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Measurements of Coefficients of Kinetic Friction Using a Driven Harmonic Oscillator[1] M. G. AGGLETON, P. TABOREK, J. E. RUTLEDGE, University of California, Irvine — We have developed a method of measuring the kinetic coefficient of friction of various materials. Instead of the standard pin-on-disc tribometer, we have developed a driven harmonic oscillator at frequencies around 50Hz to measure friction at the millimeter to centimeter scale. The system is driven by a magnetic field and measured by a linear variable differential transducer (LVDT). Contact between a plate attached to the oscillator and a sphere provides damping due to friction. We will present results for various material combinations, as well as perform a comparison between these results and those of other researchers using a variety of techniques. This apparatus was designed with the intention of being vacuum and low temperature compatible in order to explore the temperature dependence of friction in the cryogenic regime.

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