

In Memoriam Gunther K. Wertheim

Gunther Klaus Wertheim passed away unexpectedly on July 14 at the age of 87 at his home in Morristown, New Jersey, USA. Early in his scientific career at Bell Telephone Laboratories, he became a leading pioneer in Mössbauer spectroscopy, very soon after this new phenomenon had been discovered in 1958 by a doctoral student of the Technische Hochschule München, Rudolf L. Mössbauer. In 1961, Mössbauer received the Nobel prize in physics at age 32 for the discovery of the effect that carries his name. Gunther Wertheim had immediately understood the great potential of this new tool for applications in physics and chemistry as well as in magnetism and materials science, and he began - less than two years later - to publish his own novel and trend-setting results. By 1964 he had already published one of the very early books on Mössbauer spectroscopy (*Mössbauer Effect: Principles and Applications*, Academic Press, New York).

Gunther Wertheim was born in Berlin-Tempelhof in 1927 as the son of a physician, who had to leave his home country in 1938 due to the rampant Nazi terror. His father was a thoroughly assimilated German Jew, who had served in the First World War as a physician on both the west and east front and who had even been decorated with the Iron Cross. In 1939, at age 12, Gunther arrived with his father in New York City at the time, when World War II began. They settled in New York City, and he completed his school education there in 1944 at the prestigious Stuyvesant High School. In the same year, he enlisted in the US army – where his intellect was quickly recognized - and became a naturalized US citizen. For undergraduate studies, he joined Stevens Institute of Technology in New Jersey, where he received in 1951 an undergraduate degree in mechanical engineering. Harvard University accepted him for graduate studies, where he joined the group of Robert V. Pound, and received his PhD in 1955 with a thesis in low-energy nuclear physics.

Gunther Wertheim was a full-blooded scientist, who started already as a school boy with chemistry in the kitchen, and who published his very first paper – notably in geophysics - as a student in 1954 (*Studies of the electrical potential between Key West, Florida, and Havana, Cuba*); it was based on undergraduate research he had done at the Woods Hole Oceanographic Institution in Massachusetts under the tutelage of two eminent oceanographers (Arnold B. Arons and Henry Stommel). In 1955, he joined the staff of Bell Labs, where he first worked in semiconductor physics. When the Mössbauer effect had been discovered, his interest switched to this new field and its various applications. He soon became one of the leading pioneers in the

field, and many of the leading Mössbauer researchers in the USA were somehow associated with his group at Bell Labs, where he soon advanced to department head.

And again in 1970, when X-ray photoelectron spectroscopy had emerged as a new tool for chemical analysis (ESCA), Gunther “jumped very early on this new train”, which should accompany him until the end of his life. His lab emerged soon as one of the few leading centers for photoelectron spectroscopy in the USA, where many postdocs and guest scientists from all over the world learned and practiced the new spectroscopy at its scientific frontier. Gunther was an extremely accurate and masterful interpreter of scientific data, and he used computers as soon as they became available, nearly always with programs that he had written by himself. He was the author of more than 330 peer-reviewed scientific papers, with most of them very highly cited.

When his wife passed away in 1995, he decided to retire from Bell Labs in the same year. He was so esteemed by his colleagues at Bell Labs that they organized a special Symposium in his honor, with scientists from a number of outside institutions, including Stefan Hüfner from Saarbrücken; he had been among those who had learned XPS from Gunther about 22 years earlier. Upon retirement, Gunther realized that life needed to be more balanced, with his young grandson Alex enjoying his attention. As a consequence, he somewhat retreated from active science, but continued to collaborate with Jack Rowe and others on photoemission using synchrotron radiation. Less than two years later, however, he resumed to publish again in this strongly expanding field, in collaboration with scientists from Rutgers, NC State, South Korea, and Taiwan.

In Berlin, we were highly pleased and honored, when Gunther in 1984 first came to the city for a four-week stay in my group at the Freie Universität. And in 1986, Gunther spent several months at the research center in Jülich with Maurice Campagna and in Berlin with my group on the basis of a “Senior U.S. Scientist Award” granted by the Alexander von Humboldt-Foundation. This stay intensified our previous scientific and personal contacts. In 2007, I had the great pleasure to convey a personal letter of the governing mayor of Berlin, Klaus Wowereit, to Gunther Wertheim, when he celebrated his 80th birthday with his family and with many of his former colleagues and friends from the USA and from abroad in Morristown, New Jersey.

I bow to the great man and scientist Gunther K. Wertheim.

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