

Electronic Supplementary Information (ESI)

for

**Recovery of lanthanum cations by functionalized magnetic multi-walled
carbon nanotube bundles**

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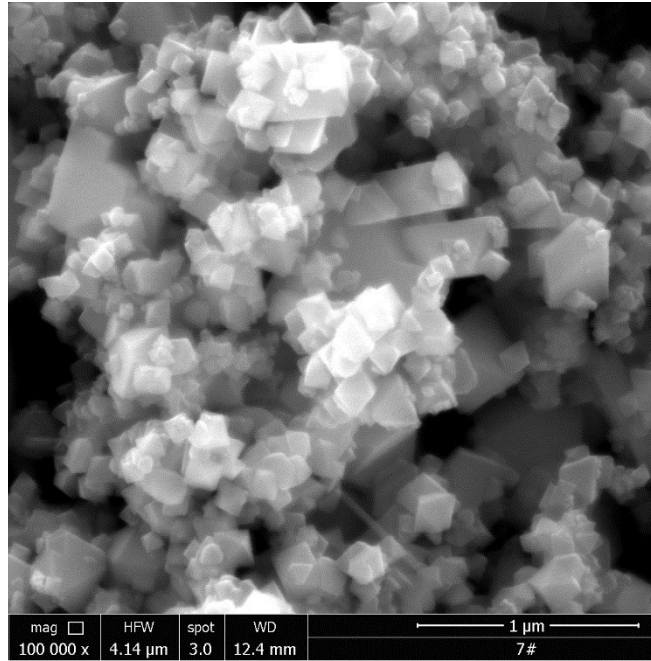


Fig. S1 High magnification SEM image of Fe₃O₄ nanoparticles.

