

Abstract Submitted  
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**Structural and magnetic properties of epitaxial delafossite CuFeO<sub>2</sub> thin films grown by pulsed laser deposition**<sup>1</sup> TESS SENTY, TOYANATH JOSHI, ROBBYN TRAPPEN, JINLING ZHOU, SONG CHEN, West Virginia University, PIERO FERRARI, Instituto de Física, Pontificia Universidad Católica de Chile, Santiago, Chile, PAVEL BORISOV, XUEYAN SONG, MIKEL HOLCOMB, ALAN BRISTOW, West Virginia University, ALEJANDRO CABRERA, Instituto de Física, Pontificia Universidad Católica de Chile, Santiago, Chile, DAVID LEDERMAN, West Virginia University — Growth of pure phase delafossite CuFeO<sub>2</sub> thin films on Al<sub>2</sub>O<sub>3</sub> (00.1) substrates by pulsed laser deposition was systematically investigated as function of growth temperature and oxygen pressure. X-ray diffraction, transmission electron microscopy, Raman scattering, and x-ray absorption spectroscopy confirmed the existence of the delafossite phase. Infrared reflectivity spectra determined a band edge at 1.15 eV, in agreement with the bulk delafossite data. Magnetization measurements on CuFeO<sub>2</sub> films demonstrated a phase transition at TC = 15K, which agrees with the first antiferromagnetic transition at 14K in the bulk CuFeO<sub>2</sub>. Low temperature magnetic phase is best described by commensurate, weak ferromagnetic spin ordering along the c-axis.

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