

Abstract Submitted
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Oxygen Doping Study of Cuprate/Manganite Thin-Film Heterostructures¹ HAO ZHANG, University of Toronto, J.Y.T. WEI, University of Toronto and Canadian Institute for Advanced Research, WEN HE GONG, Brockhouse Institute for Material Research, McMaster University, GIANLUIGI A. BOTTON, Canadian Centre for Electron Microscopy — Recent studies of thin-film heterostructures comprising superconducting cuprates and ferromagnetic manganites have revealed a range of novel physical phenomena. These phenomena are believed to involve complex interfacial interactions between competing order parameters [1], and appear to be highly sensitive to carrier doping [2]. To further examine these phenomena, we carry out a systematic oxygen-doping study of cuprate/manganite multilayer thin films, grown epitaxially by pulsed laser-ablated deposition. Our samples are characterized by electrical transport and magnetization measurements, as well as x-ray diffraction and several microscopy probes including SEM and TEM. We also make cation substitution in the cuprate layer, in order to study the effects of carrier doping across the interface.

[1] For example, see J. Hoppler *et al.*, Nature Materials **8**, 315 (2009).

[2] V. Peña *et al.*, Phys. Rev. Lett. **97**, 177005 (2006).

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