

Abstract Submitted
for the DNP10 Meeting of
The American Physical Society

SMOKE 'n Mirrors G. PHELPS, M. KALITA, W. KORSCH, University of Kentucky, OAK RIDGE NATIONAL LAB N-EDM COLLABORATION — The surface magneto-optic Kerr effect (SMOKE) and photoelastic modulation ellipsometry have emerged as integral tools in the study of magnetic thin films. SMOKE refers to the phenomenon in which the polarization of light reflected from a magnetized surface is rotated, the magnitude of which is proportional to the magnetization of the surface. Ellipsometry analyzes the change in the polarization direction of incident light upon the sample. These methods are implemented to study the long-term behavior of the magnetization of a DC magnetron sputtered FeCoV/TiN super-mirror sample by probing the longitudinal and transverse Kerr effects. An ellipsometer containing two Glan-Thompson prisms and a photoelastic modulator is implemented for the extraction of the ellipsometric parameters Ψ and Δ to the microradian level. This study is part of the Oak Ridge National Lab n-EDM Collaboration which plans to improve the present limit on the permanent electric dipole moment of the neutron by up to two orders of magnitude. The experiment will utilize magnetic super-mirrors to both polarize and guide neutrons. First results obtained from a magnetized super-mirror sample will be presented.

Gretchen Phelps
University of Kentucky

Date submitted: 30 Jun 2010

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