Renewal of Agreement between the University of Tokyo and the European Organization for Nuclear Research (CERN)

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The University of Tokyo and CERN first reached a scholarly research exchange agreement in 1988, and interchange has continued since, most notably in the field of particle physics. This agreement is renewed every five years with this year marking the third renewal. When President Sasaki of the University of Tokyo visited CERN on July 29, a memorandum concerning the renewal of the agreement was signed and its extension was determined for five more years.

CERN is the European particle physics laboratory and for many years has had fierce competition with American laboratories in the research on particles using the world's largest energy accelerator. Especially after CERN's discovery of carriers of weak nuclear force (W-bosons and Z-bosons) about 20 years ago, CERN has been leading the world in this field until now. The International Center for Elementary Particle Physics (ICEPP), University of Tokyo participates in the Omni Purpose Apparatus for LEP (OPAL) experiment. This is an international undertaking that employs CERN's large electron positron (LEP), the world's largest energy electron-positron collider. The University of Tokyo has been taking the initiative in experiment proposals, construction and operation of the main parts of the measuring instruments and physical analysis. The LEP began operation in 1989 and continued until 2000 when it was closed. During this period, the LEP produced various results approaching the fountainhead of particle physics, including the definition that particles have three generations, the search for the Higgs particle, detailed verification of the unified-gauge theories, calculation of the top quark mass, and the suggestion of supersymmetrical grand unification theory among others.
CERN has now begun construction on the large proton-proton collider "Large Haron Collider" (LHC) as a project following the LEP. In comparison with the LEP, the LHC is expected to immediately expand the search area for new phenomena and new particles in the particle physics field tenfold. Discoveries of the Higgs particle, the key for the origin of mass, or supersymmetrical particles suggested in the experiments with the LEP are anticipated to take place. Besides the OPAL experiments, the ICEPP has carried out research and development of measuring instruments and investigations on the data analysis system for ATLAS, an international joint experiment using the LHC. From now until the start of experiments in 2007, the ICEPP will function as the LHC experiment local data analysis center and is planning to speed up the preparation of facilities to promote the physical analysis of experiments with the LHC. They will thus continue to play a central role among relevant researchers throughout the country.


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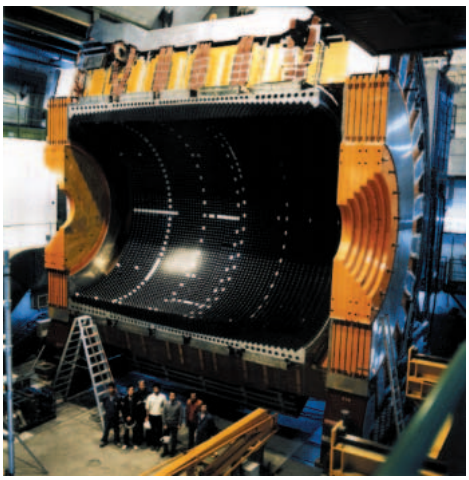
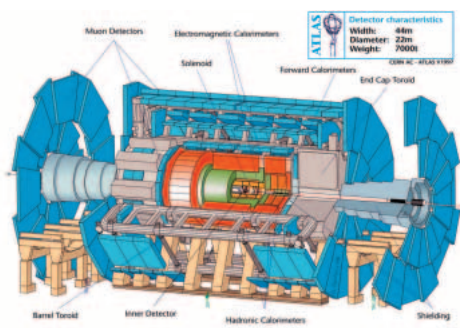
Photo 1: President Sasaki, the University of Tokyo, and Dr. Roger Cashmore, CERN Research Director.
Photo 2: President Sasaki listens to explanations from an ATLAS experiment spokesperson.



Lead glass shower calorimeter constructed by ICEPP in the OPAL experiment.



Completion drawing of the detector for ATLAS experiment in which a Japanese group including the University of Tokyo is participating.