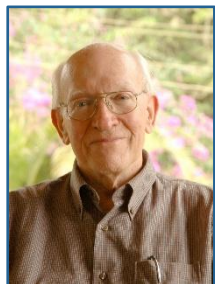


## JOHN ERIC CRAWFORD (1933-2020)



John Eric Crawford, Professor Emeritus in Physics, McGill University died at home on Saturday, September 19, 2020, after a period of challenging illnesses. John was born in Montreal, the only son of Myrtle McMillan and Robert Eric Crawford. He attended the University Schools of Toronto high school, graduated with both a B.A. and M.A. from the University of Toronto in Mathematics and Physics, and achieved a Ph.D. from McGill University. He designed and described a linear accelerator for his Ph.D. thesis under the supervision of Murray Telford. This accelerator was built and installed at the Royal Victoria Hospital in Montreal in 1962.

John touched the lives of a great many students and colleagues in the physics department at McGill University and other research facilities around North America and Europe. He was a gentle, quiet man, and possessed an insatiable curiosity for life, learning, and teaching others. He took great satisfaction in fixing things; no item was ever thrown away unless there was a full understanding of why repair was not possible. This same curiosity and vigour carried into all aspects of his life. He took particular pleasure in sailing, camping, extensive travel, photography, astronomy, all-things-music, and above all downhill skiing, which he was able to enjoy well into his eighties.

For many years Professor John Crawford was recognized as an inspiring, imaginative lecturer in physics at McGill University. His exceptional talents were given formal recognition by the Faculty of Science with The Leo Yaffe Award for Excellence in Teaching in 1983, the second year the award was given. John's remarkable insights and clarity of expression have inspired physics students at all levels, from "Planets, Stars and Galaxies", an introductory course that he pioneered, to graduate level courses in Nuclear Physics, Experimental Methods in Subatomic Physics and Electromagnetic Theory. Whether in small or very large courses, in academic classroom or laboratory, John consistently received outstanding evaluations from his students. He imparted an enthusiasm and love of science that delighted his students and his colleagues. At McGill, John was among the first to exploit the latest multimedia technology in his teaching. Whether he used these new methods or the traditional chalk and blackboard, John never failed to challenge the gifted student while simultaneously provoking the interest and enthusiasm of the average student.

Although a teacher of rare ability, John was equally accomplished as a researcher in nuclear physics. John devoted his long research career to nuclear spectroscopy. His early work, with colleagues and students, was accomplished at the Foster Radiation Laboratory (FRL), McGill University. The central theme of his research was the study of nuclei far from stability. In early years, the main research tool of the FRL was its 100 MeV proton synchrocyclotron, which was used to produce neutron-deficient nuclides mainly through  $(p, xn)$  or  $(p, pxn)$  reactions. Prior to 1980, most of this work was on beta-gamma spectroscopic studies to investigate such topics as reaction cross-sections, nuclear level schemes, or beta decay lifetimes. During this period, he developed a new line of research which involved a complete departure from previous techniques: laser spectroscopic studies yielding

information on nuclear charge-radii and moments. His contribution was recognized in the international community, and with his collaborators, he continued this line of research at CERN, in Geneva, and in a vigorous in-house program at the FRL. At McGill University he used laser techniques to study fundamental nuclear properties - radii, spins, and moments. The techniques were borrowed from atomic physics. He collaborated with members of a number of European laboratories in the COMPLIS experiment at the ISOLDE on-line isotope separator at CERN Geneva. Later, he also collaborated with members of the University of Manitoba and Argonne National Laboratory in the Canadian Penning Trap project, which makes extremely precise measurements of nuclear mass. At his McGill home base, he helped build a fully equipped laser spectroscopy lab and used it mainly to do spectroscopy on ions confined in radiofrequency quadrupole traps. He also pursued his active research through a collaboration with TRIUMF, Texas A&M University and RIKEN for developing and exploiting collinear laser spectroscopy experiments at ISAC, a facility for which he, together with Bob Moore, Johnathan Lee and John D'Auria, was considered as one of the founding members. Until his passing away he was actively involved in experiments at TRIUMF, participating in group meetings, on-line beam times, offline data analysis and simulations.

John was highly appreciated by all his colleagues including the younger ones. He was a friendly and infinite resource person. We are missing him.

**JEAN BARRETTE**, McGill University