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9125B ET Photomultiplier Tubes with a Wavelength Shifting Paint for a Gas Cherenkov Counter SCOTT BARCUS, TODD AVERETT, William and Mary College, BOGDAN WOJTSEKHOWSKI, Thomas Jefferson National Accelerator Facility — This presentation will describe a method to increase the amount of Cherenkov light detected by photomultiplier tubes using a wavelength shifting paint and Electron Tubes' 9125B PMTs. A Cherenkov spectrum was generated via cosmic rays striking a polished rectangular fused silica crystal and observed by PMTs. By applying a wavelength shifting paint to the faces of the PMTs photons outside of the normal sensitivity range for the PMTs can be shifted into the sensitive range. A number of PMTs were tested with and without the paint to observe the change in the detected number of Cherenkov photons. The wavelength shifting paint was found to increase the number of photoelectrons seen by as much as 50%. However, the response of individual tubes was found to be highly variable ranging from increases in light of 5 - 50% with an average of 22.4%. The variable nature of the PMTs' responses indicates that tubes may still need to be individually tested after the paint is applied to select the most desirable tubes. This method can be applied to the PMTs in a gas Cherenkov detector to increase the number of photons collected.

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