

Speedy Technology

On the northernmost edge of Tsukuba Science City in Ibaraki Prefecture lies a laboratory campus covering 153 hectares. This facility houses a series of massive devices called particle accelerators, which scientists use to carry out cutting-edge research into the fundamentals of matter.

A particle accelerator is a device that accelerates





PHOTOS: JOE NISHIZAWA

FACING: The preaccelerator unit within a proton accelerator. This is part of the first large accelerator built in Japan.

LEFT: The interior of an electron-positron collider that has achieved the world's highest levels of beam collision rate.

ABOVE: The Belle detector monitors collisions between electrons and positrons.

the way it interacts. In addition to solving mysteries of the infinitesimal world of elemental particles, such basic scientific research helps us to understand the nature of the universe immediately after it came into existence.

The second type of research uses synchrotron radiation light, neutrons and muons generated by the accelerator to study the nature and structure of matter on the nanometer scale. Determining protein structure is one example of research in this area that has made headlines in recent years, research that can lead to the development of new drugs.

The High Energy Accelerator Research Organization laboratory provides research opportunities for Japanese universities and is also open to joint projects with research organizations in many other countries, contributing to scientific and technological developments that will benefit all of humankind.

particles, such as electrons and protons, to nearly the speed of light. Research using these high-energy particles can be divided into two categories. The first uses high-energy particles to create particles of the kind that were present in large numbers at the beginning of the universe, in order to study the ultimate structure of matter and the forces governing

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