

theory. (A different version of supersymmetry had been developed in the former Soviet Union a little earlier.) Sakita's papers during the 1970–71 period reflect the origins of the modern formulation of string perturbation theory as sums over Riemann surfaces. He also planted the seeds of another key idea of string theory: conformal field theory.

When Marshak became president of the City College of New York in 1970, Sakita took a position there as a distinguished professor so that he could participate in the rapid expansion of the physics program and head the high-energy group. Through Sakita's leadership, the group did first-rate work in string theory, supersymmetry, field theory, and particle phenomenology. Having been greatly influenced since his student days by the method of collective variables in many-body theory, Sakita continued the theme of collective motions throughout the remainder of his career. With his students Gustavo Branco and Paul Senjanovic, he worked on collective dynamics in the strong coupling theory of meson-nucleon physics in the path integral approach. He extended that work, with Gervais, to relativistic field theory with solitons. And in 1975, he and one of us (Jevicki) developed the full perturbation theory and the general formalism of collective coordinates.

Sakita's several other collaborations produced interesting research. With one of us (Wadia, who was his student), together with Gervais, Sakita achieved extensions to gauge theories. During the late 1970s, Sakita and Jevicki applied the collective field method to the large- N limit of matrix models (in which it has become part of the standard lore). Sakita also worked with Jorge Alfaro to apply the method of stochastic quantization to large- N theories. He made significant contributions to condensed matter systems through his work on exhibiting the role of W symmetry.

An exceptional mentor, Sakita treated his students as his equals. He had numerous collaborators and students worldwide. In recognition of his many contributions, he was named a Guggenheim Fellow in 1970 and, in 1974, received the Nishina Memorial Foundation's Nishina Memorial Prize of Japan.

Sakita's interests were broad and varied; he sought out the fundamental physical basis of any problem. He had a true measure of himself, both as a person and as a physicist, which translated into a sense of humility and generosity. Sakita also possessed

an unobtrusive yet direct way of speaking. His opinion, on matters of physics and nonphysics, was highly valued. He is sorely missed.

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Bruce Albert Scott

Bruce Albert Scott, a solid-state chemist, technical manager, and program director of technical recruiting at IBM Corp's T. J. Watson Research Center in Yorktown Heights, New York, died on 1 October 2002 in Vineyard Haven, Massachusetts, after a 10-year battle with cancer.

Bruce was born on 23 February 1940 in Trenton, New Jersey. He received a BS in chemistry from Rutgers University in 1962 and earned his PhD in solid-state chemistry from Pennsylvania State University in 1965. His doctoral thesis, under Robert Bernheim, was entitled "NMR and Magnetic Susceptibility Studies of Transition Metal Monophosphides."

After beginning his professional career with a short stint at DuPont's Eastern Laboratory in Gibbstown, New Jersey, where he was involved in the development of catalytic processes for the synthesis of organic polymer intermediates, Bruce joined the T. J. Watson Research Center in 1967. He spent the remainder of his productive and multifaceted career there. In the ensuing years, he made contributions in the areas of solid-state chemistry and structure-property relationships in a variety of systems including metal-oxide systems, metal complexes, amorphous solids, organic metals, and high-temperature superconductors. He also contributed to an understanding of the kinetics and mechanisms that govern thin-film deposition processes.

He became a manager in the physical sciences department in 1972 and championed several new efforts in the study of organic semiconductors and metals, electroactive polymers, chemical-vapor deposition of copper oxide superconductors, nanoscopic materials, and silicon-materials chemistry. His work in silicon-materials chemistry was an important inspiration to further the studies in the science and technology of low-temperature silicon and silicon-germanium epitaxy.



Bruce Albert Scott

From the late 1980s to the late 1990s, Bruce's research focused on the synthesis and solid-state chemistry of new superconducting materials at high pressures, which led to a fruitful collaboration with scientists at Columbia University's Lamont-Doherty Earth Observatory. In 1989, Bruce was appointed senior manager of chemistry and materials science in a promotion that recognized his managerial talent.

During the last few years of his life, Bruce committed all his energy to recruiting science students from underrepresented minority groups. Not surprisingly, he carried out this responsibility with his typical intensity and zest. Until his death, Bruce directed the recruitment effort.

Bruce was an accomplished technical manager, an effective recruiter, and an inspiring mentor to many. His contributions have been recognized by his colleagues, both at IBM and in the scientific community at large. He had a natural curiosity about the world around him. He was a closet geologist and an avid jogger who combined the two activities into a hobby by collecting unusual rocks while jogging. In his office, he proudly displayed his rock collection.

A jovial man who cared a great deal about others, Bruce appreciated good humor and often quoted from Bob Dylan songs. I will particularly miss the many lively lunch discussions I had with him while he was eating his staple lunch, cranberry juice-soaked granola. Bruce enriched the lives of many and he is missed by his family and colleagues.

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