

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

**Short-term Foreign Researchers  
Research Report**

Name: Jesse Goldman

Affiliation: Lawrence Berkeley National Laboratory

Host Researcher in Tohoku University: Prof. Atsuto Suzuki

Your Stay Period in Japan: From 12/27/03 to 1/10/04

Title of Research in Japan: KamLAND Operation Shift

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Please write a research report of one or more pages and submit it with this cover to your host researcher till the end of this March.

Report on KamLAND Operations Work

December 26, 2003 - January 10, 2004

Jesse Goldman

Lawrence Berkeley National Laboratory

The KamLAND experimental detector, a collaborative venture led by Tohoku University in Sendai, Japan and 10 academic/research institutions situated throughout the United States, is located in Gifu-ken in western Japan. The detector was designed and built to observe interactions between electron-anti neutrinos incident from both Japanese and foreign power reactors and protons in the KamLAND scintillator via the inverse beta decay reaction. The relatively low cross-section for this interaction, even inside the one kilo-ton KamLAND fiducial volume necessitates constant data-taking and data quality monitoring. During my trip to the experimental site in Mozumi in December of last year, I assumed responsibility for two consecutive KamLAND detector shifts each of 8 days duration. Shift duties included checking KamLAND data for problems, making sure that the detector and its peripherals were working properly, and communicating abnormal running conditions to other onsite workers and the onsite coordinators. My professional work at the KamLAND site also involved onsite discussions related to streamlining of KamLAND US-Japan operations (shift quotas, assignments, and efficiency issues) and calibration/maintenance work scheduling meetings.

I would like to take this opportunity to thank Professor Atsuto Suzuki of Tohoku University for inviting me to participate in the Center of Excellence short-term foreign researchers program and the Japanese government's Ministry of Education, Culture, Sports, Science, and Technology for its generous support during my stay at the KamLAND site.