

ERIC CARL SVENSSON, PhD, FRSC, FAPS, FINSTPHYS (1940-2018)



Eric Svensson, a leader in the Canadian physics community, passed away peacefully in Ottawa, Ontario on May 16, 2018 following a brief battle with cancer.

Eric was born on August 13, 1940 in the small hamlet of Hampstead, New Brunswick, on the banks of the beautiful St. John River. Starting from a home that was full of love, but lacked both electricity and running water at the time, he traced an amazing arc through life. His formative years were spent exploring the woods and streams around Hampstead, where he developed his lifelong love of the outdoors, while his grade 1-8 education took place in the proverbial one-room school house to which he “walked 5 miles, uphill in both directions.” His academic abilities were recognized early, with Eric often acting as a tutor to his fellow students, both younger and older. As a result, he was taken in by the family of the local physician, Dr. W.M. Jenkins, in order to complete high school approximately 25 km away in Gagetown, New Brunswick. From there, scholarships from General Motors and the Canadian Mathematical Congress enabled Eric to attend the University of New Brunswick in Fredericton, where he earned his B.Sc. in Physics in 1962. Studentships and Bursaries from the National Research Council then took Eric to McMaster University in Hamilton, Ontario, where he joined a unique cohort of young researchers and completed his Ph.D. in Physics in 1967 under the supervision of (future) Nobel Laureate Bertram Brockhouse.

In 1966, even before completing his Ph.D., Eric was hired as a research scientist at the Chalk River Nuclear Laboratories in Chalk River, Ontario. With the exception of sabbatical years at Atomenergi in Studsvik, Sweden (1972-1973) and Brookhaven National Laboratory in the United States (1981-1982), he spent his entire scientific career in Chalk River, first with Atomic Energy of Canada Ltd. and subsequently with the National Research Council of Canada. He was a leader in the experimental condensed matter physics community, applying the techniques of neutron scattering to study the static and dynamic properties of matter under a wide range of conditions. He made fundamental contributions to understanding the various amorphous and crystalline phases of water ice that occur at low temperatures and high pressures and was widely acclaimed for his pioneering experiments that demonstrated the existence of a Bose-Einstein condensate in the superfluid phase of liquid helium-4 and measured the associated condensate fraction as a function of temperature.

A recognized world leader in the science of liquid helium, Dr. Henry Glyde (Unidel Professor Emeritus, Physics and Astronomy, University of Delaware), characterizes Eric’s contributions as follows: “Bose-Einstein condensation (BEC) was first observed in liquid ^4He — at the Canadian Nuclear Laboratories using reactor source neutrons in the 1960s. Subsequently, in the 1970s and 1980s, Eric Svensson made precise measurements and with Varley Sears developed new methods of data analysis that provided reliable and accurate values of BEC. Their values [1,2] and those of Herbert Mook at Oak Ridge National Laboratory, obtained using their CNL methods of data analysis, stood as the world standard for many years. Particularly, their data were an integral part of the development of our understanding of BEC and its temperature dependence. Similarly Eric made highly accurate measurements [3] of the less well known static structure factor of liquid ^4He that still stand today as the most accurate available. These data provide a bench mark that any formulation of quantum liquids must meet. Eric’s data are a critical part of our current knowledge and understanding of liquid ^4He .”

Eric was an encouraging mentor and great source of technical ideas for the large cohort of graduate students working at CNL through the 1980s and 90s. Many of these informal discussions took place in Eric’s large vehicle as he gave us a ride back to Deep River following a long day at the lab. And for one of us (BDG), these developed into a successful ongoing collaboration and our 1st PhD student’s (Ron Rogge) thesis related to phonons and “spinodal ordering” in Cu_3Au .

Eric’s many fundamental research contributions were recognized internationally and he was elected a Fellow of the American Physical Society (1987), a Fellow of the Royal Society of Canada (1996), and a Fellow of the Institute of Physics (1998). He remained actively engaged in research following his retirement and was named a National Research Council Researcher Emeritus in 2006.

