

OBITUARIES

Nobel Prize-Winning Physicist Abdus Salam Dies at 70

By Martin Weil
Washington Post Staff Writer

Abdus Salam, 70, the Indian-born son of pious Muslims who won the Nobel Prize in physics and founded an institute to train Third World scientists, died Nov. 21 at his home in Oxford, England.

His death was reported by the Imperial College of Science, Technology and Medicine at the University of London, where he taught for more than 30 years. No cause of death was given.

Dr. Salam, one of the world's foremost theoretical physicists, was known for making significant contributions to the solution of one of the most challenging intellectual problems of the age: the development of a grand unifying theory of matter and energy that essentially would explain the structure and behavior of the entire universe.

The 1979 Nobel Prize, which he shared with two Americans, Steven Weinberg and Sheldon Glashow, honored him for his mathematical demonstration of the underlying connection between two basic natural

forces and phenomena that previously had been believed separate and independent.

One was electromagnetism, which draws together electricity and magnetism, light waves and radio waves. The other was the "weak force," another of the primary forces of nature, but one that is not so easily recognized in the everyday world.

It acts on the subnuclear level, but it also accounts for some of the most essential processes in the universe. As Glashow pointed out in an interview yesterday, without the weak force, through which protons are transmuted into neutrons in a fusion reaction, "the sun could not shine."

Although electromagnetism and the weak force were once considered independent, "they have fit together very neatly now," Glashow said, in a connection that supports what is known as the "standard model" of nuclear and particle structure and interaction.

That fit, he said, helps explain why the standard model "is regarded as a scientific triumph." Although it leaves many questions unanswered, it nonetheless offers a way of ex-

plaining "everything we see about us."

Although the areas of physics in which Dr. Salam specialized appear "absolutely impractical," in Glashow's words, "he had a practical bent," expressed in his keen desire to train scientists from the less developed countries.

To this end, he founded the International Center for Theoretical Physics in Trieste, Italy.

"What I wanted was to give the poor a place of their own where they would not have to beg anybody," he said. It was regarded during the Cold War as perhaps the only place where scientists from the East and West could work together.

Dr. Salam's share of the Nobel Prize award went to an international fund for young scientists.

Dr. Salam, descended from a long line of forebears known for Islamic learning and piety, was born in 1926, the son of a teacher and civil servant in the Punjab province of what was then British India.

At 14, he received the highest marks then recorded on a Punjab University entrance exam and began stud-

ying mathematics. A scholarship sent him to England to study at Cambridge University, where he obtained his doctorate.

Handed an exceptionally challenging cutting-edge problem for his doctoral research, he polished it off in five months, winning a prize and establishing himself as an intellectual prodigy. Dr. Salam spent a year on a fellowship at the Institute for Advanced Study in Princeton, N.J., and in 1951, he went back to the now independent Pakistan, as head of the mathematics department at Punjab University.

Biographers said Dr. Salam soon realized that he could do more for science in Pakistan by working in a place where he would be closer to the frontiers of science; in 1954, he returned to Cambridge as a professor.

Until he resigned in 1974, Dr. Salam served for 16 years on Pakistan's Atomic Energy Commission. A 1992 story in *The Washington Post* reported "Western analysts" as saying disagreement existed over whether he might have had a role in the Pakistani nuclear weapons program. He preached for decades against nuclear weapons.

Glashow, Higgins professor of physics at Harvard University, called Dr. Salam "a beloved friend" who was "one of the most delightful characters in the world of physics" and a "truly lovable and gentle soul."

The Associated Press said that Dr. Salam lived in Oxford with his wife, Louise Johnson, and that they had one child. It quoted friends as saying he had four children from an earlier marriage.