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Characterization of damping force in a magnetic damping device¹ WILLIS AGUTU, MICHAEL PECHAN, JOENG-HOI KOO, Miami University, PHYSICS DEPARTMENT COLLABORATION, MANUFACTURING AND ME-CHANICAL ENGINEERING COLLABORATION — Self-powered damping systems are interesting from both application and fundamental perspectives. In order to optimize efficiency in a damping system, it is necessary to effectively model the underlying mechanism of damping. We have constructed a magnetic damping device with a magnet traversing a coil of wire to measure the dynamic damping force directly by a strain gauge attached to the coil. This was compared to a model developed by Saslow [1] which calculates the force on a current carrying loop in a magnetic field gradient. By simultaneously measuring force, induced current and magnetic field intensity, we confirm the applicability of the model to magnetic damping.

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