

# XeSAT2022 - International Workshop on Applications of Noble Gas Xenon to Science and Technology



ID de Contribution: 17

Type: Non spécifié

## Neutrinoless double-beta decay search results from KamLAND-Zen with 1 ton-year $^{136}\text{Xe}$ exposure

KamLAND-Zen is a neutrinoless double-beta decay search experiment using a large size liquid scintillator(LS) detector (KamLAND). We started KamLAND-Zen 800 phase with 745 kg of Xenon in 2019.

We achieved to conduct an extremely low radioactive background experiment by reducing the radioactive impurities in the newly fabricated 25-um-thick and 3.8-m-diameter nylon film container for the Xe-loaded LS and developing strong spallation background rejection techniques.

The dominant background after all the analytic background rejection is the Xe-spallation product by a cosmic-ray muon, even though our experiment is taken place 1000-m-underground.

In the presentation, the new result of KamLAND-Zen 800 with 1 ton-year  $^{136}\text{Xe}$  exposure will be presented with the estimation and the measurement of the long-lived Xe-spallation product.

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**Classification de Session:**  $0\nu 2\beta$  session 1, chair Julien Masbou