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Performance of the trigger-veto detector for Korea Experiments on Magnetic Monopole

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Magnetic monopoles have yet been observed despite decades of efforts. KoreA Experiment on Magnetic Monopole (KAEM) searches for fundamental magnetic monopoles in the low-mass and low-charge region. KAEM is configured with a thin aluminum target, sodium-22 source, two 1 T·m solenoids, about 3 m long vacuum chamber, two electromagnetic calorimeters, and the trigger-veto detector. The LYSO, CsI, and CsI(Tl) crystals, used widely in nuclear/particle physics experiments, are candidates for the trigger-veto detector and electromagnetic calorimeters. We investigated the characteristics and the performance of those crystals to decide which type of crystal satisfies the requirements of our experiment. In addition, these crystals were tested with a customized DAQ system and tens of MeV electrons and gammas.

This talk will present the characteristic of several types of crystals and beam test results obtained with the customized DAQ system.

In-person participation

Yes

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