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Magnetic interactions and the method of images: a wealth of educational suggestions.

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Summary: Under some conditions, the method of images (well known in electrostatics) may be implemented in magnetostatic problems too, giving an excellent example of the usefulness of formal analogies in the description of physical systems. In this paper, we develop a quantitative model for the magnetic interactions underlying the so-called Geomag^{TM} paradox and describe a quantitative experimental investigation to validate the model. The validity ranges of some approximations involved in this problem are quantitatively discussed and the advantages of a dimensionless formulation of the interaction are pointed out. This work offers many educational suggestions suitable for university students.

Classification: M50
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