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## The CANDLES experiment for the study of Ca-48 double beta decay

Neutrino less double beta decay is the only practical way to prove the Majorana nature of the neutrino. CANDLES is a  $^{48}\text{Ca}$  double beta decay experiment with  $\text{CaF}_2$  scintillator. The CANDLES III (U.G.) detector is currently running with 300kg  $\text{CaF}_2$  crystals in the Kamioka underground observatory, Japan. New light collection system was installed in 2012, and accordingly photo-coverage has been enlarged by about 80%. We are currently analyzing the data taken until 2013 to clarify the origin of the backgrounds. Here we will present the performance of the latest CANDLES III (U.G.) system and the background reduction technique developed using waveform analysis. We also mention about future prospects of our project including a further improvement by installing a detector cooling system in 2014 in order to increase light emission from  $\text{CaF}_2$  crystals.

### Summary

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