

Abstract Submitted
for the 4CF14 Meeting of
The American Physical Society

Wavelength Detection from Filtered Photodiodes NILS OTTERSTROM, TYLER JONES, JAROM JACKSON, JAMES ARCHIBALD, DALLIN DURFEE, Brigham Young University — Filtered photodiodes show potential as an inexpensive and robust method for determining the wavelength of single frequency light. Photocurrents are measured digitally using externally controlled integration times to achieve the highest precision possible from the digital to analog converters on the photosensor chip. Using an algorithm we've developed and calibrated intensity curves, we can precisely calculate wavelength from the output of the different photodiodes. Limitations and possible improvements due to etaloning in the filters have been analyzed and effectively utilized, allowing the device to achieve remarkable precision with a stability of 0.01 nm over 70 hours.

Nils Otterstrom
Brigham Young University

Date submitted: 11 Sep 2014

Electronic form version 1.4