

Abstract Submitted
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Calibrating a large diameter light source and multi-wavelength calibration of the Pierre Auger Observatory fluorescence detectors¹ BEN GOOKIN, JEFF BRACK, ALEXEI DOROFEEV, JOHN HARTON, YEVGENIY PETROV, Colorado State University — Calibration of the Pierre Auger Observatory fluorescence detectors is performed using a low intensity uniform 2.5m diameter light source which allows for an end-to-end measurement of all detector components that calibrates the combined effect of each component in a single measurement. There are two fluorescence detector calibrations that utilize the 2.5m diameter light source, absolute calibration at a single UV wavelength and a relative calibration at several UV wavelengths. Recent improvements in technique and equipment have increased calibration reliability and improved uncertainties. We discuss these improvements here, including digital control and monitoring of LED pulses, a technique using the $1/r^2$ attenuation of light in the calibration of this low intensity light source, and the use of a monochromator to pick out single wavelengths in a broad UV range to perform the relative calibration. Preliminary data on the relative calibration using the monochromator setup will be presented, along with the effect of this calibration on the reconstructed energy of simulated showers using the Pierre Auger Observatory fluorescence detector simulation.

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