

A muon simulation study for the AMoRE-II experiment

The AMoRE (Advanced Molybdenum based Rare process Experiment) phase-II is an experiment to search neutrino-less double beta decay of Mo-100 which is the later phase of the AMoRE experiment. If the double beta decay is found, it means that the neutrinos are Majorana particles and we can measure their masses. The experiment is going to be carried out in the deep underground in order to observe the extremely rare events free from the backgrounds coming from the cosmic ray particles. However, even in the deep underground, there are still some cosmic ray particles that can affect the measurement and must be excluded as much as possible. A muon veto counter is a sort of detector that can veto cosmic muons coming to the inner space where the CaMoO₄ (CMO) crystals and detectors are located. We studied effects of veto materials in the AMoRE-II experiment configuration. In detail, we compared the background values in CKKY unit when the veto material is 3m of water or 30cm of lead. Also, we investigated the effect of thickness of water tank. Detail results with discussions will be shown in the poster.

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