

SHEW-KUEY (TOMMY) MARK (1936–2015)



Shew-Kuey (Tommy) Mark, Sir William C. Macdonald Professor Emeritus of Physics at McGill University, passed away on Friday March 13, 2015 in Toronto after a long and illustrious career.

Professor S. K. Mark was born on August 8, 1936 in Guangdong, China. He moved to Canada in March 1950 at the age of 13. After graduating from the Byron Byng High School in Montreal, he came to McGill, and graduated with a B.Sc. (Honours Mathematics and Physics) in 1960. He then joined the University's Foster Radiation Laboratory as a graduate student and completed an M.Sc. in nuclear physics in 1962, and a Ph.D. in 1965 under the supervision of Professors T. M. Kavanagh and Robert Moore. After one year as a postdoctoral fellow at the University of Manitoba, he returned to McGill as a Lecturer in 1966 and rose through the ranks: He was promoted to Assistant Professor in 1967, to Associate Professor in 1970, and to Full Professor in 1975.

Tommy Mark's scientific career has been rich and diverse. He was a pioneer in the experimental study of nuclear reaction mechanisms, and some of his careful measurements have fuelled the development of the theoretical nuclear optical model. Many of his groundbreaking results were instrumental in the elucidation of the properties of light nuclei. In addition, he took an interest in the highly unstable nuclei that could be produced uniquely by the McGill Cyclotron. This work provided the foundation for a new program at that facility. He conducted a fruitful and pioneering systematic investigation of the neutron-deficient nuclei far from the beta stability valley. He studied these nuclei as a function of proton number and neutron number so as to facilitate the discrimination between various nuclear models. In 1971 – only a year after being promoted to associate professor – he was named Director of the Foster Radiation Laboratory, succeeding such renowned scientists as J. S. Foster and Robert Bell. That Laboratory was at the time one of the most important university laboratories in Canada. A major renovation of the synchrocyclotron was then initiated and completed under his leadership. This rejuvenation of the laboratory's main research instrument built immediately after the war by Professor J. S. Foster – allowed the acceleration of a new set of heavier beams, and paved the way for a major renewal of the laboratory's research program which consolidated the unit's leadership in the spectroscopic study of unstable nuclei.

In 1982, Tommy was appointed Chair of the Physics Department, a position he held until 1990. Thanks to his tireless work and powers of persuasion, he managed during this period to create many new positions and attracted to McGill a new generation of bright young researchers. This renaissance in the department initiated an immediate growth of research funding, accompanied by a large increase in the number of students, undergraduates and graduates. Indeed, he always emphasized the teaching mission of the university, and cared deeply about the training and mentoring of students. Under his chairmanship, educational undergraduate laboratories were renovated and the entire academic curriculum was reviewed. Students of all levels always found in him an attentive ear; he could provide advice and encouragement and also knew how to listen and how to respond to their needs. Tommy practiced what he preached: he personally supervised a large number of students and young researchers who now occupy important positions in research, education, industry, and in the public service. He was a model for his trainees, and was able not only to convey his contagious enthusiasm for research, but also to instill a sense of work ethics and of discipline.

In 1987, towards the end of his term as Chair of the Department, Tommy decided to reorient his research, and started at McGill an experimental research program in a new area – relativistic heavy ion physics. This subfield studies nuclear matter under extreme conditions of density and temperature with methods and techniques that straddle nuclear and particle physics. Early in the program, he joined the E814 experiment at the Brookhaven National Laboratory (BNL), a collaboration studying the reaction dynamics induced by beams of ^{16}O and ^{28}Si at a bombarding energy of 15 GeV/nucleon. In 1992 he also contributed to the first generation of experiments with beams of relativistic ^{197}Au nuclei at the BNL Alternating Gradient Synchrotron (AGS). Those pioneering experiments have played a crucial role in our current understanding of the space-time evolution of the hot, strongly interacting matter produced in high-energy heavy-ion collisions. Just before his retirement in 2004, Tommy had become the Canadian leader in the PHENIX collaboration, one of two major experiments at the Relativistic Heavy Ion Collider facility, at BNL. His lifetime of accomplishments was recognized in 2002 when he was named W.C. Macdonald Professor of Physics, thereby adding to a list of distinguished McGill chair holders that includes Sir Ernest Rutherford.

Tommy always devoted a large part of his immense talent and energy to serving the scientific and academic

communities. He has served on many committees within and outside McGill. Notably, he was president of a national grant committee before reaching the age of forty, and also played an important early role in the Canadian Institute of Particle Physics. In his administrative duties as in every other aspect of his career, Tommy pursued excellence with rigour, fairness, and relentless persistence. He firmly believed in the development of research in Canada and in its ability to be globally competitive. He was a champion of science.

Professor Tommy Mark perfectly embodied the university scholar who has successfully integrated the highest levels of excellence in research and in teaching, and who has selflessly and continuously given back to the community. He was a source of inspiration not only to his students and colleagues, but also to all who knew him. He will be missed.

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