# Supporting Information:

# Lanthanide-Based Lamellar Nanohybrids:

# Synthesis, Structural Characterization and Optical Properties

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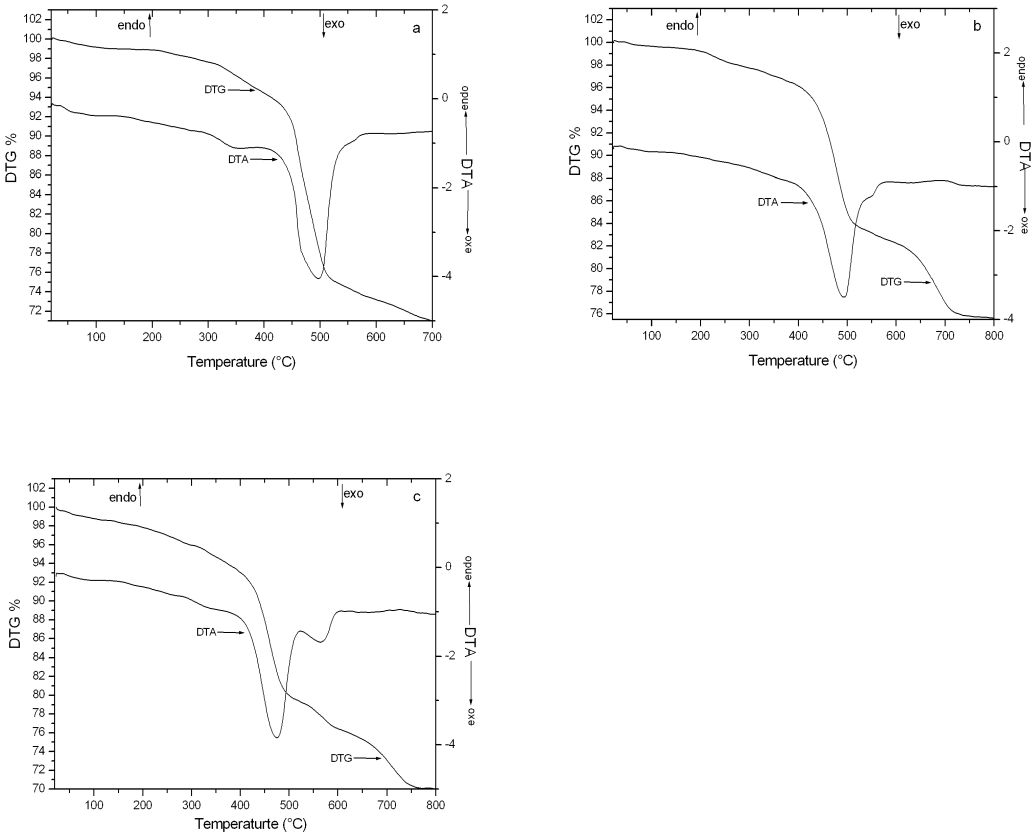
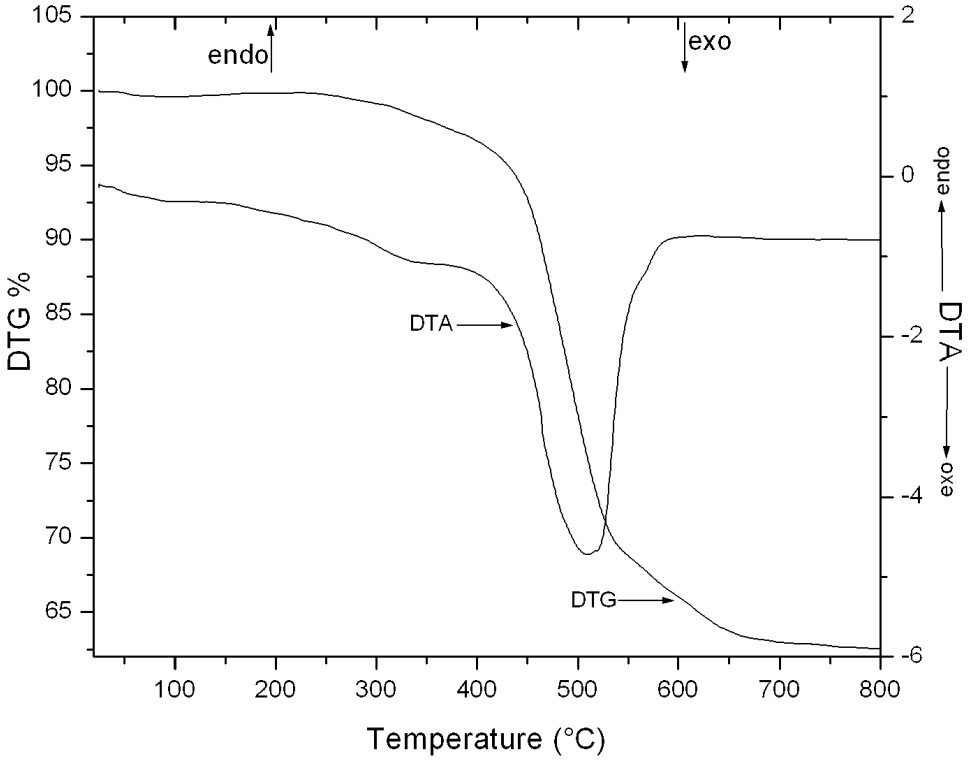
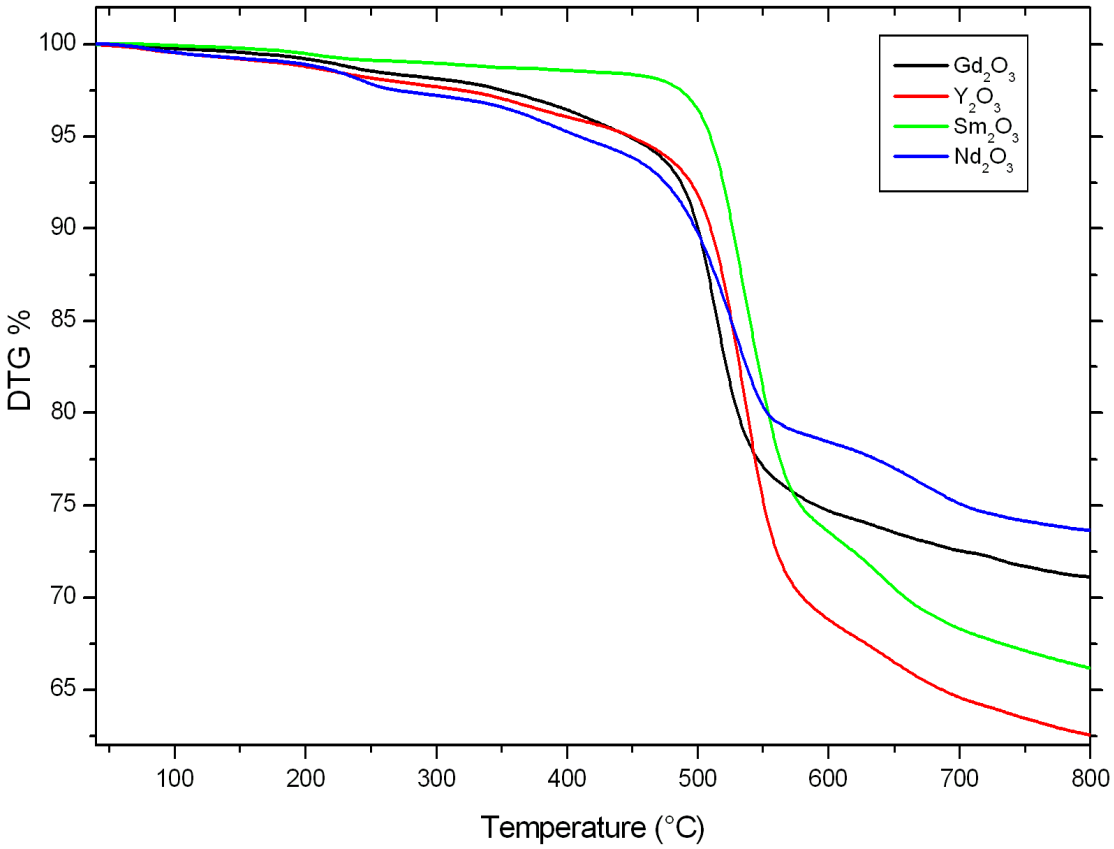


