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A Wavelength-shifting Light Collector for the LBNE Water Cerenkov Far Detector WILLIAM JOHNSTON, NORM BUCHANAN, Colorado State University, LONG-BASELINE NEUTRINO EXPERIMENT COLLABORATION — The Long-Baseline Neutrino Experiment (LBNE) is a proposed neutrino oscillation experiment designed to look for CP-violation in the neutrino sector, determine the neutrino mass hierarchy, as well as to measure the neutrino mixing angle θ_{13}. In addition, the far detector has the goals of measuring neutrinos from supernovae as well as being able to search for proton decay with sensitivity beyond current limits. A light collection system is being investigated for the proposed 200 kton water Cerenkov far detector. Studies are underway to determine if two different light collector designs will be effective at preserving the physics potential of the detector while enabling large cost savings through a reduction in the number of photomultiplier tubes needed. Measurements and simulations of one light collector design, based on flat wavelength-shifting plates, will be presented.

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