

## Supplementary information

### Investigation on the structural, magnetic, magnetocaloric and magnetotransport behaviour in $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$ manganites synthesised by different routes

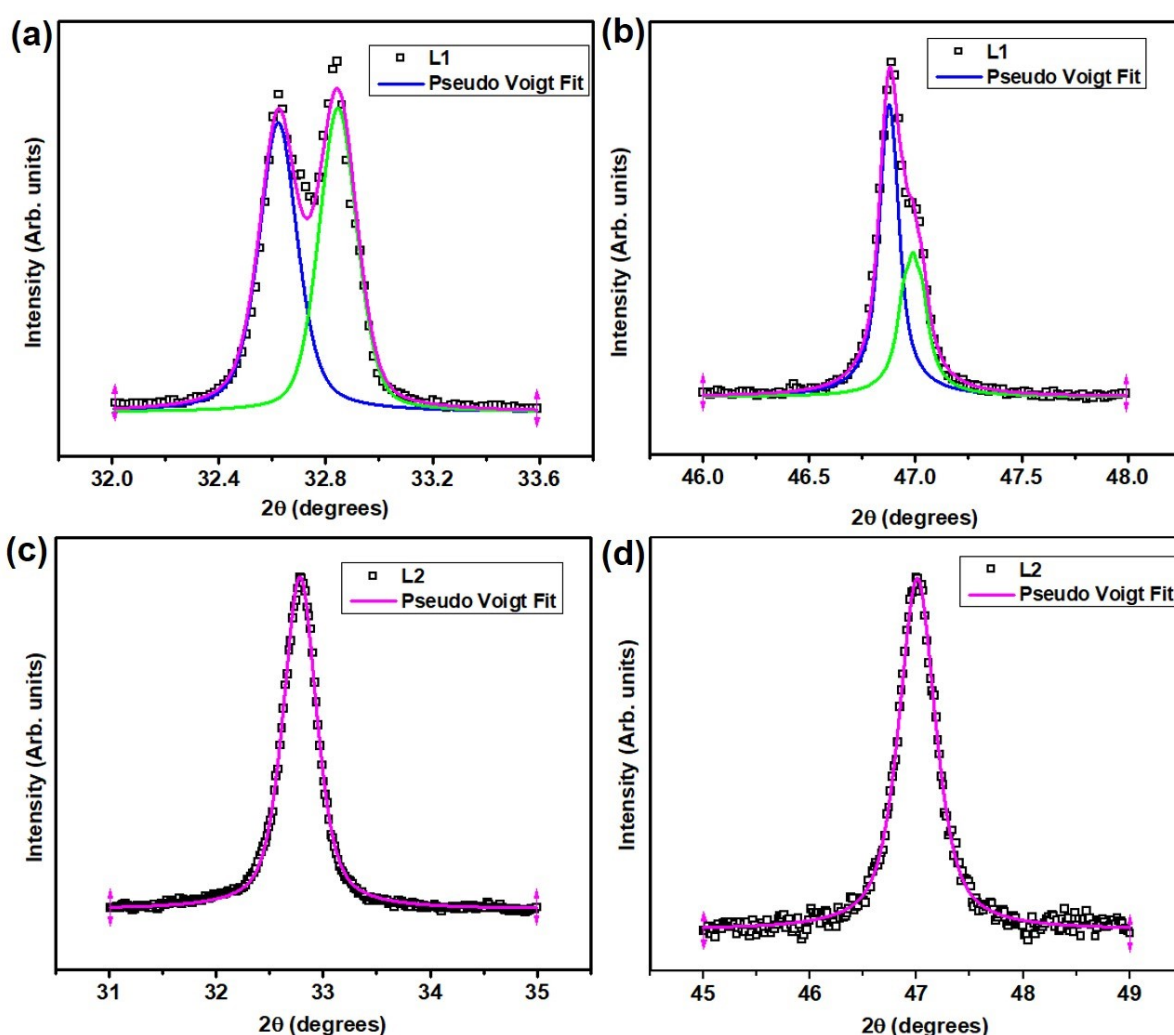
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**Fig. S1:** Peak fitting of the XRD peaks to estimate the crystallite size (a, b) Bulk sample L1, (c,d) Nanocrystalline sample L2.

