

Status of production for KamLAND-Zen 800 kg phase

KamLAND-Zen is an experiment for neutrinoless double beta decay search with xenon 136 based on large liquid scintillator detector KamLAND. In order to reduce the cosmogenic isotopes and environmental radioactivities (Uranium, Thorium Potassium), KamLAND-Zen set 16.5m³ xenon loaded scintillator in 25 μ m thickness and 3.16 m diameter nylon balloon.

First phase of the experiment (KamLAND-Zen 400, 400 kg xenon gas) released a lower limit for the neutrinoless double beta decay half-life. But sensitivity is restricted by the contamination of balloon (mini-balloon) which is introduced by construction. Then KamLAND-Zen collaboration planned to upgrade the detector especially for the new mini-balloon which can contain 800 kg xenon gas with 31.4m³ liquid scintillator in 3.84 m diameter (KamLAND-Zen 800).

We present the current status of KamLAND-Zen 800, new mini-balloon construction and methods to avoid the background contaminations.

Primary author: SHUHEI, OBARA (Tohoku University)

Co-author: GANDO, Yoshihito (Tohoku Univ.)

Presenter: SHUHEI, OBARA (Tohoku University)

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