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Muon Backing Veto for UNCA Experiment at Los Alamos National Labs SHUANG DU, HENNING BACK, ADAM HOLLEY, ROBERT PATTIE, CHRIS O'SHAUGHNESSY, ALBERT YOUNG, North Carolina State University — Muons are highly energetic charged particles originating from the upper atmosphere as a result of cosmic ray pion decay. Due to the muon's energies, they are very difficult to shield against and therefore register unwanted background in certain particle detectors. In our experiment the particle detectors are designed specifically to detect beta particles from neutron decay. To solve the muon background problem, thin plastic scintillator detectors are situated essentially flush with the back of the beta detectors. Cosmogenic muons pass through both detectors without stopping, producing a “coincidence” signal that is used to reject background. Wave-shifting fluorescent fibers direct light into a wire mesh photomultiplier tube (PMT). Wire mesh PMTs are insensitive to the magnetic field strengths present in our spectrometer detector, which approach 1 Tesla, and prevent normal PMTs from functioning. Our muon veto systems will be installed in the UCNA experiment in the summer of 2005.

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