

Obituary



Professor Dr. A. M. Harun-ar-Rashid
(1933-2021)

Professor A. M. Harun-ar-Rashid was born on the 1st of May, 1933, in a remote village in Barisal district, Bangladesh, where his father, Late Professor Moksud Ali, A.D.P.I., was the first person to have received postgraduate Education in science.

He had a brilliant academic career in Krishnanagar and College in Dhaka, where he never stood second in any examination. He obtained B.Sc. (Hons.) degree in Physics from the University of Dhaka in 1953, standing First in the First Class, and a M.Sc. degree in Physics in 1954, again standing First in the First Class. He received prizes and honors in his academic career in School, College, and University for his outstanding academic achievements. Professor Rashid received the Raja Kalinarayan Scholarship awarded by Dhaka University to the most outstanding graduate every year. Professor Rashid obtained a Ph.D. degree in Theoretical Physics from the University of Glasgow in 1960, working under Professor R. G. Moorhouse and Professor B.H. Bransden.

Professor Rashid was a Lecturer in Physics, University of Dhaka, 1955-1962, Senior Scientific Officer and Principal Scientific Officer, Atomic Energy Centre, Dhaka 1962 - 1967. Professor of Theoretical Physics and Director, Institute of Physics, University of Islamabad, 1967-1971. Professor of Physics, Chairman of the Department of Theoretical Physics and Director, Bose Centre for Advanced Study and Research, University of Dhaka, 1972-1979. He was Chairman, Department of Physics, University of Dhaka, 1979-1981 and Director, Computer Centre and Professor of Physics, University of Dhaka. He was awarded the Ekushey Padak (Twenty-first February Medal) for Education in 1991 by the Government of Bangladesh. The Government of Bangladesh awarded Professor Rashid the best Science Writer Award in 2005. He also received the Independence Day Award (Swadhinata Purushkar), which is the highest civilian award from the government of Bangladesh, in 1999.

He received training in Reactor Physics in 1956 at the Atomic Energy Research Establishment, Harwell, U. K. He spent time as Visiting Scientist at the Institute for Theoretische Kernphysik, Karlsruhe, in 1963 and 1964. He was also a Visiting Scientist at the International Centre for Theoretical Physics, Trieste, from February 1966 - July 1966, January 1968 - August 1968, and January 1974-June 1974. He was a Visiting Scientist at the Imperial College of Science and Technology, London, from October 1971 till September 1972. He has been an Associate and later a Senior Associate of ICTP, Trieste, since 1969 and visited the Centre for three months each in 1969, 1970, 1985, and 1993. He was a Visiting Professor at the Centre for Particle Theory, Department of Physics, the University of Texas in Austin, USA, in December 1975. He participated in the

Scottish Summer School on String Theory in 1985. He was a Visiting Professor at the University of California in Los Angeles in 1991.

He researched a problem of K-meson-nucleon scattering using Tamm-Dancoff Approximation in field theory which was published in the *Nuovo Cimento*. He participated in the first Scottish Summer School on "Dispersion Relations" in Edinburgh in 1960, and the first-ever Summer Seminar on Theoretical Physics held at Trieste in 1962, organized by Professor A. Salam. Before 1962, Professor Rashid's interest was in the photoproduction theory of vector mesons, in which experimental work had not yet started. With Professor M. J. Moravcsik, he formulated the first consistent phenomenological theory of spin-1 meson photoproduction, including its multiple structures. But soon, under the strong influence of Professor Salam, he started work on group theoretic symmetry schemes, and in 1966, he, along with Professor C. Fronsdal, gave the first detailed calculation of $SL(6, C)$ based hadronic form factors published in the *Phys. Rev. Letts.* and the matrix elements of operators of class-1 Representations of $SL(N, C)$ were published in the *Journal of Mathematical Physics*.

The symmetry scheme based on the $SL(6, c)$ theory was soon sidelined with the advent of the Coleman-Mandula no-go theorem, and Professor Rashid switched his attention for a time to Reggeized $SU(6) \times SU(6)$ model with applications to meson-baryon and baryon scattering. He soon started work on Current Algebra, the Veneziano model, and the Effective Lagrangian method, in which he published several papers during the early seventies. His work on broken chiral and conformal symmetry was published in *Physical Review*, *Nuovo Cimento*, and the *Annals of Physics*.

The liberation war of Bangladesh in 1971 produced for him a serious setback, and for a time, he was rootless as he resigned from his job at the University of Islamabad, where he was then a Professor of Physics. However, it took him some time to settle down in his own country at the University of Dhaka, and there during the three years (1974 to 1977), he produced with his students some outstanding work in solid-state physics. He started work on energy band structure calculation of KCl crystal and soon developed an excellent method using LCAO and OPW techniques in collaboration with Dr. S. M. Mujibur Rahman. This work and his work on Effective Lagrangians have been published in the *Physical Reviews*. Since 1988, Professor Rashid has been engaged in studying the Skyrme model in which he has published a paper with Arshad Momen on "Rotating Solitons in General Relativity," and he has also worked on nucleon nucleus scattering using the Dirac equation at medium energies. He was also interested in topological field theories. He has published a paper with Fronsdal and Flato and mimeographed lecture notes on "Geometrical Methods in Physics" from UCLA. He has worked on the generalised couplings of the WWV vertex and has brought out a paper on this subject. With Saiful I. Khondekar

Professor A.M. Harun-ar-Rashid had the honour of being a member of various academic bodies such as: he was made a Fellow of the Third World Academy of Sciences in 1992; Member of the Senate, University of Dhaka, 1974 - 1977; Member of the Syndicate, University of Dhaka, 1974 - 1977; Member, Executive Council, Bangla Academy, 1985 - 1987; Member, Asiatic Society of Bangladesh; Fellow, Bangladesh Academy of Sciences; Member, National Curriculum Committee as well as of Examination Reforms Committee, Govt. of Bangladesh; Member, The American Physical Society; Vice-President, Asiatic Society of Bangladesh, 1992 - 1993.

- Mesbahuddin Ahmed