

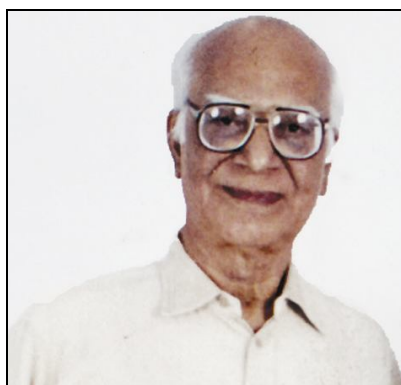
S. K. Bhattacharjee (1926–2013)

Satyendra Kumar Bhattacharjee, a distinguished nuclear physicist of the country, passed away in Mumbai on 28 April 2013. He was a true gentleman scientist. A person of high integrity, he did not use his position to force his views on others and always encouraged his juniors to explore new directions.

Bhattacharjee was born in Murshidabad, West Bengal on 2 October 1926 and studied at the Calcutta University completing his Master's degree in 1948. During this period he came under the influence of Meghnad Saha and Satyendranath Bose. He subsequently got his Ph D in nuclear physics from the University of Notre Dame, USA in 1953. He joined the Tata Institute of Fundamental Research (TIFR), Mumbai, during the late 1950s and set up a productive group of researchers for nuclear structure studies. He used the available radioactive sources for beta decay studies while developing the necessary equipment and electronics in-house. Some of the important contributions made by his group during that period have gone into textbooks of advanced nuclear physics. These are: understanding the sudden change in nuclear shape from near-spherical to highly deformed as the neutron number changes from 88 to 90 through the measurement of static and transition moments; clarifying the role of K-selection rule in beta decay of highly deformed nuclei using the only known case of ^{172}Tm and establishing that isospin is a fairly good quantum number for the low-lying states of medium and heavy nuclei. He maintained his professional contact with colleagues abroad throughout his career and had been a Weizmann Fellow at the Weizmann Institute, a Senior Research Fellow at the California Institute of Technology, a Senior Research Associate at the State University of New York (Stony Brook), Visiting Professor at the Institut fuer Strahlen und Kernphysik (Bonn), Laboratoire Rene Bernas, University of Paris (Orsay), Johannes Gutenberg Universitaet (Mainz) and a Visiting Scientist at the Lawrence Berkeley Laboratory (Berkeley). His collaborations with the Mainz University group on measurements of charge radii of even-even mercury isotopes using collinear fast-beam laser spectroscopy at ISOLDE, CERN

led to the observation of a very large isomer shift in ^{185}Hg isotope and large odd-even staggering that were at odds with theoretical models.

During the difficult period in late 1970s when the facilities for experimental nuclear studies in India had dried up for lack of resources, Bhattacharjee's leadership helped successfully diversify the activities of the group into areas of hyperfine interactions, atomic physics



and tests of symmetry laws. He encouraged self-reliance and development of the necessary state-of-the-art detectors and instruments in the laboratory. Even with the modest resources at its disposal, the group was successful in mastering the technology of fabricating silicon surface barrier detectors, lithium drifted silicon detectors, lithium drifted germanium detectors, multi-wire proportional counters, Bragg curve ionization chambers, etc. Almost all the required pulse processing electronics was also designed and fabricated in the group during that period. A successful programme for the measurement of magnetic field and electric field gradients in solids was pursued using nuclei with known moments. In the programme on atomic physics which Bhattacharjee had planned with S. K. Mitra, K and L X-ray production cross-sections using protons and alpha particles were measured, in which the effect of multiple vacancies on Coster-Kronig transitions was observed. The best available experimental limit on charge non-conserving decay of a nucleon was obtained using the decay of $^{85}\text{Rb} \rightarrow ^{85}\text{Sr} + \text{neutrals}$ and $^{113}\text{Cd} \rightarrow ^{113}\text{In} + \text{neutrals}$ by his group. A limit on the existence of a heavy neutrino was determined from the

beta decay of ^{35}S . All these activities helped sustain the group, till the 14 UD Pelletron accelerator was installed and gave a new lease of life to nuclear physics research at TIFR and the Bhabha Atomic Research Centre.

Bhattacharjee was elected a Fellow of the Indian Academy of Sciences in 1973 and was a member of the American Physical Society since 1951.

His interests were not just confined to science but spanned the world of literature, music and fine arts. He was well-versed in both English and Bengali literature. He was a connoisseur of Western classical music and an able exponent of Rabindra sangeet. Although it usually took a lot of persuasion to get him to sing, listening to his duets with his wife (Sabita) was always a treat to those who were fortunate enough.

I would like to share one incident with the readers to illustrate his integrity and attitude to work. As his student, in my first paper to be published on a detector simulation, I had included his name in the list of authors as I used to regularly discuss with him the calculations. He came down quite severely on me and asked for his name to be deleted as he did not think he had contributed enough to the work. It was a lesson in intellectual honesty that has stayed with me all these years.

He took a child-like pleasure in each and every small success in the experiments and would remain in an excited state during the progress of experiments. He retired from TIFR in 1986 and kept himself occupied with his varied interests in literature, music, films and plays. Although he did not participate in active research thereafter, he evinced keen interest in all aspects of science and would discuss about the recent findings with those visiting him.

Bhattacharjee is survived by two sons, a daughter and their families. He will be missed and also fondly remembered by all who came in touch with him.

AMIT ROY

*Flat 1A, Xenon Co-op Housing Society,
J-383 Baishnabghata Patuli Township,
Kolkata 700 094, India.
e-mail: amitroy1948@gmail.com*