



BILZ

tory materials.

After a period as a research assistant in Freiburg he accepted a chair in theoretical physics in Frankfurt. In doing so, he became one of the few German professors to circumvent the painful ordeal of the *Habilitation* usually required for the occupation of a chair.

In 1972 he moved to Stuttgart where he had been offered a position as department head and director of the newly created Max-Planck-Institut für Festkörperforschung. In his new position, which he held till his death, he was highly instrumental in setting up the policies of this center for solid state research.

Bilz dedicated most of his scientific interests to the theory of lattice dynamics and their interaction with light. He contributed greatly to the development of macroscopic and microscopic theories of lattice vibrations, their anharmonicities and interactions with electronic states. Recently, he had made important contributions to ferroelectricity and to the theory of phase transitions as induced by nonlinear interactions. Much of his work can be found in the monumental volume of the *Handbuch der Physik, Vibrational Spectra of Non-Metals*, which he wrote with D. Straucher and Roland K. Wehner (Springer-Verlag, 1984).

Bilz was responsible for training a large number of theorists, both German and otherwise, who now occupy leading positions in teaching and research. As a theorist he always promoted a strong interaction with experimenters. His office door was open at all times to anyone seeking his help or advice and he was always ready to give it. He exuded optimism and friendliness and was noted for his fairness and conciliatory attitude in handling diffi-

cult matters. He was also a gracious host, for which many of his American colleagues will remember him fondly. With his death we have lost a friend, a colleague, a wonderful human being and a first class scientist in the prime of his work. It will not be easy to replace him.

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John J. Livingood

John J. Livingood died 21 July 1986 at the age of 83. He was one of the pioneer group, centered around E. O. Lawrence, at the Radiation Laboratory at Berkeley who did so much to move nuclear physics from the era of radium sources and ZnS scintillators to the era of cyclotrons and counters. He was born in Cincinnati, Ohio, and got his AB and PhD at Princeton. He stayed at Princeton as an instructor and during this period wrote, with Gaylord Harnwell, the text *Experimental Atomic Physics* (McGraw-Hill). This book was the introduction to modern physics for many of the generation of physicists educated in the thirties and forties. In 1932 he moved to Berkeley and in association with several other people, principally Glenn Seaborg, he found over a dozen new radioactive isotopes. Amazingly enough from their knowledge of nuclear systematics they were also able to find a new stable isotope Te^{120} . The article he wrote with Seaborg (*Reviews of Modern Physics* 12, 30, 1940) was a classic reference in nuclear physics for a decade.

He went to Harvard in 1938 to help in the construction of their first cyclotron, and in 1942 he joined the Radio Research Laboratories that were set up at Harvard during World War II. Here he played a major role in developing the resonatron, a large radio tube used for major jamming. In 1945 he joined the Collins Radio Company where he was in charge of the design and installation of cyclotrons at Argonne and Brookhaven National Laboratories. In 1952 he went to Argonne where he was the leading spirit in the accelerator design project that led to his heading the design and construction of the Zero Gradient Synchrotron, a 12 GeV proton accelerator that made numerous contributions to particle physics until it was shut down in 1979.

In later years he served as consultant to Argonne and others on accelerator matters and wrote two books in this field *Principles of Cyclic Particle Accelerators* (Van Nostrand, 1961) and *The*



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Optics of Dipole Magnets (Academic, 1969).

As a physicist Livingood's outstanding characteristic was his drive to understand. He was not satisfied with easy explanations and was not afraid to question anybody. He was energetic and well-focused, but never overbearing. His good manners, cheerfulness and consideration will be missed by all who knew him.

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William L. Williams

The physics community suffered a tragic loss with the death of William L. Williams as a result of a plane accident on 11 November 1986.

Williams was born in Chickasha, Oklahoma, on 28 May 1937. He received his undergraduate education in physics at Rice University, where he earned the BA in 1959. He then moved to Dartmouth College, where he completed the MA in 1961, and to Yale University, where he was awarded a PhD in 1965.

He spent his academic career at the University of Michigan, where he arrived as instructor in 1965. He advanced rapidly to professor in 1976. He served as associate chairman of the department of physics and was the associate dean of research for his college at the University of Michigan. His *Doktorfamilie* contains 11 doctoral students, and the list of students whom he influenced in his teaching career numbers in the thousands.