Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Numerical Modeling of Patterned Magneto-dielectric Structures[1]

CHIDUBEM NWOKOYE, Naval Surface Warfare Center Carderock — Magneto-dielectric structures exhibit both electric and magnetic properties because they have relative permittivity and permeability values greater than one. Interest in magneto-dielectrics are growing due to their potential device applications, such as low profile antennas, magnetic read heads, non-volatile memories, etc [1]. We report the results of numerical modeling of the relative permittivity and permeability responses on magneto-dielectric structures with array patterns and we discuss the comparison of the results with modeling results obtained from the OOMMF software [2]. [1] W. Prellier, M.P. Singh and P. Murugavel, J. Phys. Cond. Matter 17, R803 (2005). [2] M. J. Donahue and D. G. Porter. OOMMF Users Guide, Version 1.0. NISTIR 6376, National Institute of Standards and Technology, Gaithersburg, MD (Sept 1999).

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Date submitted: 11 Nov 2016 Electronic form version 1.4