Abstract Submitted for the MAR17 Meeting of The American Physical Society

Modification of The Electronic and The Adsorption Properties of Epitaxial Delafossite CuFeO<sub>2</sub> thin films by The Substitution of Fe by Ga<sup>1</sup> S. ROJAS, R. WHEATLEY, Instituto de Fisica, Pontificia Universidad Catolica, T. JOSHI, Department of Physics and Astronomy, West Virginia University, D. LEDERMAN, Department of Physics, University of California, Santa Cruz, A. L. CABRERA, Instituto de Fisica, Pontificia Universidad Catolica — We studied the chemisorption properties of CuFeO<sub>2</sub> and CuFe<sub>1-x</sub>GaxO<sub>2</sub> delafossite thin film samples with respect to H<sub>2</sub>O and CO<sub>2</sub> using thermal programmed desorption. Adsorption of CO<sub>2</sub> and H<sub>2</sub>O was observed on both surfaces by X-Ray photoelectron spectroscopy. Substituting Fe by Ga in CuFeO<sub>2</sub> leads to reduced amount of adsorbed H<sub>2</sub>O with respect to CO<sub>2</sub>. Additionally, NIR-Vis Transmittance and Reflectance spectroscopies were used to show changes in sample surface optical absorption properties in response to CO2/H2O exposure using a pressure range 0-90 kPa.

<sup>1</sup>This work was supported by FONDECyT 1130372 and Proyecto Anillo ACT1409 at PUC and supported in part by the WV Higher Education Policy Commission (grant HEPC.dsr.12.29) and by FAME sponsored by MARCO and DARPA (contract 2013-MA-2382).

Alejandro Cabrera Instituto de Fisica, Pontificia Universidad Catolica

Date submitted: 14 Nov 2016

Electronic form version 1.4