

Abstract Submitted
for the HAW05 Meeting of
The American Physical Society

Double beta decay of ^{48}Ca in CANDLES III - Construction and first run - KAYOKO ICHIHARA, Graduate School of Science, Osaka University, TADAFUMI KISHIMOTO, IZUMI OGAWA, RYUTA HAZAMA, SEI YOSHIDA, SAORI UMEHARA, YOSHIYUKI HIRANO, CANDLES COLLABORATION — Experiments of neutrino oscillation show that neutrinos have mass. The absolute mass scale and Majorana nature of neutrino are of current interests. The measurement of neutrino-less double beta decay can establish the Majorana nature of neutrino and is the realistic experiment to measure the effective mass in the range of meV, so far. We have been studying double beta decay of ^{48}Ca . The highest Q-value of ^{48}Ca among double beta decay nuclei makes it possible to realize background free measurement. CANDLES (Calcium fluoride for the study of Neutrino and Dark matter by Low Energy Spectrometer) system was proposed, in order to achieve the sensitivity of order of meV neutrino mass. In this system, CaF_2 crystals are immersed in liquid scintillator. We started studying of neutrino-less double beta decay by using CANDLES III that consists of 60 undoped CaF_2 crystals with total mass of 191kg. The present status of construction and performance of CANDLES III in the first run will be reported.

Kayoko Ichihara
Graduate School of Science, Osaka University

Date submitted: 25 May 2005

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