

Seitz to Receive 1993 Von Hippel Award

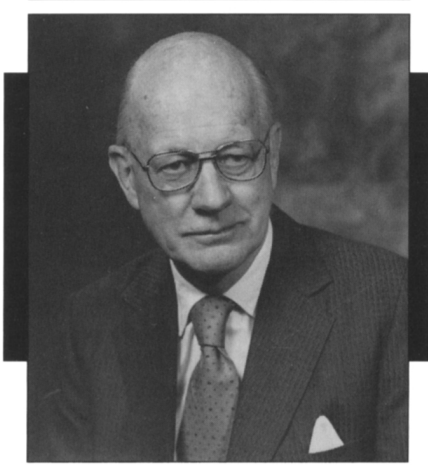
The Von Hippel Award, the Materials Research Society's highest honor, this year goes to Frederick Seitz, president emeritus of The Rockefeller University "for his seminal role in establishing the modern fields of solid-state physics and materials science through his many basic books and research papers, and for his leadership, as a teacher and administrator, in encouraging the growth of these disciplines." The Von Hippel Award is given annually to an individual in recognition of outstanding contributions to interdisciplinary research on materials. Seitz's contributions are broad and far reaching. An early leader in solid-state physics and materials science, his knowledge of the important role of defects and his contributions to band theory are monumental. His profound scientific insight and his leadership in academia and government advisory councils and in public and cultural affairs have greatly impacted materials science and the broader arena of science and engineering.

The 1940 publication of Seitz's classic monograph, *The Modern Theory of Solids*, introduced modern solid-state physics and earned him the title of "father of solid-state physics." His 1943 textbook, *The Physics of Metals*, set the scientific foundations for the teaching of physical metallurgy.

Along with Eugene Wigner, Seitz is noted for a major part in laying the foundations of the electronic theory of solids. Their early description of band theory is known as the Wigner-Seitz model. Seitz realized that advances in quantum mechanics had made possible a basic attack on understanding the properties of real materials.

He later realized that elucidating the nature of defects in solids was basic to understanding an entire host of properties: diffusion, color centers, photographic processes, plastic flow, fracture, radiation damage, etc. And, along with Sir Neville Mott, Seitz can also be called "the father of the science of defects in solids."

Seitz's research interest in defects began formally with a paper co-written with H.B. Huntington on the energy of formation of interstitials in copper (*Physical Review*, 1942). In 1952, he published a seminal review in *Imperfections in Nearly Perfect Solids* (edited by R. Smoluchowski) on the properties of crystal defects and their interconnections.



His work revealed the important effects crystal defects have on crucial metallurgical phenomena. Likewise, his early work on the F-center and other defects in ionic crystals, and his influence on the work of others, set the stage for subsequent work on defects in ceramics.

Seitz realized very early that materials science was a collection of closely related disciplines which could only advance through mutual interaction and collaboration. With David Turnbull he established the review series in materials, *Solid State Physics*, which brought materials-related authors together.

His breadth of view led him into such leadership positions as the presidency of the American Physical Society (1961) and of the National Academy of Sciences (1962-1969), and ultimately to the presidency of The Rockefeller University (1968-1978).

He helped raise materials science to further heights in the United States. Seitz is often cited for his encouragement of U.S. government funding agencies to establish Materials Research Laboratories at universities on a national basis. These interdisciplinary MRLs have had a powerful impact on materials education and research. As president of the National Academy of Sciences, Seitz took the lead in assuring that outstanding materials scientists could achieve recognition by election to the National Academy, reversing a long-time trend to restrict such honors to "pure" scientists.

Seitz earned his AB degree in mathematics from Stanford University in 1932 and his PhD degree in physics from Princeton University in 1934.

In 1935 he became an instructor and then assistant professor in physics at the University of Rochester. After several years at General Electric Research Laboratories and then at the University of Pennsylvania, he spent seven years at the Carnegie Institute of Technology. In 1949 he began his lengthy tenure at the University of Illinois as professor of physics. While there he was also director of the Control Systems Laboratory, head of the Physics Department, and then dean of the Graduate College and vice president for research. Seitz played a key role in developing the interactive and interdisciplinary mode of solid state research prevalent at the University of Illinois today. The coordinated science laboratories there have been renamed the "Frederick Seitz Laboratories."

Seitz served as a civilian member of the National Defense Research Committee (1941-1945), consultant to the Secretary of War (1945), director of training in atomic energy at Oak Ridge National Laboratory Clinton Laboratories (1946-1947), and science advisor for the North Atlantic Treaty Organization (1959-1960).

His consulting activities are extensive, and he has held many publishing affiliations. He has also been a member of numerous corporate, government, university, and international committees and boards. In addition to his high standing in the U.S. scientific community, Seitz is a member of scientific academies in Romania, Germany, Sicily, Finland, and Switzerland.

Among the many medals and awards he has received are the Franklin Medal (1965), the National Medal of Science (1973), and the National Science Board's Vannevar Bush Award (1983). He holds more than 25 honorary doctorate degrees from universities around the world.

The Von Hippel award will be presented to Seitz at the 1993 MRS Fall Meeting during the Awards Session on Wednesday, December 1, at 6:00 p.m. in Salon E, Boston Marriott Hotel, Copley Place. Immediately after the award presentation, Seitz will give a lecture highlighting his research. A reception will follow.

MRS

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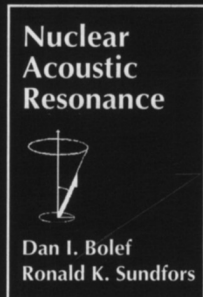
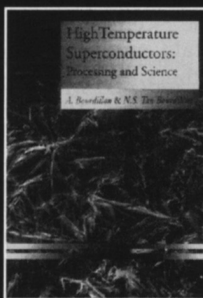
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