In addition to his own research, Eric was passionate about the advancement of physics in Canada in general and he was actively engaged in the operations of the Canadian Association of Physicists (CAP) over a period of more than 20 years. His many contributions to the physics community include: the CAP Committee to Encourage Women in Physics (1988-2006), Editorial Advisory Board of the Canadian Journal of Physics (1992-2002), CAP Division of Condensed Matter Physics, Secretary-Treasurer (1979-1981), Vice-Chair (1992-1993), and Chair (1993-1994), CAP Science Policy Committee (1993-2006), CAP Councillor at Large (1994-1995), Vice-President Elect (1995-1996), Vice-President (1996-1997), President (1997-1998), and Past President (1998-1999),

Co-ordinator of the joint CAP, APS, SMF meeting CAM97 (1995-1997), Chair of the Program Committee for the CAP Congress (1996-1997), CAP-NSERC Physics Liaison Committee (1997-1998), International Advisor to the Council of the American Physical Society (1996-1999), Canadian National IUPAP Liaison Committee (1996-2002), Member of the Canadian delegation to the IUPAP General Assembly (1999) and International Conference on Women in Physics (2002), Director of International Affairs for the CAP (1999-2002), member of the Board of Trustees of the CAPEducational Trust Fund (1999-2002), and Chair (2000-2001), Friend of the CAP for the Chalk River Laboratories (2000-2006) and Chair of the CAP Science Policy Committee (2003-2006). In 2003, Eric received a Special Merit Award from the CAP in recognition of exceptional contributions to the management of the Association.

One of Eric's colleagues in leadership of the Canadian physics community, Marie D'Iorio has served as Executive Director of the National Institute for Nanotechnology (NINT), as Director General of the NRC Institute for Microstructural Sciences, and as President of the Canadian Association of Physicists (1999-2000). She characterizes Eric's leadership as follows: "I first met Eric at CAP meetings, and at a CAP congress in the early nineties he convinced me to attend the DCMP business

meeting. There, he said "... you should be the co-chair next year — there is really nothing to it — just watch me!" What was almost terrifying in prospect became almost easy with his example. Eventually this led to following in his footsteps as President of the CAP, and pitching persuasion of my own. I am thankful for his dedication to the physics community and his calm and sensible approach, and will cherish the memory of his smiling eyes and his funny recounting of many anecdotes."

Eric's gentle nature, his wry smile, and the sparkle in his eyes, whether he was working in the laboratory or meeting room, enjoying a fine bottle of wine at the dinner table, or paddling his canoe through Algonquin Park, will be deeply missed by all who knew him.

Bruce Gaulin, Director of the Brockhouse Institute for Materials Research, McMaster University and President of the Canadian Association of Physicists

John Root, Director of the Canadian Neutron Beam Centre, National Research Council of Canada

Carl Svensson, Professor and Canada Research Chair in Gamma-Ray Spectroscopy and Rare Isotope Physics, University of Guelph

REFERENCES

1. V.F. Sears, E.C. Svensson, P. Martel and A.D.B. Woods, *Phys. Rev. Lett.* **49**, 279 (1982).
2. E.C. Svensson and V.F. Sears, *Progress in Low temperature Physics*, Vol. 11, Chap. 4, p. 186 (1987).
3. E.C. Svensson, V.F. Sears, A.D.B. Woods and P. Martel, *Phys. Rev. B* **21**, 3638 (1980).

Announcing the creation of the Eric C. Svensson Memorial Graduate Scholarship

In recognition of his many years of exceptional service to the Canadian physics community, as well as the important role that scholarships played in his own education and career, the Canadian Association of Physicists, in cooperation with the family of Dr. Svensson, is establishing an endowment fund for the "Eric C. Svensson Memorial Graduate Scholarship". Charitable donations to this fund can be made, and further details regarding the scholarship can be found, at:

<https://www.cap.ca/programs/medals-and-awards/prizes-students/svensson>

Announce de la création de la Bourse commémorative d'études supérieures Eric C. Svensson

En reconnaissance des nombreuses années de service exceptionnel à la collectivité canadienne de la physique ainsi que du rôle important que les bourses ont joué dans sa formation et sa carrière personnelles du Dr Svensson, l'Association canadienne des physiciens et physiciennes crée un fonds de dotation pour la « Bourse commémorative d'études supérieures Eric C. Svensson » de concert avec la famille du Dr Svensson. Des dons de bienfaisance peuvent être faits à ce fonds et l'on peut trouver de plus amples détails concernant la bourse à cette adresse :

<https://www.cap.ca/fr/activites/medailles-bourses/prix-etudiants/svensson/>