The 21 Century COE Project Exploring New Science by Bridging Particle-Matter Hierarchy

Short-term Foreign Researchers

Research Report

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Your Stay Period in Japan: From <u>17 Jan 2004</u> to <u>7 Mar 2004</u> Title of Research in Japan: Research in Neutrino Physics at the KamLAND Experiment

Research Report

I have been involved in the KamLAND experiment from the latter stages of its construction, and the last time I was able to spend an extended amount of time on-site was for 10 months or so in 2001, in the run-up to the commencement of data-taking. At that time I contributed to various aspects of the commissioning of KamLAND, on both the hadware and software aspects of the experiment.

This new opportunity to work on-site for an extended period allowed me to spend a total of five weeks at the KamLAND experiment. This made it possible to fully acquaint myself with the changes in the experiment that have taken place over the course of data taking. A good knowledge of detector running status is invaluable in data analyses, and the research activities during my stay should be very helpful in future analysis work. Specific examples of changes include the high voltage setup, scintillator temperature, volume and response characteristics, data acquisition computer setups, etc.

In addition to this, much time on-site was spent in discussions with fellow collaborators from the Tohoku University Research Centre for Neutrino Science. These discussions were of a general nature, but much information was exchanged which may prove useful in the future for myself and my colleagues from Tohoku. I also visited the RCNS in Sendai to talk about analysis and detector issues.

My stay in Japan also allowed me to engage in communication with Hamamatsu Photonics K.K. This was in regards to an experiment other than KamLAND that I am working on, for which Hamamatsu's world-renowned expertise in experimental photonics products could be useful. We are now evaluating this possibility with my colleagues at Stanford.