## Abstract Submitted for the MAR06 Meeting of The American Physical Society

Magnetic anisotropy in CrO<sub>2</sub> and CrO<sub>2</sub>/Cr<sub>2</sub>O<sub>3</sub> bilayer thin films N.A. FREY, S. SRINATH, H. SRIKANTH, Physics Department, University of South Florida, Tampa, FL 33620, USA, G. MIAO, A. GUPTA, MINT Center, University of Alabama, Tuscaloosa, AL,35487, USA — We have investigated the effective magnetic anisotropy in CVD-grown epitaxial CrO<sub>2</sub> films and Cr<sub>2</sub>O<sub>3</sub>/CrO<sub>2</sub> bilayers using a resonant RF transverse susceptibility (TS) technique. These materials are of interest due to their high spin polarization and the potential for exhibiting interesting magnetoelectric (ME) effects. In CrO<sub>2</sub>, the measured values for the room temperature anisotropy constant for the films scaled with the film thickness and the data is influenced by magnetoelastic contributions at low temperature. TS in CrO<sub>2</sub>/Cr<sub>2</sub>O<sub>3</sub> bilayers revealed features associated with both the ferromagnetic and antiferromagnetic phases. In addition, a considerable broadening of the anisotropy fields and large  $K_{eff}$  values were observed depending on the amount of  $Cr_2O_3$ . These anomalously large  $K_{eff}$  values observed with  $Cr_2O_3$  content cannot be accounted for by the variable thickness of CrO<sub>2</sub> alone and is indicative of intimate coupling between the two phases that has a significant effect on the magnetic properties.

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