

MSET – MAGNETIC DAMPING

Purpose

Examine the effects of applying a noncontact magnetic damping force on the dynamic system response.

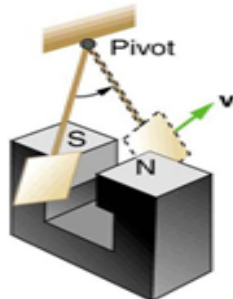
Magnets

Magnets can be used to alter the dynamic motion of a body that is either magnetic or can be influenced by a magnetic field. One application of magnetic damping or control is found on roller coasters that use magnets to slow or stop the passenger car.



Theory

As a conductive material passes through a magnetic field, the magnetic field setup by the magnet changes and circular currents called eddy currents are generated in the conductor. These eddy currents then form a magnetic field that opposes the other field, resulting in noncontact damping.



Setup



Results

A set of stacked magnets will be moved to measurable distances from a conductive cylinder attached to a pendulum. The pendulum will be moved to identical release angles and the transient response will be measured to determine the damping condition for each condition.

