

Peter MacWilliams Koch

February 11, 1945 – March 16, 2025

Written by Nathan V. Koch

Dr. Peter MacWilliams Koch, a noted physicist and professor, died on March 16, 2025 from complications related to Alzheimer's disease. He was 80.

Professor Koch began his career at Yale University as an associate professor of physics. He arrived at Yale in 1967 to earn his PhD under Dr. Jim Bayfield, which he completed in 1974. His doctoral research under Dr. Bayfield focused on the study of highly excited atoms (often called "Rydberg atoms"). Together they performed a now historic experiment on microwave ionization of Rydberg atoms which resulted in the accidental discovery of an ionization threshold as a function of a microwave field; at the time, this result was unexpected since it had been understood that ionization thresholds were thought to appear only as a function of frequency and not global chaos.

In 1979-1980, following the reception of the Bayfield-Koch experiment, Professor Koch spent a year at the Département de Physique de l'École Normale Supérieure at the Université PSL (Paris Sciences & Lettres) on a Yale Junior Faculty Fellowship, which also doubled as a one-year honeymoon with his wife Nancy Koch (née Vozza), whom he married under the natural cathedral of a Beech tree on the Yale campus in 1979.

Prior to his return to the United States, Koch was hired as a professor of physics at Stony Brook University, where he performed experimental research, taught, and hosted postdoctoral fellows and PhD students from 1981-2020. He served as Chair of the Department of Physics and Astronomy from 2005-2009. In addition, he served in the College of Arts and Sciences administration on two occasions: as Associate Dean of the Division of Physical Sciences and Mathematics from 1995-1996 and as Associate Dean for Operations and Budget from 2003-2005.

Professor Koch and his family took three sabbaticals during his time at Stony Brook: at the Max Planck Institute just north of Munich, Germany in 1989-1990, and at the Granular Materials Laboratory within the Benjamin Levich Institute at the City College of New York in 2009-2010 and 2017-2018. In addition, he traveled frequently throughout his career, giving talks in faraway places including Latvia, Russia, Italy,

South Africa, the United Kingdom, Yugoslavia, China, Germany, France, Poland, and the Netherlands.

He is survived by his wife of 44 years, Nancy; daughter Amanda, son Nathan, and son-in-law Christopher; and grandsons Boden, Theo, Enzo, Ivan, and Callan.

Professor Peter M. Koch was born in Washington, D.C. and was raised, along with his brother Bob, in Port Washington, NY by his parents Edward C. Koch and Miriam Koch. In 1963 he graduated from John D. Schreiber High School; in that same year he received a senate nomination for admission to the United States Naval Academy, which he attended from 1963-1965. He received his B.S. in Physics from the University of Michigan in 1967.

Peter Koch was a man equally with his head in the clouds and feet on the ground. He was as passionate about fixing and repairing things – a thrown out vacuum cleaner, a homemade iPhone car mount, a faulty windshield wiper mechanism - as he was about contemplating the nature of the universe. There was never an errant washer, screw, or rubber band he walked by on the ground that he did not stop to pick up and put in his pocket, knowing a future use was a foregone conclusion.

Professor Koch was passionate about music, sailing, and military history, and his unwavering curiosity outside the world of science often brought a creative flair to his research. At the beginning of his PhD thesis, he wrote, in verse: “Since I’m an atom as big as bacterias I’ve got to take microwaves serious. No matter what I do I’ll be cryin’...After they hit me, I’ll be an ion.”