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**Application of Lenz's Law to Magnetic Levitation** JUAN TRETO, HEINZ NAKOTTE, New Mexico State University — Lenzs law can be used to achieve magnetic levitation through induced currents. The law states that changing magnetic fields will induce an electric current, or eddy current, in a conductor surface such that it produces an opposing magnetic field.We will explore the constraints for magnetic levitation through the use of eddy currents, induced by a rotating disk of a permanent-magnet assembly. There are no eddy currents when the disk is stationary, but a rotating disk yields formation of two opposing eddy currents over the dimensions of the individual permanent magnets in the assembly. One of the eddy current repels the magnetic field that created it, while the other eddy current generates an opposite magnetic field resisting a change in the magnetic flux. If the rotation frequency of the magnet assembly is comparable to the typical lifetime of the eddy currents, magnetic levitation may be achieved. We will discuss the parameters that need to be considered for use in an actual device.

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