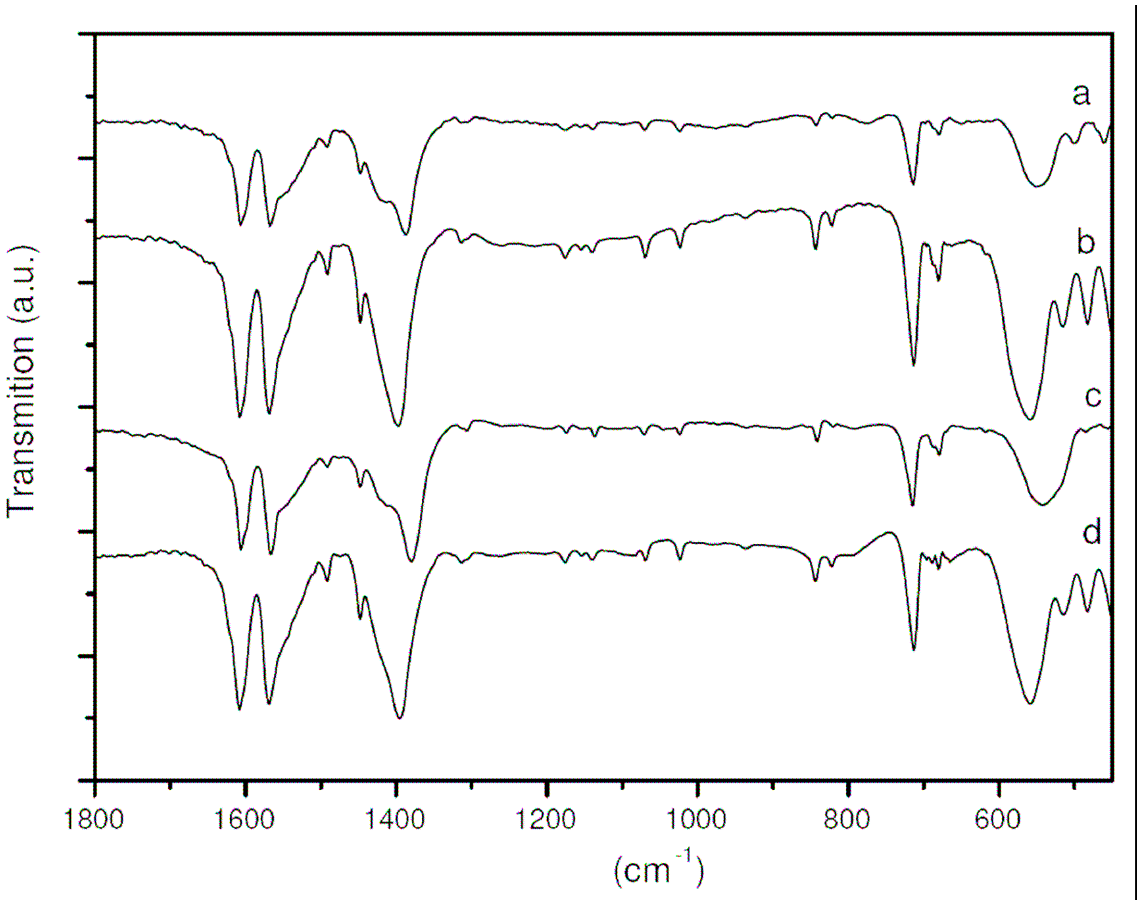

S1. Thermogravimetric analysis (TGA) and differential thermal analysis (DTA) of the nanohybrids. a) Gadolium, b) Neodymium and c) Samarium (synthesized at 300°C) based nanohybrids.




S2 - Thermogravimetric analysis (TGA) and differential thermal analysis (DTA) of the yttrium nanohybrid.