Using silicon standard, we have corrected the FWHM for instrumental broadening and then calculated the FWHM using the relation

$$\beta_{corrected} = (\beta_{observed}^2 - \beta_{instrumental}^2)^{1/2}$$

The crystallite size has been determined using Debye Scherrer equation 
$$t = \frac{0.9 \lambda}{\beta_{hkl} \cos \theta_{hkl}}$$

where  $\lambda$  is the wavelength of the X-rays used,  $\beta_{hkl}$  is the full width at half maximum (FWHM), and  $\theta$  is the Bragg angle.

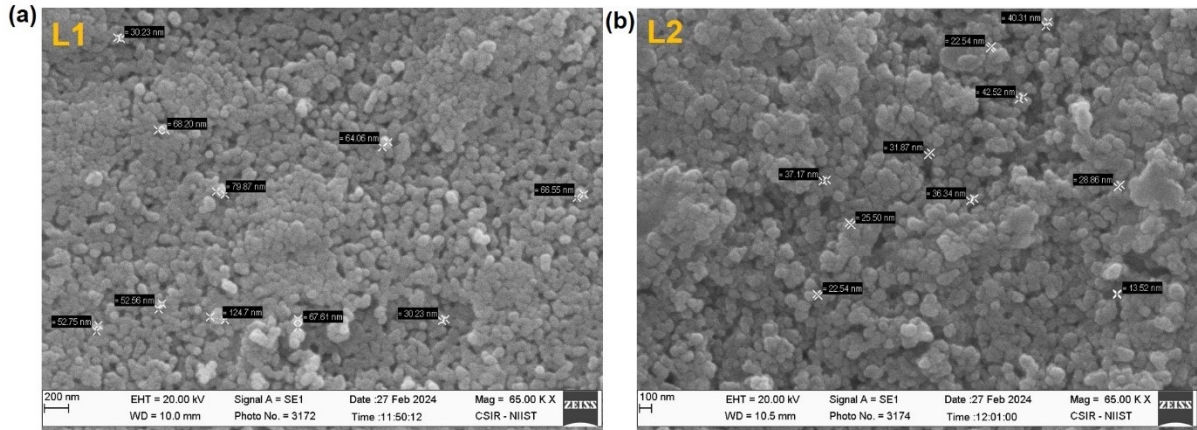


Fig S2: SEM images with grain sizes marked for (a) L1 and (b) L2

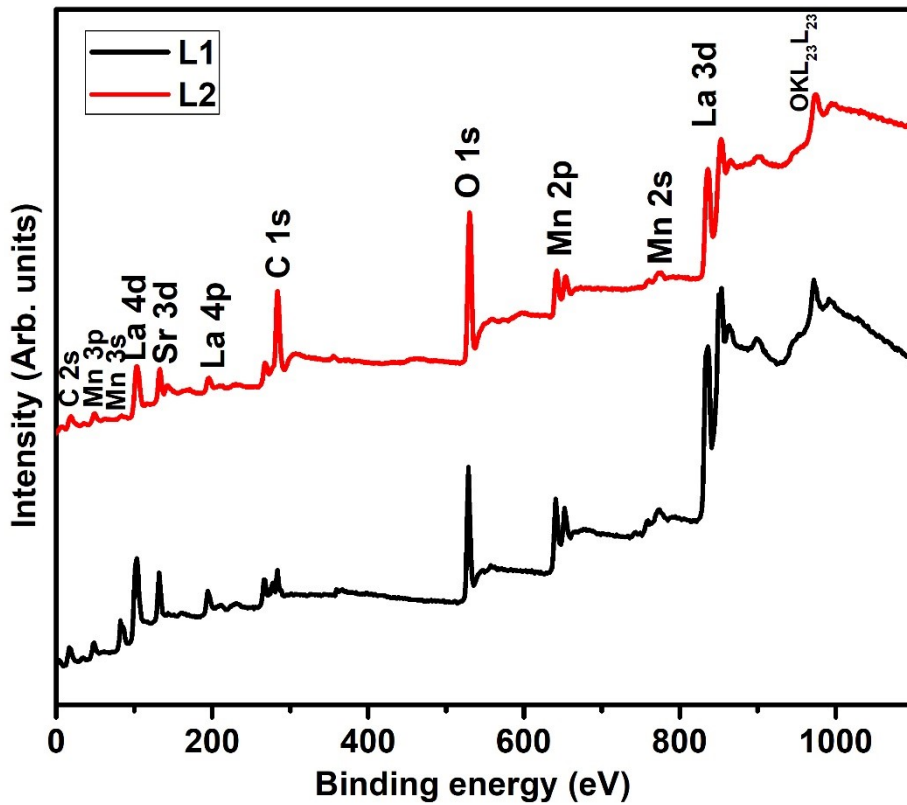


Fig. S3: XPS Survey scan of samples L1 and L2

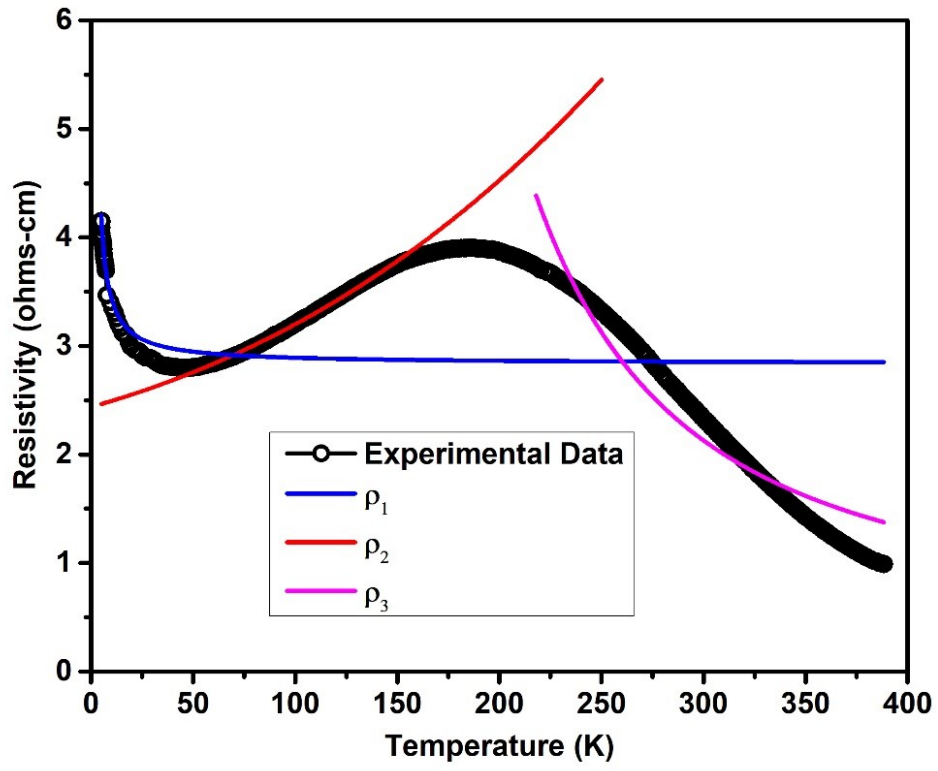


Fig. S4: Curves of observed  $\rho$ ,  $\rho_1$ ,  $\rho_2$  and  $\rho_3$