

Abstract Submitted
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Shielding Photomultiplier Tubes from Magnetic Fields at Cryogenic Temperatures: Results from MicroBooNE Testing¹ TIMOTHY McDONALD, THOMAS BRIESE, PAUL NIENABER, Department of Physics, Saint Mary's University of Minnesota — Photomultiplier tube [PMT] performance can be affected by ambient magnetic fields, even ones as small as the Earth's. Large diameter tubes (eight inches or greater), such as those used in neutrino detectors, are no exception; the cryogenic environment in the MicroBooNE detector (which houses a Liquid Argon Time Projection Chamber [LArTPC] and will use eight-inch PMTs for scintillation light detection) poses an additional challenge. This report details the use of a test stand to rotate PMTs inside a vessel that can be filled with liquid nitrogen or argon, and the performance of tubes shielded with materials designed for use at cryogenic temperatures.

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