

Abstract Submitted
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In-plane and out-of-plane ferromagnetic resonance investigations of epitaxial CrO₂ (110)¹ HWACHOL LEE, KRISHNA CHETRY, CLAUDIA MEWES, ARUNAVA GUPTA, TIM MEWES, The University of Alabama — We report on in-plane and out-of-plane ferromagnetic resonance experiments to determine the magnetization damping in epitaxial CrO₂(110) thin films. The films were grown on TiO₂ (110) substrates using chemical vapor deposition (CVD) with a CrO₃ precursor [1]. Ferromagnetic resonance experiments as a function of the in-plane angle confirm a uniaxial in-plane anisotropy with the easy axis along the c-axis. To determine the effective damping constant in the films we carried out frequency dependent FMR measurements with the field aligned parallel to the in-plane easy axis of the film and along the film normal. Both measurements show a weak dependence of the linewidth on the microwave frequency once the sample is fully saturated. The effective damping constant as determined by the frequency dependent measurements is very small. Over the experimentally accessible frequency range (4-60 GHz) the dominant contribution to the ferromagnetic resonance linewidth is therefore extrinsic in nature. References: [1]: X. W. Li, A. Gupta, and G. Xiao, Appl. Phys. Lett. **75**, 713 (1999).

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