

Abstract Submitted  
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**An “Unknown” Magnetic Moment Measured Five Independent Ways** JONATHAN F. REICHERT, President, TeachSpin, Inc. — In an introductory, or even advanced student laboratory, it is difficult to find an experiment where the “unknown” or the physical constant can be measured in multiple ways. This talk will describe five independent methods students can use to measure the magnetic moment of a NdFeB disc imbedded in a 6.1 cm diameter snooker ball. Mechanics, as well as E&M concepts are necessary to analyze these experiments. Expressing results in the proper units turns out to be an additional challenge for most students. Each measurement has its own unique systematic as well as precision uncertainties. I believe that no other undergraduate experiment uses such a wide range of physical phenomena and complementary measurements to zero-in on a single unknown.

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