

Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Sensitive Measurement of Parallel and Transverse Susceptibility by Alternating Gradient Magnetometry MLADEN BARBIC, MARY BRADY, California State University, Long Beach — Reversible susceptibility tensor measurements reveal important information about the switching fields and anisotropies of magnetic materials. We show that a simple reconfiguration of an alternating gradient magnetometer can be used to measure both reversible parallel and transverse susceptibilities with high sensitivity. It is demonstrated that positioning the sample off-axis with respect to the magnetometer gradient field coils results in a signal at twice the frequency of the gradient field that is directly proportional to the reversible susceptibility. Offsetting the sample along the x-axis results in a sensor signal proportional to the reversible parallel susceptibility, while rotating the sample holder by 90 degrees and offsetting it along the y-axis results in a sensor signal proportional to the reversible transverse susceptibility. Examples of reversible parallel and transverse susceptibility measurements of aligned nanoparticle systems will be demonstrated.

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Date submitted: 16 Nov 2004

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