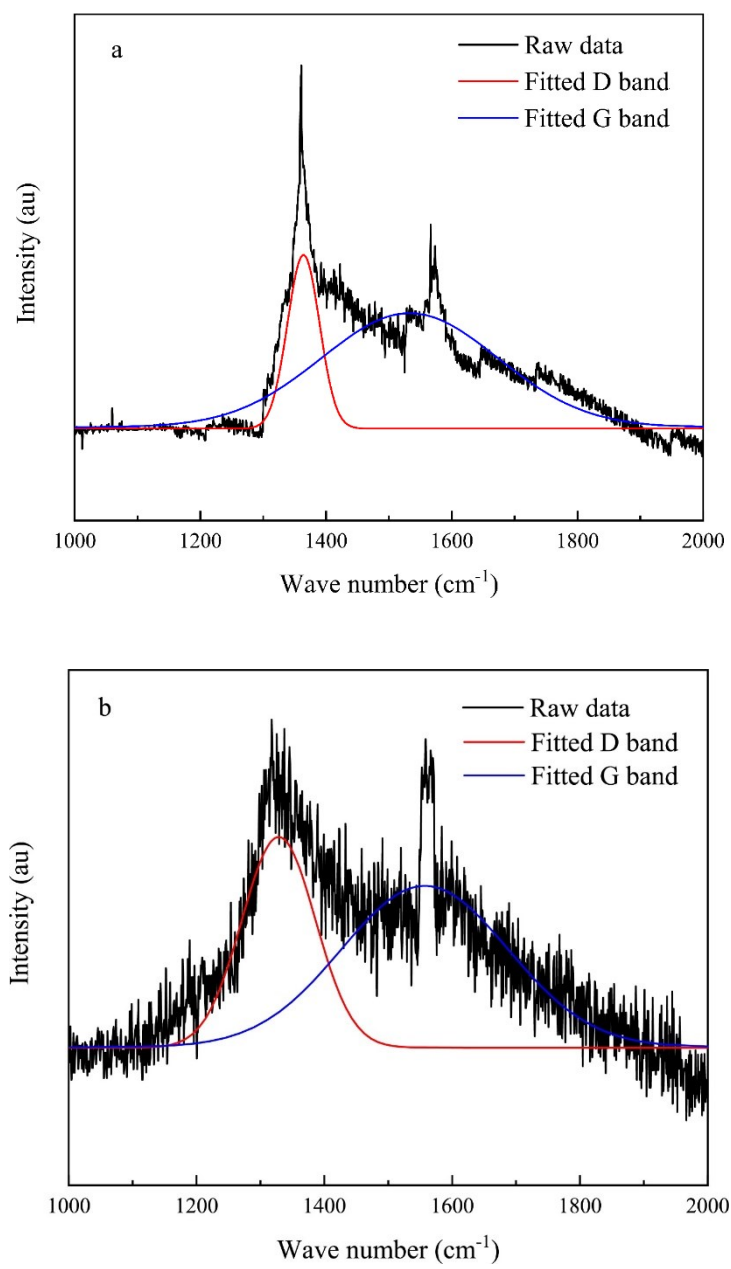
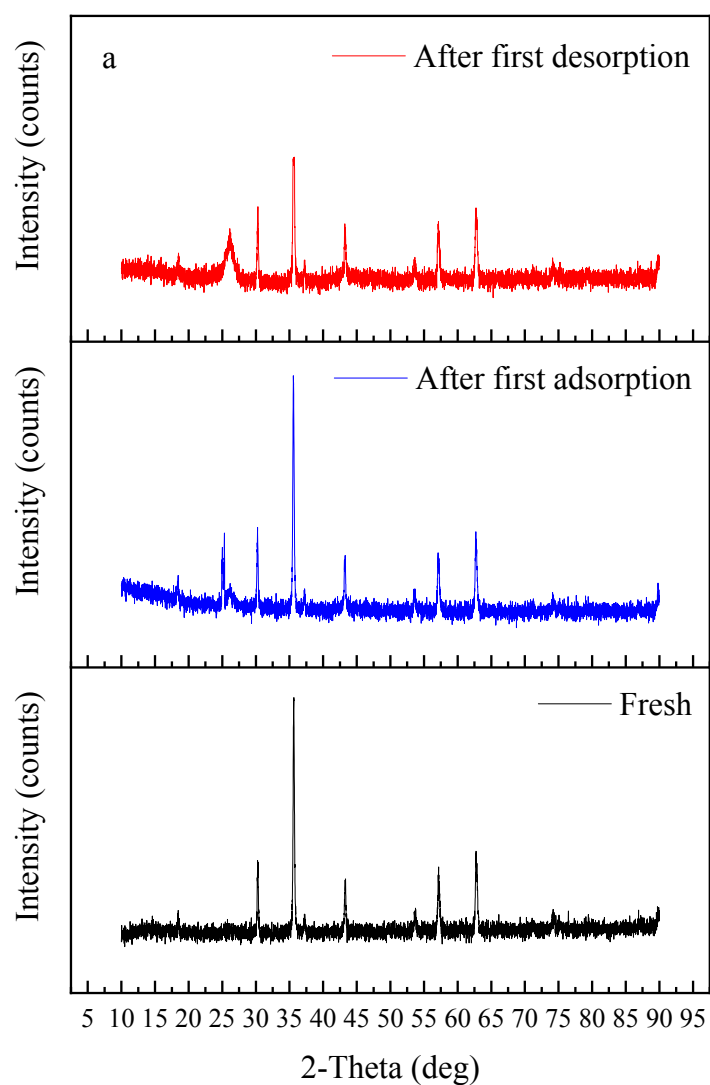


Fig. S2 Raman results of MWCNTs before (a) and after (b) functionalization.

Table S1 Recycle test results of CS₂ functionalized MWCNT@ Fe₃O₄ as La³⁺adsorbent.

