



IN REMEMBRANCE: James F. Scott (1942–2020)

James (Jim) F. Scott was born in Beverly, N.J., on May 4, 1942. He was a high-school valedictorian and subsequently graduated from Harvard University with a bachelor's degree in 1963. Jim received his PhD degree in physics from The Ohio State University in 1966, performing materials research using high-resolution molecular spectroscopy.

Following his PhD, Jim worked for six years in the Quantum Electronics Research Laboratory at Bell Laboratories. In September 1970, he joined the Cochran Group at The University of Edinburgh to work in the area of ferroelectrics. He was then appointed professor of physics at the University of Colorado Boulder in 1971, where he developed a research program investigating ferroelectric materials using laser Raman spectroscopy. This research started groundbreaking work on “integrated ferroelectrics,” which contributed to the development of ferroelectric random-access memories (FeRAMs).

Jim was interested in translating the science from the laboratory into devices that could make an impact in society. He co-founded, with Carlos Paz de Araujo, a company named Ramtron and subsequently Symetrix Corporation, to develop FeRAMs. The technology developed at Symetrix was licensed to Matsushita-Panasonic, resulting in smart cards (“Suica”), based on Symetrix’s FeRAM technology, which has been used extensively by people in Japan.

Following his work in Colorado, Jim was appointed Dean at the Royal Melbourne Institute of Technology, Australia, in 1992, and subsequently a similar appointment at the University of New South Wales, Australia, in 1995. Jim worked as a visiting professor in Yokohama, based on an award from Sony, and later in Germany, supported by a Humboldt Research Award. In 1999, he was appointed professor at the University of Cambridge in England, focusing on research and teaching in the field of multiferroics, magnetoelectrics, and nanometric materials and their integration into devices. While working at the University of Cambridge, Jim developed strong collaborations with ferroelectric communities across the world, especially at the University of Puerto Rico (UPR), which he visited frequently while working in ferroelectrics and other science and technology fields. After retiring from the University of Cambridge in 2015, Jim joined the University of St Andrews, Scotland, as a joint professor.

Jim had more than 700 articles published in the field of ferroelectric materials, and applications to FeRAMs and other devices that were cited more than 70,000 times. Some of his papers (2 in 2007 and 3 in 2008) were chosen among the best 20 articles selected each year by the editors of *Journal of Physics: Condensed Matter*. The first edition of

Jim’s book, *Ferroelectric Memories* (Springer, 2000) sold out (800 copies), and the Chinese (Tsinghua Press, 2004) and Japanese (Springer-Japan, 2003) translations had high sales as well. With 2950 citations, the book was the most cited text on ferroelectricity.

Jim was awarded the MRS Medal in 2008 and Jožef Stefan Medal from Slovenia in 2009. He was a member of the American Physical Society and the Slovenian Academy of Sciences and Arts. In 2014, Thomson Reuters listed him as among the most cited physicists. In 2016, he received the UNESCO Medal for contributions to nanoscience and nanotechnology. Jim was elected as a Fellow of The Royal Society (FRS) in 2008, for which the citation was “the father of integrated ferroelectrics,” defined as ferroelectric crystal memory thin films attached to silicon or GaAs computer chips.

Jim is survived by his wife and three children. His legacy to the science and technology of ferroelectricity will live on and will inspire future scientists and engineers for years to come.

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