

Abstract Submitted
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Optical Properties and Electronic Structures of NiFe₂O₄ and CoFe₂O₄ Thin Films R.C. RAI¹, S. WILSER, M. GUMINIAK, Department of Physics, Buffalo State College, Buffalo, NY 14222, M.L. NAKARMI, Department of Physics, CUNY, Brooklyn, NY 11210, BUFFALO STATE COLLEGE TEAM, CUNY, BROOKLYN TEAM — We present the growth and investigation of inverse spinel ferrite NiFe₂O₄ and CoFe₂O₄ thin films. An electron beam deposition system was used to prepare ferrite thin films in the oxygen environment on sapphire and STO single crystal substrates. We measured a variable temperature (80 - 500 K) transmittance of these films to investigate their optical and electronic structures. The optical spectra of thin film samples show insulating characters with several electronic transitions, such as on-site metal *d* to *d* and charge transfer oxygen *2p* to metal *3d* transitions. Electronic transitions have been assigned based on the first principles calculations and comparison with chemically similar Ni and Co-containing compounds.

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