

Figure 1: Experimental (-o-) and refined (—) XAFS spectra recorded at Lu  $L_{\text{III}}$  edge for  $\text{Lu}_2\text{O}_3$  (a) and at Eu  $L_{\text{III}}$  edge for  $\text{Eu}_2\text{O}_3$  (b).

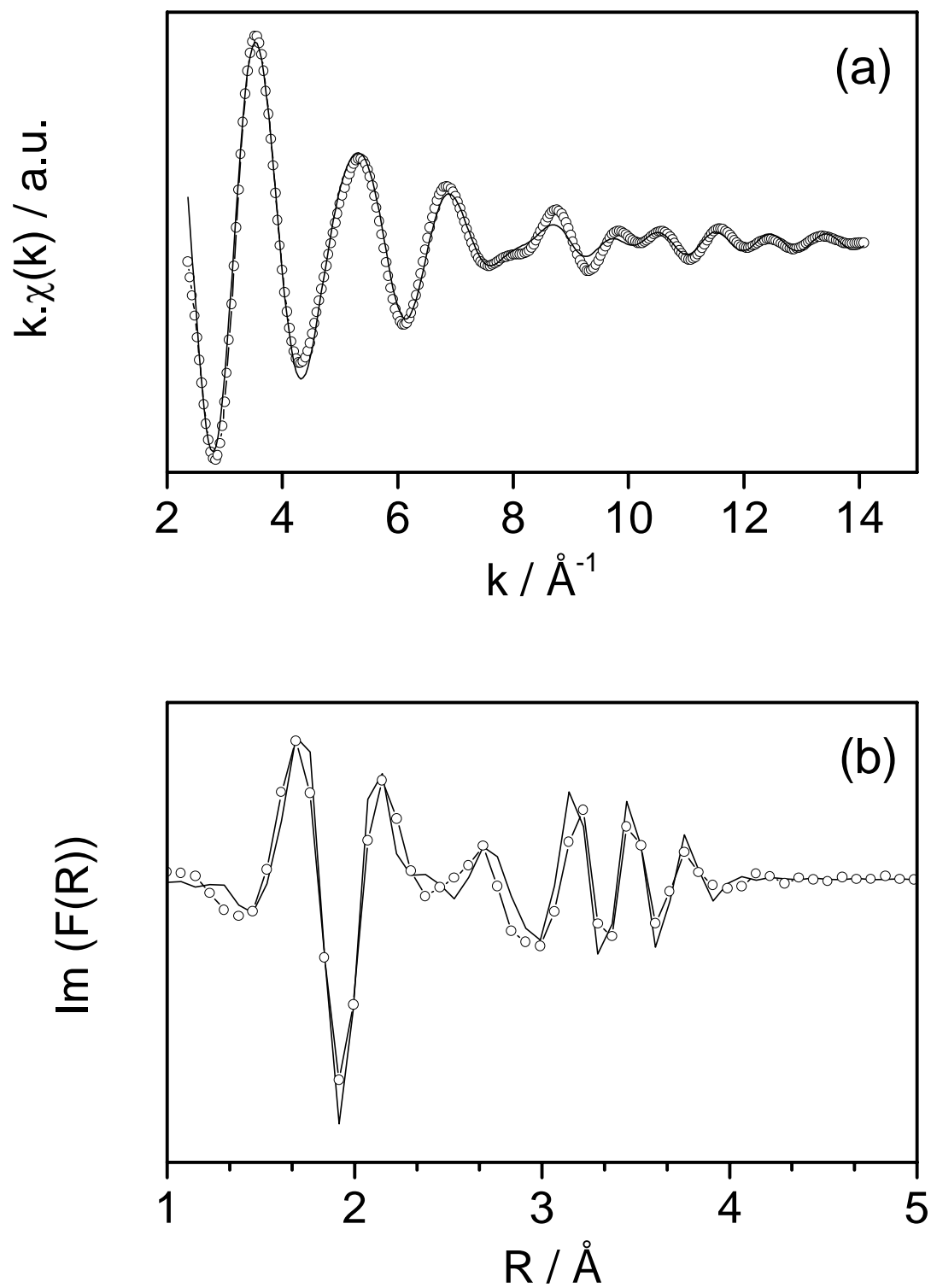


Figure 2 : Experimental (-o-) and refined (—) XAFS signal of LSO recorded at Lu  $L_{\text{III}}$  edge (a) and experimental (-o-) and refined (—) imaginary part of the Fourier transform  $F(R)$  (b).

