

Construction Status of Japanese High-Intensity Accelerator Project (J-PARC).

K.H. Tanaka

*J-PARC Promotion Office,
High Energy Accelerator Research Organization (KEK),
Oho 1-1, Tsukuba-shi, Ibaraki-ken, 305-0801 Japan
E-mail: kazuhiro.tanaka@kek.jp*

Abstract

The construction of the Japanese high-intensity Particle Accelerator Research Complex (J-PARC) [1] was started on 2001 at the Tokai R&D Center of the Japan Atomic Energy Agency (JAEA) since the J-PARC is the joint project of the High Energy Accelerator Research Organization (KEK) and JAEA. The construction will be completed by the end of 2007 and experiments will start in 2008.

The main accelerator of the J-PARC is the 50 GeV proton synchrotron (50 GeV-PS), whose beam intensity designed is 15 micro-A. The beam power of the 50GeV-PS reaches 750 kW, which is approximately 10 times higher than the existing multi-GeV accelerators. This high-power 50 GeV proton beam is applied to the intense production of kaons, pions, and many other unstable and/or rare elementary particles such as antiprotons which will allow significant progress in both nuclear and particle physics. The J-PARC 50 GeV-PS is the first real KAON Factory accelerator in the world.

Two external beam lines are under construction for the 50 GeV-PS. One uses resonant slow extraction for the counter experiments and the other uses single-turn fast extraction for the neutrino beam facility, which is dedicated to a long baseline oscillation experiment, T2K, in combination with Super-KAMIOKANDE cosmic neutrino observatory. As injectors for the 50 GeV-PS, the rapid cycle 3 GeV proton synchrotron (RCS) and a 400 MeV linear proton accelerator (LINAC) are under construction. Beams from these low energy accelerators will be used solely for nuclear transmutation studies and material and life science studies, respectively.

At the Varenna conference, the latest status of the J-PARC construction will be reported

[1] <http://j-parc.jp/index-e.html>