

Judah Moshe Eisenberg¹

Judah Moshe Eisenberg died in Tel Aviv, Israel, on 17 March 1998, after a brief illness. A prominent nuclear theorist, he was serving as vice rector of Tel Aviv University where he had been teaching since 1975 and where he had held the Yuval Ne'eman Chair in Theoretical Nuclear Physics since 1983.

Judah, whose father was a well-known scholar of Hebrew and a leader in Jewish education, was born in Cincinnati on 17 December 1938. He studied at Columbia University, where he earned an AB in 1958, and at MIT, where he earned his PhD in theoretical physics in 1962 under Kerson Huang.

That same year, Judah joined the University of Virginia's physics department as an assistant professor. Later, he chaired the department from 1970 to 1974. His contributions to nuclear theory began at Virginia with work on electro- and photoexcitation of nuclei.

He soon became interested in the proposal to study nuclei using pion interactions at the newly planned meson factories. (The 1964 Bethe report had recommended such high-flux meson facilities; three were built, LAMPF at Los Alamos, TRIUMF in Vancouver, British Columbia, and SIN at Villigen, Switzerland.) He began to study nuclear pion absorption in 1966, and continued doing research on pion reactions for the next 20 years.

Given his upbringing and close connection to his Jewish heritage, it is understandable that Judah would readily accept an offer in 1975 from Tel Aviv University, where he was considered a great catch for the young nuclear physics group. He strongly influenced the development of Tel Aviv's experimental and theory programs.

Starting in the mid-1960s, first at Virginia and then at Tel Aviv, Judah spent about two decades focusing on both developments in multiple scattering theory and the application of that theory to a large variety of possible pion-nucleus reactions—including charge exchange, $(\pi, 2\pi)$, (p, π) , and (π, γ) , with some ventures into K and antiproton reactions. His practical approach stressed what could be learned from each possible reaction by direct and economical extensions of meson theory. He also contributed to the subject of spin-isospin (that is, pionic) excitations, which is still of lively interest.

As meson-nucleus physics expanded toward the subnucleonic aspects of nuclei in the 1980s, Judah turned his attention to the chiral bag and skyrmion models of nucleons and their interactions with pions. In his last decade, Judah worked intensively on the nucleon-nucleon interactions in the skyrmion theory and on problems of quark-pair production in the quark-gluon plasma. Here, as elsewhere, he combined the study of phenomenological models with fundamental questions—in this case, the derivation of transport theory from nonequilibrium quantum field theory.

Judah published more than 120 research papers in scientific journals during his lifetime. His books, perhaps his most outstanding legacy, are models of clear exposition. The first, *Nuclear Theory* (Elsevier, 1970–72), a three volume

¹*Physics Today*, October 1998

monograph written in collaboration with Walter Greiner, has served (through three editions) as a textbook and standard reference on many topics in nuclear structure and reactions. He wrote two books with Daniel Koltun: a monograph, *Theory of Meson Interactions with Nuclei* (Wiley, 1980), and the graduate-level textbook *Quantum Mechanics of Many Degrees of Freedom* (Wiley, 1988).

Judah's writing reflects his distinctive lecturing style, which was colorful, often allusive to a wide range of related theory issues, and an inspiration to many students and colleagues. He was much in demand as a lecturer at conferences and summer schools. He was one of the founders of the Summer Nuclear Theory Institute that has been held regularly since the 1980s at TRIUMF. Judah collaborated easily and communicated well. His close association with Walter Greiner included many visits to Frankfurt, where he received an honorary degree in 1985 and built strong connections between Tel Aviv and Frankfurt universities. His good sense, direct manner, and natural ability to lead enabled him to build a theory group at Virginia and to chair the department with success, as well as to later succeed as an administrator at Tel Aviv.

Judah was broadly interested and erudite in many fields of science, history, and literature—especially Jewish history and Hebrew literature. His culture and worldliness made him a natural choice for high administrative capacity, and he was elected dean and then vice rector at Tel Aviv. It was hoped that his breadth of perspective would bring luster and innovation to the management of the university. But this stage of his career—perhaps the most exciting—was cut short by his untimely death.

Judah will be missed by friends and colleagues around the world.

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