

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Epitaxial growth and characterization of strained LaCoO_3 on Si (100) AGHAM POSADAS, University of Texas at Austin, MORGANN BERG, HOSUNG SEO, DAVID SMITH, ALEXANDER KIRK, DMITRY ZHERNOKLETOV, ROBERT WALLACE, ALEX DE LOZANNE, ALEXANDER DEMKOV — LaCoO_3 is a correlated oxide that normally has a diamagnetic ground state in bulk. The material undergoes a spin-state transition and becomes paramagnetic at higher temperatures. In this work, we report the epitaxial growth of strained LaCoO_3 on silicon via a fully-relaxed SrTiO_3 buffer layer using molecular beam epitaxy (MBE). We confirm that the strained LaCoO_3 becomes ferromagnetic with a Curie temperature of 85 K, similar to recent reports for films grown by pulsed laser deposition. We will discuss the issues related to the MBE growth of LaCoO_3 and show results of x-ray diffraction, x-ray photoelectron spectroscopy, transmission electron microscopy, and SQUID magnetometry measurements on LaCoO_3 films grown on silicon.

Agham Posadas
University of Texas at Austin

Date submitted: 19 Nov 2010

Electronic form version 1.4