Cycle Number	Removal rate %	Adsorption capacity (mg/g)
1	87.50	23.23
2	76.38	20.28
3	72.79	19.32



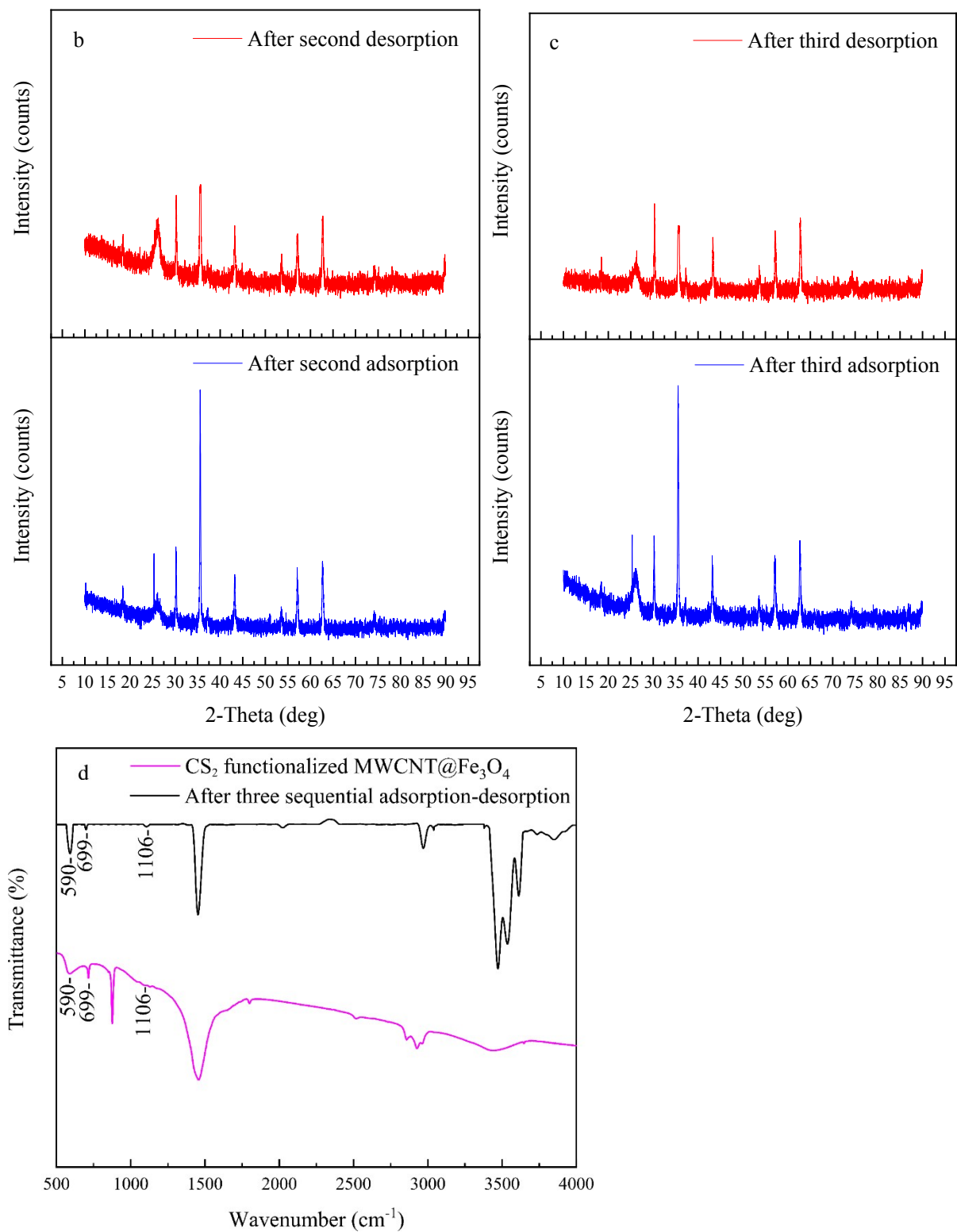


Fig. S3 XRD patterns of the adsorbent after sequential adsorption-desorption experiments in batch mode (a, b, and c). Fourier Transform Infrared (FT-IR) spectra of fresh and spent CS₂ functionalized MWCNT@Fe₃O₄ (d).