Contribution ID: **66** Type: **Poster**

ZICOS – Neutrinoless double beta decay experiment using ^{96}Zr with an organic liquid scintillator-

ZICOS is scintillator experiment for $0\nu\beta\beta$ of ^{96}Zr. In order to achieve sensitivity over 10^{27} years, ZICOS will use tons of ^{96}Zr, and need to remove ^{208}Tl backgrounds as observed by KamLAND-Zen one order of magnitude. For this purpose, we have developed new technique to distinguish the signal and background using Cherenkov light, and succeeded that 93% of ^{208}Tl events could be removed even though remaining 80% of $0\nu\beta\beta$ signal using Monte Carlo simulation. In order to realize this technique, we have to select PMT which receives Cherenkov lights. From recent measurement using ^{90}Sr β source, a clear pulse of Cherenkov light was observed among scintillation, and pulse shape discrimination was established. Here, we report current status and discuss about plans to demonstrate the background reduction and to observe $2\nu\beta\beta$ decay of ^{96}Zr.

Mini-abstract

New technique for BG reduction using Cherenkov light was developed for ZICOS scintillator experiment

Primary author: Prof. FUKUDA, Yoshiuki (Miyagi University of Educaiton)

Co-authors: Prof. OGAWA, Izumi (Univsersity of Fukui); Dr HIRAIDE, Katsuki (Kamioka Observatory, ICRR, University of Tokyo); Prof. MORIYAMA, Shigetaka (Kamioka Observatory, ICRR, University of Tokyo); Prof. GUNJI, Takahiro (Tokyo University of Science)

Presenter: Prof. FUKUDA, Yoshiuki (Miyagi University of Educaiton)

Session Classification: Poster Session 2