
**Memorial Resolution of the Faculty of the University of Wisconsin-Madison
On the Death of Professor Emeritus Richard A. Greiner**

Dr. Richard A. Greiner, Emeritus Professor of Electrical and Computer Engineering (ECE) at the University of Wisconsin-Madison, passed away at age 83 on January 29, 2015 after an extended illness. Dr. Greiner was born on February 13, 1931 to Lorraine Zeihm and Richard Greiner in Milwaukee, Wisconsin. He retired in 1992 after a teaching and research career of 36 years.

Many of Dr. Greiner's lifelong interests were formulated in the 1940s. These included a significant interest in photography and astronomy, a love of mathematics and a great interest in chemistry and physics. He worked as a commercial photographer before he went on to the University of Wisconsin in Madison to study chemistry, physics, mathematics and astronomy.

Dr. Greiner received his bachelor's degree in Physics in 1954, cum laude, with minors in mathematics and astronomy. His master's degree, received in 1955, was in Physics with graduate work concentrating on molecular and nuclear spectroscopy and solid state physics. Electronic instrumentation was a major part of all of these studies. Optical instrument design including interferometer optics and precision mechanical design was a part of this research.

He moved on to studies of solid state electronics in the Department of Electrical Engineering (EE), earning his PhD in 1957. His doctoral work was in photoconductivity and electrical conductivity in solids, which were related directly to the behavior of semiconductor devices.

Dr. Greiner was appointed Assistant Professor of Electrical Engineering in 1957. His solid state physics and electrical engineering background led to early studies of the transistor. He taught graduate courses in electronics, including vacuum tube design, transistor design and application of solid state devices to electronic measurement and control systems. He started a solid state device fabrication laboratory in 1960 and wrote a textbook on the subject, *Semiconductor Devices and Applications* (McGraw Hill-1961). The book was about the physics of discrete transistor operation and applications of a variety of solid state devices to analog and digital circuits. This interest continued throughout his life, resulting in many publications and construction projects in all areas in which he was interested.

In 1961 Dr. Greiner was promoted to full Professor in the Electrical Engineering Department at the age of 30, one of the youngest full professors in the UW system. His research continued in solid state devices and applications with a graduate research program that produced students with 46 graduate degrees in the next 12 years. He served as Associate Chairman of his Department 1967-1972.

In 1972 he joined the central administration of the University of Wisconsin System and until 1979 served as a Senior Academic Advisor to the President's Office in the area of the Physical Sciences.

In 1979 he came back to the ECE department to pursue new interests and a fresh research program in the areas of acoustics, electro-acoustics, instrumentation, signal processing (analog and digital) and digital control systems. A new graduate program was started and produced another 47 graduate degrees in the period 1979 through 1992. An extensive laboratory was established for research in acoustics and signal processing which formed the core of his new research activities. This was largely supported by industrial money. Much of the research was in signal processing and adaptive digital control and generated many advanced degree thesis projects. This work culminated in the formation of a new company in the area of noise control and a Technology Development Fund grant for \$91,720 from the state of Wisconsin. Many of his graduate students went into digital signal processing, computer control, and adaptive control areas.

Dr. Greiner was a member of several honorary and professional societies, including Eta Kappa Nu, Sigma Xi, Phi Kappa Phi, Tau Beta Pi, Kappa Eta Kappa, the Institute of Electrical and Electronics Engineers, and the Audio Engineering Society where he was elected a Fellow in 1984.

Greiner's personal life paralleled his engineering interests. In the early years he owned several Corvette cars which he purchased from the proceeds of his book. He designed and built on board "computers" to help win timed races. He also continued his great interest in photography at this time. He invented and constructed several high speed flash units to allow him to photograph high speed events, like bullets flying through the air. He consulted in noise and vibration control in industrial settings. This included advanced design of balancing machines for a major manufacturer of equipment for the automotive industry. Acoustical noise problems and silencing of noise were also active areas for his consulting.

From early on Richard was involved with the Kappa Eta Kappa (KHK) engineering fraternity where for many years he was the faculty advisor. He was so revered by members of KHK that this organization held a very well attended wake for him at the Madison KHK House on April 18, 2015, with KHK members coming from as far away as Florida to attend.

Greiner had a great interest in high fidelity music reproduction. Dick loved classical music and amassed over 10,000 LP records. He was the first person in Madison to acquire a compact disc (CD) player in the early 80s and continued collecting digital CDs until he had over 10,000 of them. When Doc started collecting CDs he donated a large number of his LP collection to WHA radio station.

After retirement, Dr. Greiner continued to pursue these interests and added many more, some technical and some artistic. He added rock and mineral collecting, greater interest in astronomy, glass paperweights, and glass fusing to the long list of "hobbies".

His entire backyard became a garden, filled much of the year with beautiful flowers, shrubs and trees.

Richard had a beautiful rock and mineral collection. He donated his extensive and valuable collection of rocks and minerals to the UW-Madison Geology Museum, where his collection is now on display.

His interest in and support of astronomical studies was legendary. He was a lifetime honorary member of the Madison Astronomical Society. Along with several collaborators he built the first Doc Greiner Research Observatory in 2006, followed by two improved observatories in 2009 and 2011, all near Madison. His astronomy interests were mainly in the refinement of observing equipment, viewing of extended objects and imaging of deep space objects. He had an active observatory specializing in minor planet searches and in imaging. He designed and built much of the specialized equipment used in the Doc Greiner Research Observatory (DGRO). Some of the equipment, still in use today, allowed the group to view the skies of New Mexico from the comfort of his home in Madison by remote control.

Professor Greiner was a long time financial supporter of the UW Foundation and became a member of the Bascom Hill Society by his gifts.

ECE Dept. Memorial Resolution Committee
Mark Allie, ECE Faculty Associate
James Nordman, ECE Professor Emeritus
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