

Abstract Submitted  
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**Magnetic anisotropy and vortex dynamics in LCMO/YBCO heterostructures**<sup>1</sup> H. SRIKANTH, N.A. FREY, University of South Florida, C. VISANI, J. SANTAMARIA, Universidad Complutense, Madrid — Interplay of ferromagnetism and superconductivity in heterostructures of highly spin polarized CMR oxides and cuprate superconductors, is of topical interest. We have used a sensitive radio-frequency (RF) resonant method based on a tunnel-diode oscillator (TDO) to simultaneously probe the dynamic magnetic susceptibility and the vortex penetration depth in well characterized sputtered bi-layers (LCMO/YBCO) and tri-layers (LCMO/YBCO/LCMO), grown on STO substrates with the thickness of LCMO and YBCO being 40 u.c. and 15 u.c., respectively. Transverse susceptibility in the normal state shows distinct peaks associated with the anisotropy fields in LCMO. In the superconducting state, complex coupled response is observed with the region just below  $T_c$  dominated by flux flow in a vortex liquid state. Experimental results with various field orientations are reported and analyzed in the context of proximity effect, spin diffusion, flux penetration and dissipation in the presence of geometrical barriers. Overall, our work demonstrates the effectiveness of RF experiments in probing the magnetization and vortex dynamics in these systems.

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