Peter Castle was born in Belfast, Northern Ireland and immigrated to London, Ontario, Canada in 1947at the age of 7. He attended St. Georges' Public School, London Central Collegiate and Medway High School where he graduated from Grade 13 as an Ontario Scholar in 1957.

He attended the University of Western Ontario taking a four-year program in Electrical Engineering, graduating in 1961 and receiving the Association of Professional Engineers of Ontario Gold medal as the student in the Faculty having the highest academic average over 4 undergraduate years. Also he was the first student to receive the Harry Cross Silver Medal, awarded to the top graduating student in the Electrical Engineering program.

In 1961 he was awarded an Athlone Fellowship to study at Imperial College, London England graduating in 1963 with a Masters degree (M.Sc.(Eng.), and Diploma of Imperial College (D.I.C.), specializing in Microwave Engineering. In 1963 he joined the Northern Electric Company (Ottawa) in the newly formed Research and Development division, the precursor of Nortel. Here he was involved in the design of strip-line circuitry for use in microwave communication systems.

In 1966 he returned to the University of Western Ontario to undertake Ph.D. studies in electrical environmental engineering, working on a project in two-stage electrostatic precipitation. In 1968 he joined the Faculty of Engineering Science as a lecturer and in 1969 he was awarded the Ph.D. degree becoming the first student from Engineering Science to be awarded a doctorate from the University of Western Ontario.

Since then he has been a fulltime member of the Faculty of Engineering Science engaged in teaching, administration and carrying out research in the field of Applied Electrostatics. He was promoted to the rank of Professor in 1980. His teaching interests have been in the area of electric circuits, electromagnetic theory, power systems and electrical energy conversion. He developed and for over 30 years has taught a unique elective course in direct energy conversion dealing with the broader issues of energy utilization and conservation. He has held a large number of administrative and committee positions in the Department, Faculty and University. These have included a term as Assistant Dean (Undergraduate Affairs) from 1971-75, and two terms a Chair of Electrical Engineering (1978-83 and 1988-93).

His research interests have centered upon the industrial application of electrostatic forces and he is one of the founding members and principal researchers in the Applied Electrostatics Research Centre. This Centre is one of the few in the world specializing in the application of electrostatics to interdisciplinary problems. As a result he has undertaken projects of significant importance to industry including: manufacturing (electrostatic painting), the environment (air and water pollution control), agriculture (electrostatic crop spraying), copying and printing (electrophotography), recycling (plastics separation) and electrostatic coating (coated abrasives). This work has resulted in a total of 77 Journal publications, 73 referred Conference publications, 35 Industrial Reports and 9 patents (with one pending).

He is currently Professor Emeritus in the Department of Electrical and Computer Engineering with an appointment as Adjunct Research Professor. He is a Fellow of the Institute of Electrical Engineers and the recipient of the 2003 Faculty of Engineering Award for Excellence in Research.