

Modern Science and Society

At the dawn of the new century, it was reported that most knowledgeable people in the world had concluded that the 20th century was the century of physics. In one sense, this was a triumph of the ideas based on “Atomism”, originating in Greek philosophy. However, it differs from the ancient idea of a limited number of elements, such as earth, air, fire and water. New elements cannot be created by the mixing of the continuous materials mentioned above, but can only be composed of discrete elements. An oxygen molecule consists of two oxygen atoms, and ozone consists of three.

This idea was at first proposed based on theoretical considerations alone. Lavoisier later confirmed it in a matter conservation experiment during the burning of hydrogen with oxygen.

After the discovery of X-rays by Roentgen, the special and general relativity theories were established by Lorentz and Einstein at the beginning of the 20th century.

These experiments were able to be performed on a table top measuring 2 x 1 m. These days, a particle collider has been constructed in an underground facility with a 27 km long circular vacuum tube. Such a huge facility is now required to reach new breakthroughs in current physics.

This situation is common in various fields. If we want to explore new frontiers, new instruments must be developed in order to step into a new world.

The scale of experiments will evolve as time goes by. This is found not only in natural sciences but also in archeology, and so on. Such trends cannot be avoided in modern science. Large-scale science projects require strong team activities, and this is one of the great virtues of Asian cultures with an agricultural heritage. Now is the time for rice-growing cultures of Japan and Korea to show the high quality of their teamwork.