.D. students and numerous MS candidates. He was a member 1961-65, of the Advisory Committee on International Exchange of Persons, (chairman 1962-64), and was a Fulbright senior lecturer at the Technical University in Hanover, Germany, in the spring of 1961. He served on the Advisory Panel appointed by the Federal Power Commission to investigate the cause and recommend remedies for the Northeast Power Failure of November 1965 that resulted in a blackout of electricity in a large multi-state area of the northeastern U.S..

Harold Peterson has been recipient of numerous honors for his technical achievements. He was an elected member of the National Academy of Engineering, a fellow of the Institute of Electrical and Electronics Engineers and received the institute's Education Medal in 1978. He was a recipient of the College of Engineering's Benjamin Smith Reynolds Award for Excellence in the Teaching of Future Engineers and in 1967 was named to the distinguished professorship established in his honor by the Wisconsin Electric Utilities Research Foundation.

The 334 page book, "Electrical Engineering at the University of Wisconsin in Madison - A Centennial History 1891-1991", was dedicated to Harold Peterson and to two earlier department chairmen, Dugald C. Jackson and Edward Bennett, in recognition of the unique leadership each provided the Department of Electrical Engineering at critical times in the history of the department..

Harold Peterson was an outstanding electrical engineer and educator, an exceptional leader and a true gentleman. He had the respect of all who knew him.

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