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XMASS experiment and its double beta decay option

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XMASS is an underground experiment aimed at rare event search by using ultrapure liquid xenon in the Kamioka mine, Japan. The main physics targets of XMASS are cold dark matter, neutrinoless double beta decay, and low-energy solar neutrinos. We have done several test data taking during 2003 and 2004. We succeeded to reduce and measure Kr radioactivity in xenon. U and Th chain radioactivities were measured by Bi-Po method and found to be very low level.

Although we are mainly developing dark matter detector, we have an option for double beta decay experiment with xenon. Unfortunately, due to high radioactivity of our PMTs, it is hard to utilize the dark matter detector for double beta decay search. We will report some activities for developing a detector for double beta decay experiment.