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First Results from KamLAND-Zen : Double beta decay with Xe-136

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KamLAND-Zen (KamLAND ZEro Neutrino double beta decay search) is a double beta decay experiment with ~300 kg of 90% enriched Xe-136 nuclei loaded into liquid scintillator.
Double beta decay (2nu mode) described by the process A(Z) -> A(Z+2) +2e- + 2nu is allowed by the standard model and has been measured with various isotopes. On the other hand, 0nu mode described as A(Z) -> A(Z+2) +2e- which violate the lepton number conservation and will provide the nature of neutrino (Majorana/Dirac test, its mass hierarchy and effective mass), is expected, however not yet observed.
In this talk, we will present the KamLAND-Zen first results, measurement of Xe-136 2nu mode half-life and new limit of 0nu mode with 10 ton-day data.

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Classification de Session: Neutrinos (cont)

Classification de thématique: Experiment