Poster Presentation

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Effect of thickness and Si substrate morphology in La0.7Sr0.3MnO3/Si thin films

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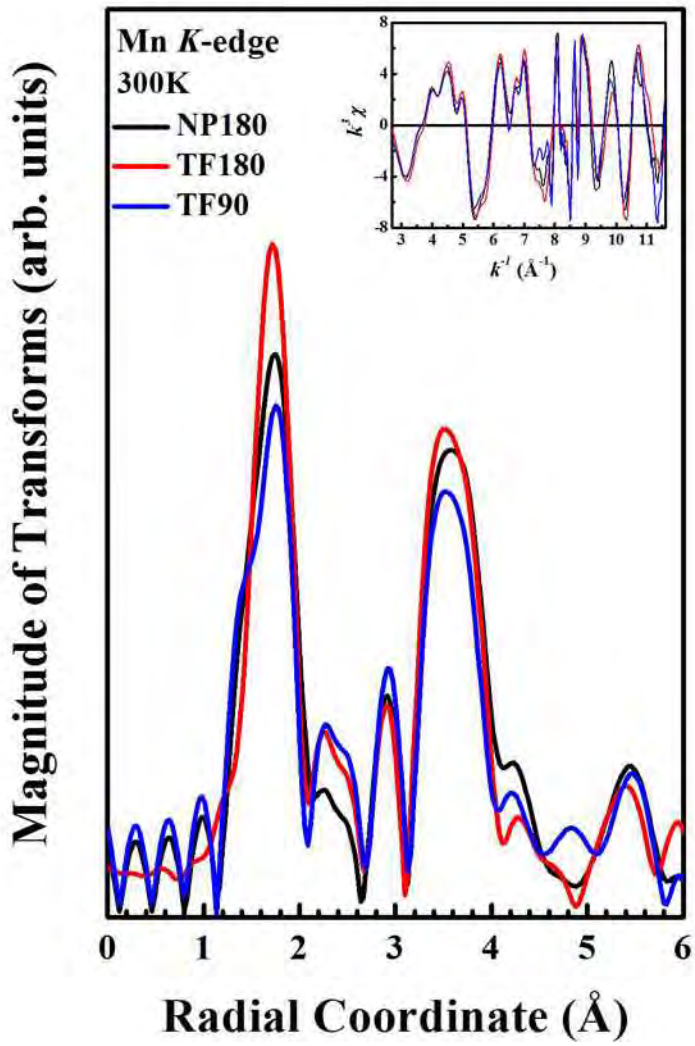
Investigation has been made on atomic, electronic structures and magnetic properties of La0.7Sr0.3MnO3 (LSMO) on Si substrate. The effect of different thickness of LSMO and different morphological [flat and nano-pyramid (NP)] of Si substrate are studied in present work. The result of Mn K-edge extended x-ray absorption fine structure indicates the more disorder of local atomic structure of first shell (Mn-O bound) in the thinner LSMO/Si film. The Mn L3,2-edge x-ray absorption near-edge structure shows the presence of Mn2+ ion on the sample. Furthermore, the Mn L3,2-edge x-ray magnetic circular dichroism reveals that the thinner film (LSMO/Si) has highest magnetic moment, in comparison to that of thick LSMO/Si and LSMO/Si-NP samples. This finding suggests that the appearance Mn2+ may play an important role in magnetic behavior of hetero-junction LSMnO/Si and Si-NP.

[1] *M. P. de Jong et al, Phys. Rev. B. 71, 014434 (2005),* ***[2]*** *A. N. Ulyanov et al, J. Appl. Phys. 109, 123928 (2011)*



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