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Dynamic Considerations of Collision Cart Motion Under the Influence of Magnetic Fields KEVIN BOOS, WILLIAM Z. NAKHODA, J.W. PETERS, KEN TAYLOR, Lake Highlands High School — This paper characterizes the dynamic behavior of “magnetic carts” when subjected to a variety of magnetic barriers and wells. Judicious placement of permanent magnets along the track (both on and at the sides) provides for a classical simulation of concepts familiar to all students of physics. Neodymium magnets of varying dipole moments are used to study the forces, energy and motion of a magnetic cart moving under these varying influences. Conditions leading to simple harmonic motion in a well are discussed in terms of the amplitude of motion and the restoring forces.

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