



Contribution ID: 106

Type: Poster

## Background measurement for neutrino less double beta decay with CANDLES

CANDLES is a neutrino less double beta decay ( $0\nu\beta\beta$ ) experiment using  $^{48}\text{Ca}$  in  $\text{CaF}_2$  crystals. A distinctive characteristic of  $^{48}\text{Ca}$  is the highest  $Q$  value (4.3 MeV) among isotope candidates for  $0\nu\beta\beta$ . In principle, it enables us to measure signals in small background contribution. The background candidates in interested energy region are  $\beta/\gamma$  rays from  $^{208}\text{Tl}$  ( $Q = 5.0$  MeV), and  $^{212}\text{Bi}$ - $^{212}\text{Po}$  coincidence ( $E_{\beta} = 2.2$  MeV, visible  $E_{\alpha} = 3.1$  MeV) which decays in a short time window ( $T_{1/2} = 299$  nsec). In addition, we found that gamma rays from neutron captures on materials surrounding detector can be dominant background. Here we discuss these background estimation and prospects of backgrounds shielding.

**Primary author:** Dr NAKAJIMA, Kyohei (Osaka University)

**Presenter:** Dr NAKAJIMA, Kyohei (Osaka University)

**Track Classification:** Neutrinoless Double Beta Decay