

Status of the KamLAND-Zen experiment

Saturday, 30 June 2018 15:00 (30 minutes)

KamLAND-Zen is a double beta decay experiment with the enriched xenon-loaded liquid scintillator. Increasing the number of double beta-decay nucleus is a key to improve the sensitivity on the neutrinoless decay mode. Among a dozen of target nuclei, xenon gas is easily solved in the liquid scintillator by about 3 wt%, so the experiment with about 400 kg xenon (KamLAND-Zen 400) became feasible early and demonstrated excellent sensitivity after the intensive purification. Our search constrains the effective neutrino mass scale below ~ 100 meV, and the most advantageous nuclear matrix element calculations indicate the limit reaches near the bottom of the quasidegenerate neutrino mass region. We will soon start the next phase with about 800 kg xenon (KamLAND-Zen 800) to start to constrain the inverted mass hierarchy region.

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