

Abstract Submitted
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Falling Magnets and Electromagnetic Braking CHRISTOPHER CULBREATH, PETER PALFFY-MUHORAY, Liquid Crystal Institute, Kent State University — The slow fall of a rare earth magnet through a copper pipe is a striking example of electromagnetic braking; this remarkable phenomenon has been the subject of a number of scientific papers [1, 2]. In a pipe having radius R and wall thickness D , the terminal velocity of the falling magnet is proportional to $(R^4)/D$. It is interesting to ask what happens in the limit as D becomes very large. We report our experimental observations and theoretical predictions of the dependence of the terminal velocity on pipe radius R for large D . [1] Y. Levin, F.L. da Silveira, and F.B. Rizzato, “Electromagnetic braking: A simple quantitative model”. *American Journal of Physics*, **74**(9): p. 815-817 (2006). [2] J.A. Pelesko, M. Cesky, and S. Huertas, Lenz’s law and dimensional analysis. *American Journal of Physics*, **3**(1): p. 37-39. 2005.

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