Decoupling NCRI from shear modulus changes in solid $^4$He

JOSHUA T. WEST, MOSES H.W. CHAN, Department of Physics, The Pennsylvania State University, University Park, PA 16802 — Day and Beamish report a significant increase in the shear modulus of solid $^4$He [1] below 250 mK with temperature dependence similar to the non-classical rotational inertia (NCRI) response seen in torsional oscillator measurements [2]. Finite element calculations show that stiffening of the solid $^4$He could mimic very small NCRI signals [3]. We have constructed a one-piece, welded oscillator which is designed to minimize the effect from stiffening of the solid helium. Preliminary data will be presented.


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