

Abstract Submitted
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Improvements to a Michelson interferometer based wavemeter for precision laser wavelength measurement BRYCE MCCLURG, JOHN SOHL, Weber State University — The Michelson wavemeter developed by Fox, *et. al.*, is basically a solid design but has problems with speed and single pass accuracy. The main problem is associated with the speed of the fringe detection and the fringe contrast. Electronic noise can also be an issue if the design is not carefully laid out. We are designing a high speed counting circuit and small area photodetector that should solve these problems. Standard op amps and counting circuits are not fast enough to keep up with the fringe counting which needs to be at least 5 MHz. The quality of the fringes is not reliably high and a way to increase the fringe contrast is critical to allow for a reliable fringe count. We have created the high speed counting circuit and a possible fringe detection system. Our current status and results will be reported. P. J. Fox, R. E. Scholten, M. R. Walkiewicz, and R. E. Drullinger, *Am. J. Phys.* **67** (7), July 1999.

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