

Abstract Submitted
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Investigating Superfluid ^4He Using Commercially Available Quartz Tuning Forks¹ JOSHUA WIMAN, ROBERT DESERIO, NEIL SULLIVAN, YOONSEOK LEE, Department of Physics, University of Florida, Gainesville, FL 32611 — Mechanical oscillators such as vibrating wire oscillators, torsional oscillators, and acoustic transducers have been widely used to measure the properties of cryogenic liquids. Commercial quartz tuning forks, which can be found in almost every electronic device, have shown promise as viscometers and thermometers for low temperature experiments. These devices are inexpensive, easy to install, and insensitive to magnetic fields. Before a fork can be used, it must be calibrated against a hydrodynamic model. We measured changes in the frequency and width of the fork's resonance response in superfluid ^4He down to 1.5 K. Analysis of the tuning fork's response as a function of temperature shows that its behavior is well-described by the hydrodynamic model for superfluid helium. We will also discuss our future plans.

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