

## Hiroshi Hirabayashi 1934–2008

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Hiroshi Hirabayashi, a leading figure and professor emeritus of KEK, passed away on 11 April 2008. He was an internationally renowned pioneer in the field of applied superconductivity and cryogenics for high-energy physics.

Hirabayashi was born in Gifu Prefecture, renowned for the Shirakawa-go world heritage site. He was educated in nuclear engineering at the graduate school of Tokyo Institute of



Technology, where he gained his PhD in 1966, before becoming a research associate at the Institute of Nuclear Study at the University of Tokyo. He worked on preparations for the National Laboratory for High Energy Physics, or KEK, now the High Energy Accelerator Research Organization, in particular in developing a hydrogen bubble chamber, essential for high-energy physics experiments in Japan. At the same time he established cryogenics – the necessary basic engineering – as a new academic discipline in Japan, and contributed to the development of applied superconductivity and cryogenics in

collaboration with Japanese industry.

Moving as an associate professor to KEK when it was set up in 1971, Hirabayashi became a key person in the development of the KEK 1 m bubble chamber. From 1979, as professor, he led the construction of the primary proton and secondary (kaon and pion) beam lines at the KEK 12 GeV proton synchrotron. With excellent foresight, he advocated the importance of applied superconductivity and cryogenic engineering for accelerator science at the energy frontier of particle physics and was able to develop these areas through his strong leadership. His activities in these fields extended internationally through the developments of a superconducting secondary beam line at KEK, superconducting magnets for the TRISTAN project, a challenging 10 T dipole magnet for future accelerators, and collaborations on superconducting magnet development for the Superconducting Super Collider project, the g-2 experiment at Brookhaven, the WASA experiment at Uppsala University and the LHC project at CERN. He made Japanese superconducting magnet technologies for accelerator and particle physics highly appreciated throughout the world.

Hirabayashi went on to become head of the Experiment Management Division, head of the Cryogenics Center, and director of the Applied Research Laboratory at KEK. In 1995 he was invited to head the Safety and Environment Research Center at the National Institute for Fusion Science, where he used his extensive experience and knowledge to advise on the construction of the Large Helical Device.

He contributed to several boards and committees, as a member of the international cryogenic engineering committee in 1990–1999, chairman of the cryogenic society of Japan in 1992–1994, and a member and chairperson of the superconductivity and cryogenics panel of the international committee for future accelerators in 1987–1995. He was also the Asian editor of *Cryogenics* from 1987–1996. His exceptional work in the field was recognized with the IEEE Award for Continuing and Significant Contributions

in the Field of Applied Superconductivity and the special award for superconducting technology from the Society of Non-Traditional Technology.

After retirement in 1998, with a view to the environment and energy saving, Hirabayashi highlighted the need for the "convergence of liquid hydrogen and superconducting technology". His ideas for future society and technology leave an important legacy.

Hirabayashi's most important contribution was to devote energy to train the next generation to work in the fields of superconductivity and cryogenics and the development of these technologies. He trained many young scientists who now work actively in accelerator science and particle physics.

Hirabayashi's sudden death has been received with deep sadness not only by people in Japan but worldwide.

*Takakazu Shintomi and Akira Yamamoto, KEK.*