Tetsuji Nishikawa, former director-general of KEK, passed away on 15 December 2010. He was 84. The first son of Shoji Nishikawa, a renowned physicist and professor at the University of Tokyo, Tetsuji Nishikawa showed an extraordinary talent as a physics student and became a professor of physics of the same university in 1961 at the age of 34.

He was a man of extraordinarily wide interests. His initial research was in the field of atomic and molecular physics using microwave technology but he gradually shifted towards accelerator science and high-energy physics. One of his contributions to accelerator physics is the invention of the alternating periodic structure (APS) for linear accelerators, work done while he was at Brookhaven National Laboratory (1964–1966). He became a world expert on beam dynamics. From his laboratory came many excellent physicists, all of whom contributed a great deal to the later development of high-energy physics in Japan. These include Kunitaka Kondo, Yorikiyo Nagashima, Yoshihata Kimura, Tsuneyoshi Kamae, Toshio Suzuki, Kenzo Nakamura and Shin-ichi Kurokawa, to name but a few.

He was a man of extraordinary patience. After a decade of negotiations with the government and of tireless discussions within the scientific community during the 1960s, high-energy physicists, led by Shigeki Suwa and Nishikawa, finally succeeded in starting KEK (the National Laboratory for High Energy Physics, now called the High Energy Accelerator Research Organization) in 1969 and in constructing the 12 GeV proton synchrotron. One of the most important contributions that this accelerator has made to high-energy physics is the first long-baseline neutrino experiment in which a neutrino beam was sent to the Kamiokande facility 200 km from KEK. This finally confirmed the oscillation of muon-neutrinos to electron- or tau-neutrinos. Moreover, KEK became a model in Japan for the development of national inter-university research institutes. Later, many research laboratories in different disciplines were created with the same organizational and management structure as KEK.

He was a man of extraordinary insight into the future. Nishikawa supported the development of a neutron beam from the KEK proton synchrotron, as initially suggested by a group at Tohoku University led by Motoharu Kimura. The KEK parasitic neutron facility was completed in 1980 and eventually upgraded substantially in the current Japan Proton Accelerator Research Complex (J-PARC). Nishikawa also realized the importance of hadron beams in cancer treatment and, together with the medical school of Tsukuba University, he constructed a cancer-treatment facility at the booster synchrotron (500 MeV). The success of this facility continued with the construction of the National Institute of Radiological Sciences in Chiba Prefecture. Another example is his insight into synchrotron radiation facilities. The world's first dedicated synchrotron radiation facility was built at the Institute for Nuclear Study in the University of Tokyo, based largely on the foresight of Taizo Sasaki. Nishikawa decided to build the KEK Photon Factory, together with Kazutake Kora, with strong support from the synchrotron radiation user-community. The facility was completed in 1982.

He was a man of extraordinary wisdom in laboratory management and project design. After the completion of the KEK Photon Factory he decided to build TRISTAN, the world's highest energy e+e- collider. The KEK photon factory injection linac was used as an injector for TRISTAN, which was completed in 1986. The collider was later transformed into a B-Facility.

He was an extraordinary human being. Together with the late Shigeki Suwa, he was one of the founding fathers of KEK and the Japanese high-energy physics community. I always think that what he accomplished in Japan is comparable to what Panofsky did in the US. Indeed, Nishikawa and Panofsky were good friends and together, more than 30 years ago, they initiated the US-Japan Collaboration scheme. They also worked hard to launch the Superconducting Super Collider; unfortunately, the project was cancelled during its construction.


Hirotaka Sugawara, KEK.