

Ratest results of geo-neutrino measurement with KamLAND

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KamLAND (**K**amioka **L**iquid scintillator **A**nti-**N**eutrino **D**etector) has been marked by the ability to detect comprehensive anti-neutrino signals in the wide energy range with 1,000-ton ultra pure liquid scintillator since its construction, 2002. Given the neutrino oscillation parameters are measured precisely and the properties of neutrinos are gradually characterized, recently the neutrinos started to be used as a tool to investigate deep interior of astronomical objects. Anti-neutrinos emitted from radioactive isotopes inside the Earth, geo-neutrinos, bring unique and direct information on the Earth's composition, which relate to the fundamental mysteries of its heat balance and thermal evolution.

KamLAND has been stably observing geo-neutrinos with highest sensitivity since it made the world's first observation in 2005. Owing to the recent long-term shutdown of Japanese reactors, the flux of reactor anti-neutrinos, which was most serious background for geo-neutrino observation, was significantly decreased. Our decade-long observation, including the reactor-off period, has potential for providing useful information on deep interior of the Earth.

In this presentation, the latest results of geo-neutrino observation with KamLAND will be presented.

Keywords: geo-neutrino, radioactive elements in the Earth, Earth's thermal evolution