

Abstract Submitted  
for the CAL10 Meeting of  
The American Physical Society

**Ocean Water Column Probing Using LIDAR** SAM MEIJER, THOMAS BENSKY, California Polytechnic State University, San Luis Obispo — California Polytechnic State University, San Luis Obispo operates a 1-km research pier extending due south over San Luis Obispo Bay, on the central coast of California, equidistant from both Los Angeles and San Francisco. The pier is situated 25 feet above the ocean surface where the water is approximately 30 feet deep. We have constructed a LIDAR station here that fires 10-ns, 1-Watt, 532-nm pulses from a YAG laser directly into the water at 20 Hz. A single photon detector placed near the laser aperture feeds a histogramming picosecond time analyzer that logs the return times of photons only at this wavelength. After a strong surface return, we observe photon return events that span a time interval corresponding to the maximum possible distance a photon can traverse in traveling from the laser to the ocean bottom and back to the detector. In estimating return signal strengths, the amount of laser light reflected from the ocean floor is an important parameter. To measure this, we have constructed a “benthic reflectometer” that, when lowered near the ocean floor, will allow for determination of the reflected light intensity from the floor itself. In this presentation we will report on photon return event spectra, benthic reflectance measurements and future plans.

Sam Meijer  
California Polytechnic State University, San Luis Obispo

Date submitted: 05 Oct 2010

Electronic form version 1.4