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P1.060 **Development of scintillating bolometer for 48Ca neutrinoless double beta decay search**

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The detection of neutrinoless double beta decay(0νββ) would establish that the total lepton number is not conserved and the neutrino is a Majorana particle. The important points in the 0νββdetection are increment of the target mass, reduction of the background, and improvement of the energy resolution. Many groups aim to detect 0νββ with a variety of techniques. CANDLES is a project to search for 0νββ of 48Ca with CaF2 scintillators. The main advantage of 48Ca is that it has the highest Q-value (4.27MeV) among all the isotope candidates for 0νββ.The CANDLES detector is currently running with 300kg CaF2 crystals and 62 photomultipliers in the Kamioka Underground Observatory, Japan. In 0νββsearch, it is very important to develop the high energy resolution detector especially to avoid inevitable 2νββ background events. Therefore, we plan to use the CaF2 bolometer which is able to achieve excellent energy resolution by detect heat signal. We aim to achieve 0.5% (FWHM) energy resolution at the Q-value using neutron transmutation doped germanium thermistors. The main background of CaF2 bolometer is 238U alpha events because the Q-value is almost the same as 48Ca. In order to discriminate this alpha background events, CANDLES group is planning to introduce aCaF2 scintillating bolometer. Simultaneous detection of heat and light signals of scintillating bolometer enables us to reject this alpha background events using the quenching effect of alpha-ray. At present, we are developing a small scintillating bolometer with several hundred grams ofCaF2 crystals in the surface laboratory. In this poster, the current status of development and future strategy of our scintillating bolometer will be reported.