Professor Emeritus Robert “Bob” Meyer of the department of Physics, passed away on November 17, 2023, at the age of 80. A resident of Wellesley, he is survived by Maureen, his wife of 43 years. Bob was the devoted father of daughters Lesley, Alison and Samantha and devoted grandfather of Jocelyn, Charlotte, Brennan, and Quinn.

Born on October 13, 1943 in St. Louis, MO, to Samuel Meyer and Gertrude Lenz. Bob earned his bachelor's degree in physics from Harvard University in 1965 and a doctoral degree in 1970. He remained at Harvard as a postdoctoral scholar, where he became an assistant professor in 1971 and an associate professor in 1974. He left Harvard in 1977 to Chalmers University in Gothenburg, Sweden and in 1978 was Joliot Curie Professor at the École Supérieure de Physique et de Chimie Industrielle in Paris. He joined Brandeis University as an associate professor in 1978 and was promoted to a full professor in 1985.

The Greeks taught us that there are 4 elements; air, water, earth and fire. As an undergraduate, I was likewise taught that matter consisted of gas, liquid and crystals. The world is more interesting than that. Bob Meyer was fascinated by a form of matter known as liquid crystals, a state that paradoxically is simultaneously a liquid and a crystal. Liquid crystals will flow like a liquid, but also snap back into shape when you bend or twist them. Soap bubbles are one form of liquid crystals, as are the cell membranes in your body that are essential for keeping you alive. Among Meyer’s many contributions to liquid crystal research, one stands out. In preparing lectures for a course on liquid crystals, Meyer realized that a particular form of layered, soaplike liquid crystals would by necessity possess a permanent electric moment. Like a magnet, but for electricity. Meyer’s insight that symmetry alone dictates ferroelectricity led him to predict that the effect would be completely general. In collaboration with chemists, the first ferroelectric smectic-C liquid crystals were synthesized and characterized at Orsay, France in 1975. Meyer’s deep theoretical insight and experimental verification of ferroelectricity in chiral smectic-C liquid crystals has spawned over 2000 patents, thousands of research papers, and competitive display devices in the marketplace today. Meyer’s work established the importance of controlled chemistry to produce liquid crystals with specified properties. This insight transformed an entire field of chemistry overnight, inspiring many young materials chemists to replace trial and error with rational design. Before Meyer there were 50 known ferroelectric compounds; since his insight, over 50,000 ferroelectric liquid-crystal molecules have been synthesized.

Bob embodied Plato’s allegory of the cave; having the uncanny ability to connect intriguing, complex, and inscrutable experimental observations to fascinating, idealized, and transparent theoretical concepts. I was his grad student in the 1980s here at Brandeis. Several times a week I would be completely baffled by the behavior of a liquid crystal sample and I would leave the lab, walk down the hall to his office, fling open the door and pull him into the lab. Bob would peer into the microscope and 99/100 times, like an oracle, reveal the inner workings by linking abstract, idealized theories with the messy, real life, imperfect samples in front of us. I would stand there, jaw agape, absorbing his insights that would inevitably lead to an exciting and experimentally testable hypothesis.

At Brandeis, Meyer was the founding director of the Brandeis Materials Research Science and Engineering Center in 2008. He articulated the philosophy of the Center, which recognizes that advances in materials science and biology have become increasingly intertwined, with progress in one field influencing the other. He assembled a team from Brandeis at the forefront of this development, both in studying the properties of materials occurring in biological systems, and in understanding the role of material properties in the structure and function of cells and cellular components. The Center has prospered following his retirement in 2012 by adhering to his vision.

At Brandeis, Meyer established an applied physics program in 1988. I was hired in 1989 to teach digital electronics and optics in this program. The program did not obtain traction as applied physics was too narrow, but the concept to have applied science was right for Brandeis and now with the launch of an engineering science major, Meyer's vision of applied science at Brandeis is being realized.

Bob spent many happy hours at his home in Kennebunkport, Maine, where he enjoyed time with his family at Goose Rocks Beach, savored seafood feasts on the porch, and worked on his daylily garden. Bob was an accomplished baker, in endless pursuit of the perfect bread. On weekends, his family would wake up to the glorious smell of homemade scones, crepes, and biscotti. He was also an avid Boston sports fan, and could be found on the couch cheering on (or more likely berating) the Patriots and Red Sox. Above all, the time Bob spent with his children and grandchildren brought him the greatest pride and joy.

May his memory be a blessing and his legacy continue to grow.