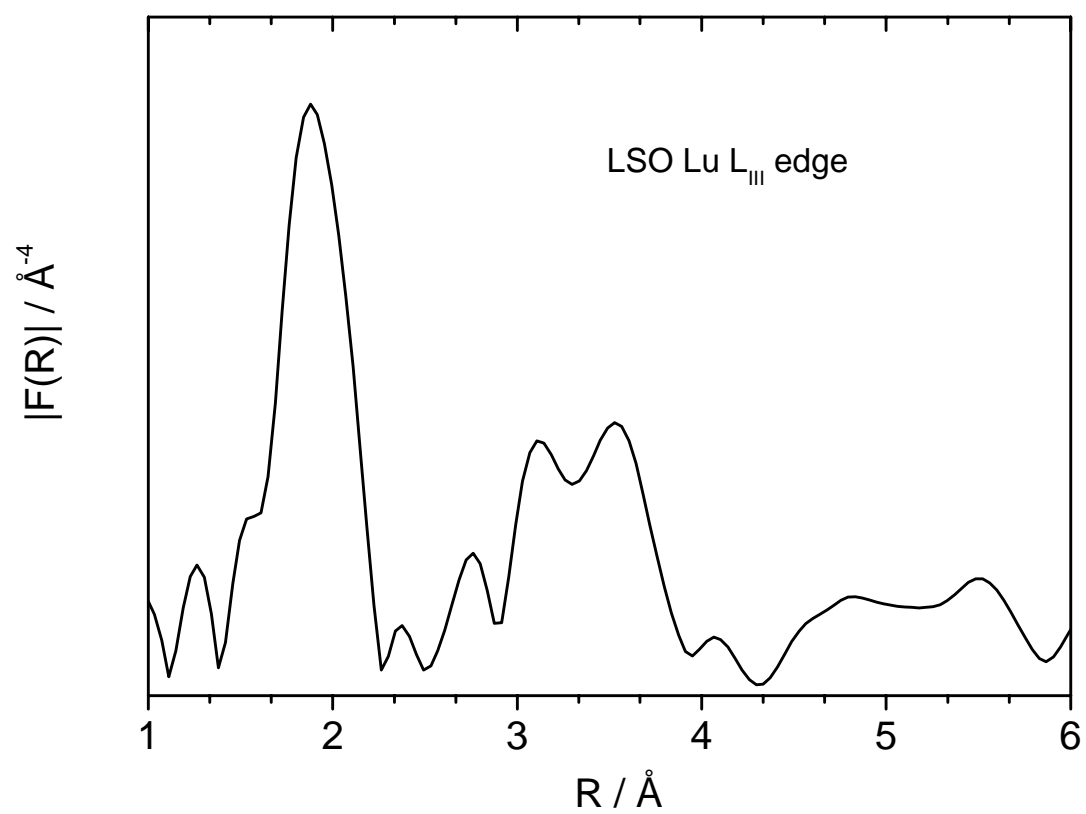


Figure 3: Fourier transform modulus at Lu L<sub>III</sub> edge of LSO sample. Distances are not corrected for phase shift.

