

Leonard Bergstein Memorial Fellowship, established in 2008 at New York University and NYU-Brooklyn Polytechnic by the Swartz Foundation

Leonard Bergstein

Professor Leonard Bergstein's career had an early and fast start. His PhD dissertation dealing with the General Theory of Optically Compensated Varifocal Systems (JOSA, 1958), later named "Zoom Lenses" was extraordinary. It revolutionized photography and film recordings, and is now standard in most camera systems worldwide. Dr, Bergstein's approach to the design of such systems, done with the help of mathematical tools, (i.e. Chebycheff polynomials), provided an elegant and useful solution to an intractable problem at the time. Dr. Bergstein is likely best known and most recognized for inventing, designing, and developing Zoom Lens system technology.

Born in Poland in 1928 to a rabbinical family, Leonard Bergstein spent his childhood years in Russia. His academic studies took him to Germany, Canada, and the United States. While completing his PhD work at Columbia University, he embarked on a fruitful academic career, first at the City College of New York (where he later returned as a Distinguished Visiting Professor) and thereafter (1960 on) at Brooklyn Polytechnic Institute. In 1967, he was also a Visiting Professor at the Technion, the Israel Institute of Technology in Haifa.

An exemplary teacher and research colleague, Professor Bergstein trained dozens of grateful and accomplished students over 40 years of teaching, research, and consulting in electrical engineering, electromagnetic theory, electrophysics, lasers, physics, optical communications and statistical optics. Many view him as one of the post-World War II founding fathers who integrated and applied the above-mentioned fields of science and technology.

Professor Bergstein also did seminal work on laser cavity resonators. His integral equation formulation for the field distribution, as well as its angular spectrum, provided

insight into the modal theory of laser cavities (stable and unstable resonators), as well as statistical optics as represented in laser speckle patterns.

Dr. Bergstein was a Fellow of the Optical Society of America. His consulting work at American high-tech companies (mainly in optics & electronics) was extensive, ranging from Bell Laboratories, to Razdow Laboratories (the Apollo Project), to Symbol Technologies, the barcode laser scanner company, and to the Zoomar Corp. He also did extensive consulting for companies involved in electro-optical systems in Israel. He frequently lectured in workshops dealing with black body radiation, optical fiber communication systems and the electronic circuitry used in such optical communications systems.

Leonard Bergstein passed away in 2008 at the age of 80. He was a resident of North Jersey and is survived by his wife Sarah and three grown children.