Abstract Submitted
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**Quartz tuning fork as a viscometer for Helium liquids**[1] J. JHAVERI, M. GONZALEZ, P. BHUPATHI, Y. LEE, Department of Physics, University of Florida, Gainesville, FL 32611-8440 — Oscillating beams serve as simple systems for measuring effects of energy dissipation as a result of interaction with their environment. Especially in miniature mechanical oscillators, the enhanced surface-to-volume ratio signifies the importance of damping caused by drag force. We have investigated the mechanical response of commercial miniature quartz tuning forks with a natural resonant frequency of 32.768 kHz. The changes in resonance frequency and damping have been measured at various Helium and Nitrogen gas pressures and various temperatures. Our results will be compared with theoretical predictions in order to extend its application to the sub-millikelvin temperature range as an effective thermometer in superfluid $^3$He.

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J. Jhaveri

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