Research at the Japan Proton Accelerator Research Complex

CSU Physics faculty, Professor Walter Toki, has spent his sabbatical year working on an experiment called "T2K". This experiment will send a beam of ν_μ neutrinos produced from a new accelerator, the Japan Proton Accelerator Research Complex (http://j-parc.jp/index-e.html) or JPARC, over 290 kilometers underground across Japan to an underground detector called the Super Kamiokande (http://www-sk.icrr.u-tokyo.ac.jp/sk/gallery/index-e.html) or SuperK. The T2K experiment will search for an elusive oscillation of the muon type neutrino, ν_μ, into the electron type neutrino, ν_e. This rare oscillation is expected to occur while the neutrino travels 290 kilometers underground and the resulting ν_e should be detected in the SuperK detector which is a 50,000 ton water Cerenkov detector in a mine over 1000 meters underground. Prof. Toki has been working with CSU faculty and staff colleagues, Robert Wilson, Bruce Berger, Norm Buchanan, and Dave Warner, to build and install the "P0D" detector which one of five sub-detectors in the T2K experiment that will monitor the neutrino beam in the new experimental hall about 280 meter downstream of the neutrino target where the neutrinos are created at JPARC and aimed at the SuperK detector. CSU members at JPARC are shown in the photo above..

From left to right are Walter Toki, Shamil Assylbekov, Vladimir Krastov, Norm Buchanan, Robert Wilson, and David Warner, who are standing in front of four "P0D" modules now being checked out at JPARC before being installed into the T2K experimental hall in

The photo to the left shows one of the four P0D detectors at Stony Brook just before shipment to Japan.

In the first half of his sabbatical, Prof. Toki was at Stony Brook University managing the assembly of the P0D detector.

This summer Prof. Toki is at JPARC coordinating the checkout and calibration of the detector with a team of scientific collaborators from Stony Brook University, CSU, University of Rochester, University of Pittsburgh, and the University of Washington, Seattle.