

M. K. Mehta (1927–2010)

The nuclear physics community in India became poorer with the passing away of Madhukar Kapilrai Mehta on the 28 June 2010. Mehta was born in Bhavnagar on 24 September 1927. After completing his M Sc degree in physics from the University of Bombay, Mehta joined the Tata Institute of Fundamental Research (TIFR), Mumbai in the year 1951 as a research assistant in the accelerator section of late D. Y. Phadke, K. A. George and others. This team had indigenously built a 12" cyclotron way back in 1956! Along with late A. S. Divatia, Mehta also contributed to the design and development of a 300 keV proton Van de Graaff accelerator. Thus Mehta's career started as an accelerator physicist. He took leave of absence to pursue his Ph D degree in nuclear physics from Florida State University. He used alpha elastic scattering as a tool to measure compound nuclear states with large alpha partial widths. When he returned in 1963 after completing his Ph D, Mehta was transferred from TIFR to the Atomic Energy Establishment (AEET), Trombay (later renamed as the Bhabha Atomic Research Centre (BARC)). The 5.5 MV Van de Graaff accelerator was just then commissioned at AEET. Mehta started active nuclear physics research programmes using it – precision elastic scattering and reaction measurements to obtain valuable data on the compound nuclei at moderate excitation energies. Mehta visited the University of Washington and worked with the group of R. Vandenbosch during 1969–70. He participated in 'fission isomer' experiments, a hot topic during that period. Mehta was one of the earliest persons from India to have performed heavy ion-based experiments, an emerging area in nuclear physics at that time.

In India, Mehta and his group did some pioneering work in the field of low energy nuclear physics related to (p, n) reactions on medium weight nuclei and determination of proton optical potential at sub-Coulomb energies. Using the fast neutron facilities at the Indian Institute of Technology, Kanpur and TIFR, the first successful experimental work on 'fission isomer' excitation was performed under Mehta.



In 1971, I had the privilege to join Mehta. He was my mentor and took good care of my early days in nuclear physics, often finding time to teach me personally the intricacies of experimental nuclear physics. He allowed youngsters like me to perform experiments on our own with minimum help. This aspect of his training gave us confidence at a young age. In 1974, Mehta became Head of Nuclear Physics Division at BARC. His room was always open for anyone. Mehta encouraged collaboration between Variable Energy Cyclotron Centre (VECC) and BARC, as well as BARC and the universities.

Along with late Divatia, Mehta contributed to the building of the first

cyclotron (VECC) at Kolkata. As member secretary Mehta took an active part in the committee headed by P. K. Iyengar, which was responsible for making the roadmap for the advanced high energy accelerator facilities in India. The synchrotron source at Indore came as a recommendation of this committee. It was Mehta along with late R. P. Sharma who spearheaded our efforts to acquire the 14 MV pelletron at TIFR, the work-horse for nuclear physics research for the past two decades. Mehta also had a role to play in the realization of the Inter-University Accelerator Centre at Delhi. In 1983, Mehta went to the International Atomic Energy Agency, Vienna on an assignment. He returned in 1986, and served as the head of physics group. After retirement, he went to Ahmedabad and helped in science communication and propagation as Director of the Vikram Sarabhai Community Science Centre during 1989–94. His love for popularization of science (also in his mother tongue, Gujarati) and his zeal for knowing the latest happenings in the Indian atomic energy programme were undiminished despite his advancing age.

Mehta was a Fellow of the Indian Academy of Sciences, Bangalore.

In 2006, he inaugurated the annual nuclear physics symposium at MS University, Baroda. Perhaps that was the last major event in which he participated. Mehta passed away on 28 June 2010 after a brief illness, leaving behind his wife, two sons and their families.

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