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Response of the 20"Super-K PMT in Magnetic fields of up to 500mG

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Super-Kamiokande (SK) is 50kT water Cherenkov neutrino detector composed of approximately 11,000 20" Photomultiplier Tubes (PMTs). Magnetic fields are understood to affect photoelectron trajectories through the bulb of large-sized PMTs, and consequently can affect their performance. As SK moves towards a systematically limited future, it is becoming increasingly important to understand the impact of residual magnetic field effects on PMT performance. The Photosensor Test Facility (PTF) at TRIUMF is a testbed designed to characterize the response of PMTs in various magnetic field configurations. Here we present new results investigating the gain, detection efficiency, and timing response of the 20"SK PMT in magnetic fields of up to 500mG. We also present simulation studies carried out in GEANT4 and Comsol to investigate the optical effects on photon-absorption and the magnetic field effects on photoelectron trajectories in the PMT bulb and dynode in differing magnetic fields.

Do you need a VISA letter for traveling to Canada ?

No

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