Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Carbon dioxide and water adsorption on highly epitaxial Delafossite CuFeO2 thin film[1] S. ROJAS, Pontificia Universidad Catolica de Chile, T. JOSHI, P. BORISOV, Physics Department, West Virginia University, Morgantown, M. SARABIA, Pontificia Universidad Catolica de Chile, D. LEDERMAN, Physics Department, West Virginia University, Morgantown, A.L. CABRERA, Pontificia Universidad Catolica de Chile — Thermal programmed desorption (TPD) of CO2 and H2O from a 200 nm thick CuFeO2 Delafossite surface was performed in a standard UHV chamber, The CuFeO2 thin film grown using Pulsed Laser Deposition (PLD) over an Al2O3 (0001) substrate with controlled O2 atmosphere resulted with highly epitaxial crystal structure. The adsorption/desorption of CO2 and H2O process was also monitored with X-ray Photoelectron Spectroscopy (XPS) and Auger Electron Spectroscopy (AES). Our results revealed that carbon dioxide interacts with CuFeO2 forming Fe carbonates compounds on its surface. Hydroxides were also formed on the surface due to water presence. Using TPD data, Arrhenius plots for CO2 and water desorption were done and activation energy for desorption was obtained.

[1]Funds FONDECyT 1130372; Thanks to P. Ferrari

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Date submitted: 14 Nov 2014 Electronic form version 1.4