Abstract Submitted
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X-ray Absorption spectroscopy and electronic structure calculation of $DyScO_3$[1] HARSHAWARDHAN BHATKAR, B. ANDERSON, Physics Dept., Montana State University, Bozeman, MT 59717, M. FINSTERBUSCH, Institute fuer Physik, Technical University Ilmenau,98693, Ilmenau, Germany, P. RUGHEIMER, Y.U. IDZERDA, Physics Dept., Montana State University, Bozeman, MT 59717 — Dysprosium scandate ($DyScO_3$) is of interest for its potential as a substrate for thin film growth of various materials such as $EuTiO_3$,$SrTiO_3$ $BaTiO_3$ and $LaSrMnTiO_3$ particularly because it creates biaxial strain due to mismatched lattice constant with those materials affecting their properties. We have used X-ray Absorption Spectroscopy to determine the electronic structure of $DyScO_3$. The $M_{4,5}$ edges of Dy and $L_{2,3}$ edges of Sc in $DyScO_3$ were investigated against chemically similar materials Dy_2O_3 and Sc_2O_3 reference powders and compared with theoretical calculations using LCMO multiplet theory. The spectra are well reproduced by calculations with the given atomic structures, an added crystal field and broadening parameters. We find that the Sc $L_{2,3}$ edge in $DyScO_3$ is more broadened than in Sc_2O_3 and the peak position of Dy $M_{4,5}$ edge in $DyScO_3$ is slightly shifted as compared to those in Dy_2O_3.

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