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Cu L3,2 and Ba M4,5 electro-optic effects in 50 nm YBa2Cu3O7 (YBCO) films on SrTiO3 (STO) bi-crystals with a 24 DEG ab-grain boundary[1] J.V. ACRIVOS, H.S. SAHIBUDEEN, SJSU, M.A. NAVACERRADA, SJSU and Complutense University, J.B. KORTRIGHT, Mat. Sci. Div. LBNL, P. NACHIMUTHU, LBNL — . Two different films prepared at the Complutense University with a superconducting transition temperature $T_c = 90 \pm 1$ K, and characterized by X-ray diffraction at SSRL were investigated at station 6.3.1 of LBNL-ALS by enhanced YBCO 001 scattering (I_s), total electron yield (TEY) and fluorescence (F) at the Cu $L_{2,3}$ and Ba $M_{4,5}$ edges. The energy scale was calibrated by the Ti $L_{2,3}$ absorption from the spectrometer mirror, and the line shapes/intensities were checked using $BaBr_2$ and CuO standard references. The penetration depths at these energies ensure that the sample bulk dominated the F and I_s signals. Comparison of I_s/I_0 with TEY/I_0 and F/I_0 indicates that the scattered linearly polarized light undergoes a rotation. The Hilbert-Kramers-Kronig analysis of F/I_0 and I_s/I_0 with Lorentzian line shapes of an eV width indicate extra absorption one eV above the L_3 edge that may be due to excitons.

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