

## MICHAEL K. CRADDOCK (1936–2015)



**M**ichael K. Craddock, UBC Emeritus Professor, retired TRIUMF Research Scientist, and CAP member since 1972 passed away in Vancouver on November 11, 2015 following a brief illness. He was one of the founding fathers of TRIUMF, who was present at the moments the

idea for the lab was conceived and when the first beam emerged. He worked tirelessly on the cyclotron and other key projects for 50 years, including 33 years as TRIUMF's head accelerator physicist until his retirement in 2001.

Mike Craddock was born April 15, 1936 in the United Kingdom. He received his Bachelor's and Master's degrees in Mathematics and Physics at Oxford University in 1957 and 1961, respectively. He was a Scientific Officer at Rutherford Appleton Laboratory while pursuing a D.Phil. in Nuclear Physics at Oxford, which was awarded in 1964. Upon graduation Mike joined the Physics Department at the University of British Columbia (UBC), where he remained throughout his career.

Originally hoping simply to conduct experiments at UBC's Van de Graaf accelerator, he was thrust almost immediately into the department's campaign to build a new accelerator on campus. Tasked by Prof. John Warren to investigate options for a new machine, he recommended a modified version of the H<sup>-</sup> cyclotron design of Reg Richardson at UCLA. Mike managed the overall specification, which settled on scaled down 500 MeV, 20  $\mu$ A machine. The TRIUMF proposal was approved by the Canadian government in 1968, and from then until 1978 he was the beam dynamics group leader. In this period his most memorable challenge was being responsible for determining the position and number of the magnetic shims installed during the massive field-shaping campaign around 1973–74. Mike's reward came when he was present at Reg Richardson's shoulder as the first beam emerged December 15, 1974.

Mike was TRIUMF's leading beam physicist throughout his career, from joint head of the Beam Development Group from 1978–81 (under Director Jack Sample), then as Accelerator Research Division head from 1982–88 and head of the Accelerator Division from 1989–94 (under Erich Vogt), to group leader for Accelerator Physics from 1995 until his retirement in 2001 (under Alan Astbury). He was one of the chief architects of the KAON Factory Project, where as deputy to project leader Astbury, he led a

multi-disciplinary team in the engineering design of a suite of synchrotron-type proton accelerators. KAON was unable to attract federal funding and so Mike set to work on projects related to the Large Hadron Collider (LHC) accelerator injector chain at CERN, the success of which raised the lab's profile worldwide. Remarkably during all this time he supervised over fourteen graduate students, regularly taught undergraduate and graduate physics courses, and acted as TRIUMF's correspondent for the CERN Courier journal.

Retirement did little to tamper Mike's relentless energy. He joined the Accelerator Development Group (led by Rick Baartman) and worked on several projects before settling on Fixed-Field Alternating Gradient Accelerators (FFAGs) from 2004–12, where he participated in an international project to build a 20 MeV electron model (EMMA) at Daresbury, UK. He was a constant presence at the lab, where e.g. he organized conferences, or presented introductory accelerator physics lectures to students at TRIUMF, UBC, and the University of Victoria, all the while acting as TRIUMF's unofficial historian, which included many talks on the lab's history.

During a career that spans five indefatigable decades, Mike demonstrated exceptional leadership in the field of high-energy subatomic particle physics, notably in particle accelerator design and construction, and he was instrumental in fostering new generations of accelerator physicists in Canada and abroad. A testament to his outstanding character, before he passed, Mike made a very thoughtful and generous gift to TRIUMF establishing the Michael Craddock Fund for Accelerator students at TRIUMF.

His passing has been felt around the world and has left a gaping hole in the TRIUMF family. He will be sorely missed by all who knew him.

Michael Craddock lived in Vancouver, BC. He had one son, Barnaby, a stepdaughter, Vanessa, and a stepson, James, and was predeceased by his wife Sonia. In lieu of flowers, donations can be made to the St. John Hospice, the Pancreas Centre BC (both via the BC Cancer Foundation or the Vancouver General Hospital), or the newly established Michael Craddock Fund for Accelerator students at TRIUMF (via TRIUMF).

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