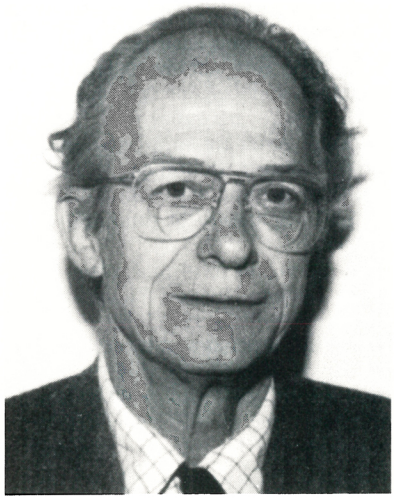

JENS LINDHARD

the Properties of a Gas of Charged Particles" in the journal of the Royal Danish Academy.

In the early 1950s, Lindhard worked closely with Bohr and was influenced by Bohr's deep interest in the penetration of charged particles through matter. Together with Morten Scharff and H. E. Schiøtt, Lindhard developed the basic concepts of a theory of the penetration of low-energy ions—now commonly called the LSS theory—which has become the theoretical basis for ion implantation and ion-beam modification of materials.

After moving to Aarhus in 1957, Lindhard and the experimentalist Karl Ove Nielsen succeeded in building up a world-class research group in particle–solid interactions. In the 1960s and 1970s, numerous leading scholars from all over the world visited the group, which contributed to major developments in the field, the most dramatic being the discoveries in channeling—that is, the guidance of penetrating charged particles by a crystal lattice. Early evidence for enhanced penetration in crystals had been found outside the Aarhus group, but a pioneering theoretical effort by Lindhard provided the basis for the discovery of a nearly complete extinction of nuclear reactions of a particle beam directed parallel to a crystal axis.

Lindhard had a broad interest in the fundamental fields of physics and made contributions to several of them—particularly statistical physics and relativity. Using a penetrating and original approach to analysis, he would bring the basic aspects of a problem into focus, and he often derived his results from a few simple assumptions, which were shown to have far-reaching consequences. An elegant example of his style is a 1968 *Physica* paper (volume 38, page 635) on the relativistic transformation of temperature, which resolved a long-standing controversy. However, the theory of particle penetration remained close to his heart, and his last paper was concerned with relativistic heavy ions. The paper's new predictions have recently been confirmed by experiments at CERN.

Through his papers and through his personal interactions with others, Lindhard had considerable influence in the world of physics. He supervised only a handful of research students, but inspired many more. There is nobody to replace him.

JENS ULRIK ANDERSEN
Aarhus University
Aarhus, Denmark
PETER SIGMUND
Odense University
Odense, Denmark

Rutherford Hamlet Adkins

Rutherford Hamlet Adkins died on 6 February in Nashville, Tennessee, after a long and distinguished career both in physics teaching and university administration. He was 74.

A native of Alexandria, Virginia, Adkins began his college studies in 1941 at Virginia Union University and later transferred to Temple University in Philadelphia, where he was drafted into the US Army during World War II. After receiving flight training at the Tuskegee Institute Army Airfield in Alabama, he was posted to Europe with the 100th Fighter Squadron of the 332nd Flight Group, which consisted of African-American pilots who later came to be known as the Tuskegee Airmen. He flew 14 combat missions.

After military service, Adkins returned to his education, chose physics as his field and earned a BS from Virginia State College in 1947 and an MS degree from Howard University in 1949. With a thesis entitled "A Theoretical Investigation of the Structure of Odd–Odd Nuclei," he earned his doctorate in 1955 from the Catholic University of America.

RUTHERFORD HAMLET ADKINS

Adkins held a wide range of academic and administrative appointments at several colleges and universities. He was a physics professor at Virginia State College (1949–58), Tennessee State University (1958–62), Fisk University (1962–76 and 1993–98), the US Naval Academy (1981–91), Georgia Institute of Technology (1990–91) and Morehouse College (1990–93). During his first tenure at Fisk, he served as the university's interim president from 1975 to 1976. Having moved to Knoxville College in 1976, he became its president in 1981. During his second tenure at Fisk, he was named president in February 1997 and served in that position until he died.

Adkins had a long and illustrious career in science education. At Tennessee State, he chaired the department of mathematics and physics and secured funding for and directed various summer science institutes for high school teachers of the physical sciences. He was also one of the first to foresee the important impact that computers would have on the educational and research roles of small universities and colleges. Instrumental in acquiring an IBM 370 computer for Fisk, he later became the founding director of the university's computer center.

Adkins's major research efforts centered on theoretical work in the physics of atomic collisions—in particular, positronium formation, the onset of avalanches in moist rarefied atmospheres at high energy-to-pressure ratios and energy dissipation in the residual gases of a Z-pinch plasma. He did most of this work during summer appointments at Federal laboratories—namely, NASA's Langley Research Center, the Army's Harry Diamond Laboratory and the Naval Research Laboratory.

Known to his friends as Lubby, Adkins was a quiet, low-key, rational person. His many students and colleagues knew him as someone to trust and provide good, sound advice in times of conflict and need. He will be missed, but remembered, in the hearts and minds of his family, friends and colleagues.

RONALD E. MICKENS
Clark Atlanta University
Atlanta, Georgia ■