The Columbia University Department of Physics mourns the passing of Sven Hartmann, one of the founders of the modern field of optical physics and a valued member of the Columbia Physics Department. A native New Yorker, Sven was born and raised in the Bronx and Queens and graduated from Brooklyn Technical High School. After an undergraduate degree from Union College in Schenectady and two years of military service he moved to Berkeley to earn the Ph.D. in 1961 under the supervision of Erwin Hahn. Sven’s thesis work on double resonance methods had a decisive impact on the field of nuclear magnetic resonance, establishing the widely used cross polarization technique. Sven joined the Columbia faculty in 1962 and stayed with the Department for his entire scientific career, transitioning to emeritus status in 2003. At Columbia, Sven’s scientific interests shifted to the area of optical physics. He and his colleagues performed experimental and theoretical research of note on many topics, including (with Richard Friedberg, also of Columbia and Barnard, and Jamal Manassah, then at Columbia) foundational studies of superradiance and other processes in which radiation is emitted by atoms that decay collectively due to photon-mediated interactions. Sven is best known for his 1964 discovery (with Isaac Abella and Norman Kurnit) of the “photon echo”, an optical analogue of the spin echo phenomenon of nuclear magnetic resonance, and for his subsequent work with many collaborators further developing the topic and establishing the field of “optical coherent transients”.

Sven’s discovery showed the power of photon echo methods in unravelling basic notions about the interactions of light and matter, enabled pathbreaking studies by Sven and others of the fundamental physics of quantum coherence and its relaxation, and set the stage for modern investigations of quantum coherent phenomena in contexts ranging from photosynthetic molecules to quantum many-body systems. Sven’s work was honored by the 1983 R.W. Wood prize of the Optical Society of America. He was elected to Fellowship in the American Physical Society and received both Guggenheim and Sloan Fellowships.
Sven was a remarkable scientist, renowned for the combination of creativity, intellectual playfulness and careful attention to detail which he brought to all his endeavors. He was beloved in the scientific community and beyond as (in the words of Jamal Manassah and Igor Yevseyev) “a warm friend and colleague dedicated to helping all around him produce their best”. His first wife, Helen, passed away in 1979 and later in life he took great joy in his relationship with Constance Beckley, whom he married in 1987 and who survives him.

More information about Sven’s science can be found in his many published scientific papers and his influence on his field can be seen in the articles in the special issue “Laser Physics, volume 12, number 8, 2002, dedicated to Professor S. R. Hartmann on his 70th Birth Anniversary”. The photographs were kindly provided by Constance Beckley.

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