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Global Quantum Efficiency Simulations

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Wavelength shifting plates coated with Tetraphenyl butadiene (TPB) are used to convert vacuum ultra violet photons into visible spectrum photons in order to make detection by Photomultiplier tubes (PMTs) in liquid argon scintillator experiments possible. To accurately use the combined plate-PMT system, calibrations motivated by geometric factors and optical properties of materials must be performed. This talk will outline how an optical simulation incorporating these effects can accompany a measurement of observed photoelectrons in a plate-PMT test stand system, and how the results may be used to determine a “global quantum efficiency” for this combined system.

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