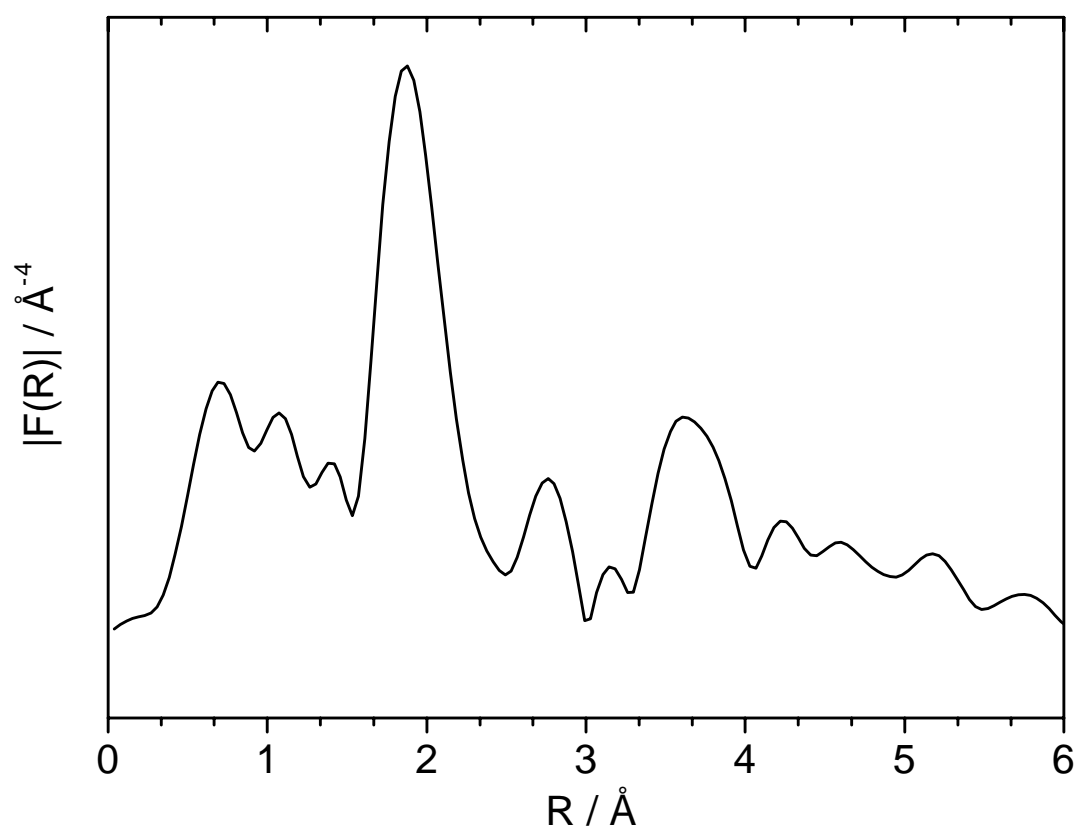


Figure 4: Fourier transform modulus at Eu L<sub>III</sub> edge for LSO:Eu<sup>3+</sup> 5 %. Distances not corrected from phase shift.

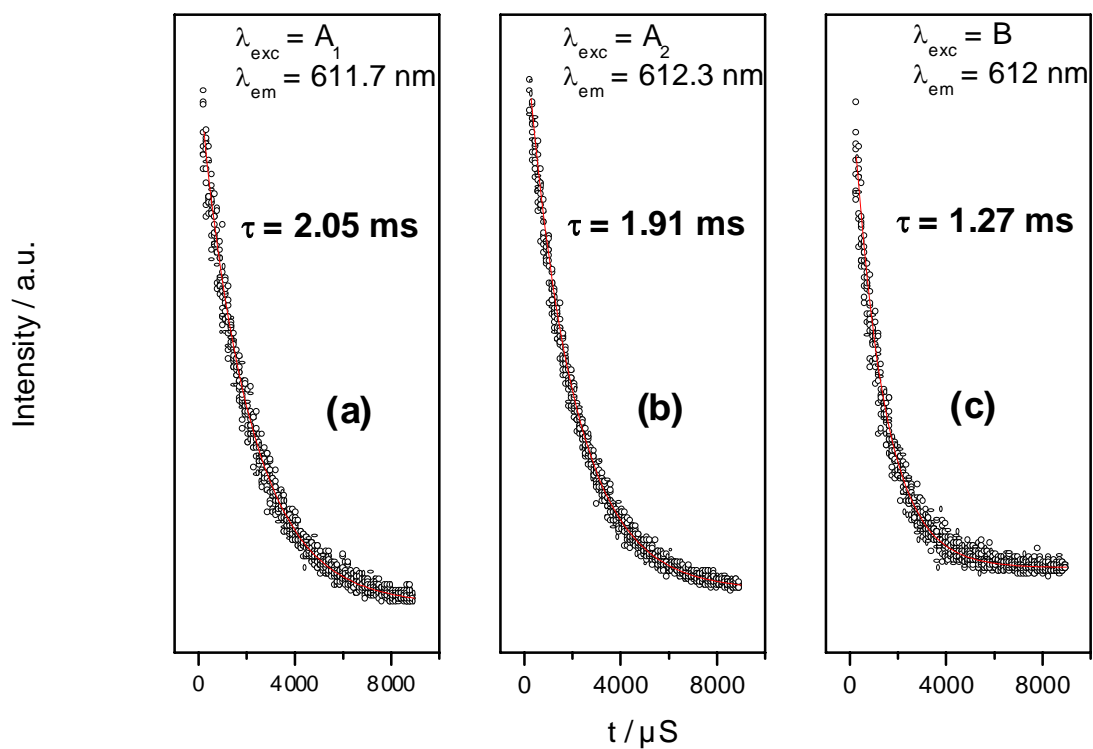


Figure 5: Decay curves recorded after selective excitation in  $A_1$  (a),  $A_2$  (b) and B (c) and monitored at maximum emission wavelength. All decays have been fitted with a single exponential (solid line) and time constants are given on the graphs.



