

Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Permeability and Permittivity Spectra of Ferromagnetic Composites at High Frequencies XIAOKAI ZHANG, ERIK PEARSON, KARL UNRUH, JOHN XIAO, Dept. Physics & Astronomy, Univ. of Delaware — Composites with submicron and nanometer-sized ferromagnetic particles embedded in a dielectric matrix are very promising for a variety of high frequency applications. In particular, these materials offer the potential for exhibiting a high permeability and permittivity, as well as low power losses at operating frequencies. In order to study the effect of the size, shape, and volume fraction of the ferromagnetic component on the microwave properties of these composites, we have prepared a series of samples with varying particle sizes, shapes, and volume ratios in a polymeric matrix. The magnetic and dielectric properties of these samples have been measured in the frequency range from 100 kHz to 18 GHz and compared with the effective medium theory.

Xiaokai Zhang
Dept. Physics & Astronomy, Univ. of Delaware

Date submitted: 22 Mar 2013

Electronic form version 1.4