Abstract Submitted
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Improving the quantum efficiency of the CLAS12 LTCC PMTs with a p-Terphenyl wavelength shifter[1] SYLVESTER JOOSTEN, ZEIN-EDDINE MEZIANI, NIKOLAOS SPARVERIS, MICHAEL PAOLONE, EDWARD KACZANOWICZ, Temple Univ — An improved version of the CLAS Cherenkov detector will be used as the Low-Threshold Cherenkov Counter (LTCC) for the CLAS12 spectrometer at JLAB. The original detector used 216 UV-glass PMTs, which have a poor quantum-efficiency (QE) below 300nm due to the UV-glass transparency. The application of a p-Terphenyl wavelength shifter to the face of these PMTs dramatically improves the QE for short wavelengths, rivaling that of a much more expensive quartz PMT. This translates into an improved detector performance for the LTCC, especially in the higher-energetic regimes in the CLAS12 spectrometer. We will discuss the coating process as well as the performance testing taking place at Temple University. Furthermore, we will present the results of a study of the wavelength dependence of the gain in QE performed at JLAB.

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