Abstract Submitted
for the DAMOP19 Meeting of
The American Physical Society

Laser frequency noise spectrum and linewidth using a fiber interferometer JAMES D WHITE, Juniata College and University of Melbourne, LINCOLN D TURNER, Monash University, ANDREW J MCCULLOCH, ROBERT E SCHOLTEN, University of Melbourne — Laser frequency noise is converted to an electrical noise spectrum using an unbalanced Mach-Zehnder fiber interferometer with short path-length imbalance and an audio spectrum analyzer. Linewidths are calculated from integration of the frequency noise spectra are consistent with three-corner-hat heterodyne beatnote measurements. The method provides frequency noise measurements like those obtained with a high-finesse cavity but using common lab components, with the additional benefits of requiring neither multiple lasers nor many kilometers of single-mode optical fiber.

James White
Juniata College and University of Melbourne

Date submitted: 19 Mar 2019 Electronic form version 1.4