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Latest results from KamLAND-Zen second phase

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KamLAND-Zen is an experiment for neutrinoless double beta decay search with xenon 136 based on large liquid scintillator detector KamLAND.

The first phase of the experiment was operated from Oct. 12, 2011 to June 14, 2012 and we set lower limit for the neutrino-less double beta decay half-life, $T_{1/2}(0\nu) > 1.9 \cdot 10^{25}$ yr. *The combined result of KamLAND-Zen and EXO data give $T_{1/2}(0\nu) > 3.4 \cdot 10^{25}$ yr.*

At the first phase, we found problematic background, 110mAg. Then we purified liquid scintillator and xenon gas by distillation to remove the background. The purification campaign was started just after the first phase and ended at Dec. 2013.

We present the progress of background rejection, current status and latest results from KamLAND-Zen second phase.

Summary

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