Abstract Submitted
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**Optical properties of $CuFeO_2$ and $CuFe_{1-x}Ga_xO_2$ highly epitaxial thin films**[1] A. L. CABRERA, R. A. WHEATLEY, S. ROJAS[2], Instituto de Fisica, Pontificia Universidad Catolica de Chile, T. JOSHI, P. BORISOV[3], D. LEDERMAN, Department of Physics and Astronomy, West Virginia University, Morgantown — Delafossite thin films of 20 and 200 nm $CuFeO_2$ and 52 nm $CuFe_{1-x}Ga_xO_2$ were grown by Pulsed Laser Deposition (PLD) on $Al_2O_3$ (0001) substrates. High epitaxial quality of the films was verified by the techniques of X-Ray Diffraction and Raman spectroscopy.. Optical transmission and reflection spectroscopies were performed on the films under vacuum and in $CO_2$ controlled atmosphere, respectively. Tauc plots based on transmission data yielded direct optical band gap at 2.4 eV, 2.8eV and 3.1eV and indirect band gap at 0.9 eV and 1.3 eV for $CuFe_{1-x}Ga_xO_2$ (x=0.25) and the direct band gap at 1.9eV, 3.1eV and the indirect band gap at 1.1eV for the $CuFeO_2$ films.

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