

Biography of Abdus Salam The Heritage of All Mankind

Introduction

Dr. Abdus Salam was a devout Ahmadi Muslim, a proud citizen of Pakistan, a Nobel Prize winning physicist and a committed supporter of global science, particularly in regions underrepresented in the international scientific community.

Biography

Abdus Salam was born in 1926, in Jhang, a small town in the Punjab province of Pakistan. He studied on scholarship at Government College University of Lahore. After receiving his bachelor's and master's degrees from Government College University, Salam received a state scholarship to study abroad. He earned bachelor's degrees in math and physics from St. John's College, Cambridge, where he returned to pursue a Ph.D. in theoretical physics. At Cambridge, Salam was awarded the Smith's Prize for pre-doctoral contributions to physics, making a name for himself in physics even before he earned his Ph.D. in 1951. After completing his education, he wrestled with the decision to remain abroad, where he could continue his research with ease, or to return to Pakistan to further physics in his native country.



Salam decided to return to Pakistan, becoming the head of the Department of Mathematics at both Government College University and the University of Punjab. Salam wished to develop research in Pakistan, but faced institutional difficulties and began to grow isolated from the international physics community without access to journals. Unfortunately, these were not the only challenges Abdus Salam was faced with. Salam was an Ahmadi Muslim, and he, along with others from the same religious group, faced increasing persecution in Pakistan. Escalated riots forced Abdus Salam and his family to take refuge.

Three years after he had returned to Pakistan, Abdus Salam and his family returned to England. He worked briefly at St. John's College before taking a position at Imperial College, London, where he would stay for the remainder of his career. However, his commitment to Pakistani physics did not lessen. He became a member of the Pakistan Atomic Energy Commission, Pakistan Institute of

Nuclear Science and Technology, and the Scientific Commission of Pakistan. He also served as the President's Scientific Advisor, as well as on a number of United Nations committees regarding the advancement of science and technology.

Furthermore, Dr. Abdus Salam developed a program so that scientists would no longer have to choose between living in their country of birth and being actively involved with the scientific community. In 1964, Salam became the first director of the International Centre for Theoretical Physics (ICTP) in Trieste, Italy. The Centre appoints Associates who are funded for periodic trips to ICTP, where scientists can dedicate time to their research, collaborate, and network. This allowed scientists to engage in research without having to permanently leave their home country. Salam successfully navigated political and funding avenues to found the ICTP and to keep it running. He additionally contributed to other efforts to boost global science, such as seeking access to journal abstracts for institutions across the world who were without subscriptions to major physics journals.

Around the same time that Dr. Salam established the ICTP, he continued his own research, developing electroweak theory with his colleague John Ward. It was for this work that he won the Nobel Prize in Physics. In 1979, Steven Weinberg, Sheldon Glashow, Abdus Salam won the Nobel for “for their contributions to the theory of the unified weak and electromagnetic interaction between elementary particles, including, inter alia, the prediction of the weak neutral current.”¹ Abdus Salam donated all of his prize money to fund scholarships for physicists in countries underrepresented in the international physics community.

Dr. Abdus Salam was the first Muslim Nobel Laureate, even though at the time, Pakistan did not consider him Muslim because of his membership in the Ahmadiyya community. He was not able to be honored in his country for his achievements. Yet, Salam spoke of his faith often when he was recognized in physics. For example, in his address to UNESCO on his reception of Einstein Medal, he said, “The Holy Quran enjoins us to reflect on the verities of Allah’s created laws of nature.”² In his Nobel Banquet Speech, he remarked that the faith of all physicists is in the perfection of creation, which draws wonder.

Salam died in 1996. He was outlived by his two wives and children.

Dr. Salam conducted groundbreaking work in physics, demonstrated resiliency and commitment in regard to his faith, and gave generously to the global scientific community. For these reasons, as well as others, Abdus Salam’s life is multifaceted and compelling.

Sources

Image is courtesy of the Emilio Segrè Visual Archives.

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¹ [1] NobelPrize.org, “The Nobel Prize in Physics 1979,” <<https://www.nobelprize.org/prizes/physics/1979/summary/>>.

² H. R. Dalafi and M. H. A. Hassan (editors). *Renaissance of Sciences in Islamic Countries: Muhammad Abdus Salam* (World Scientific, Singapore, 1994).