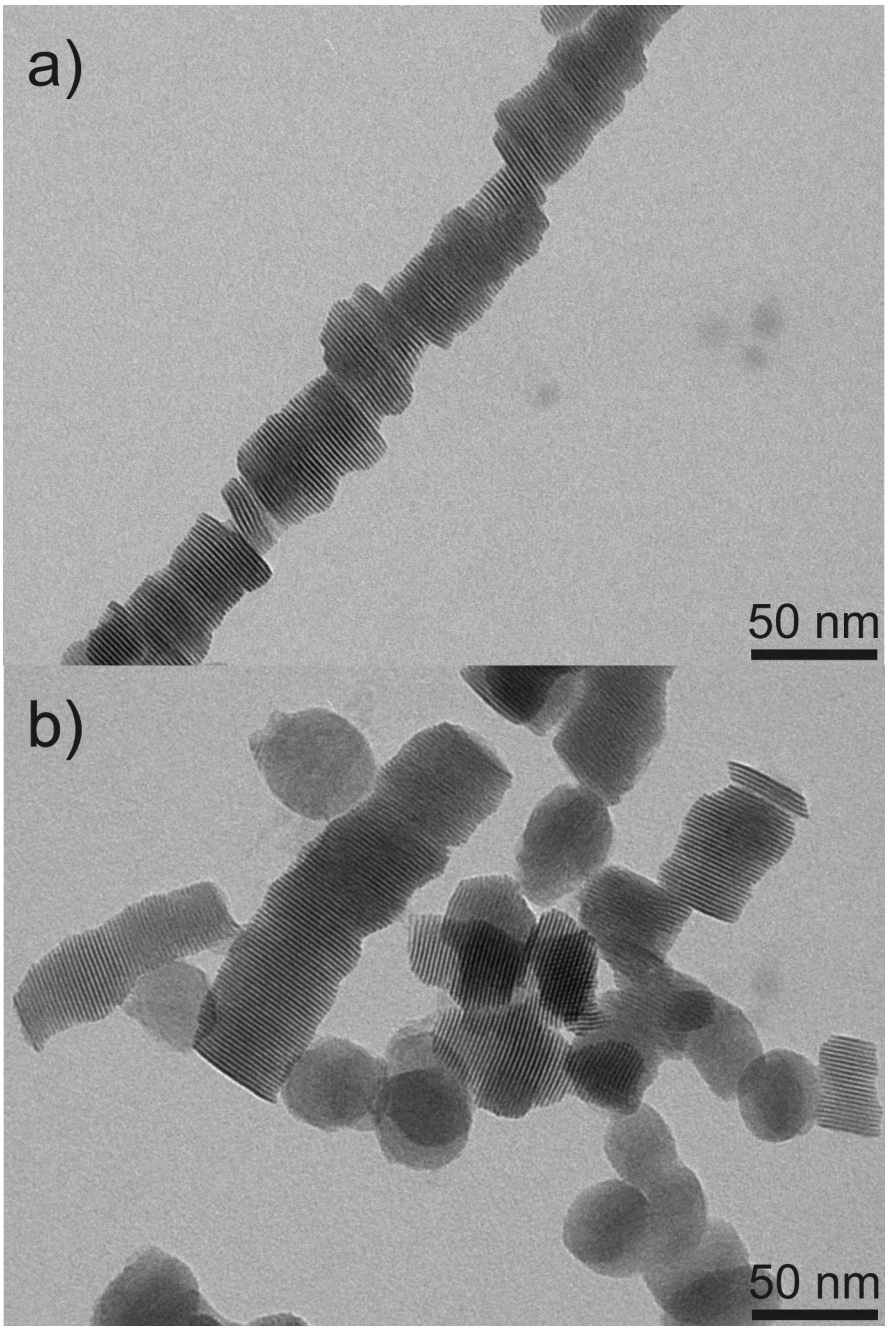

S3 - Thermogravimetric analysis (TGA) of the four nanohybrids under argon.




S4 – FT-IR spectra: a) Gadolinium, b) Samarium, c) Neodymium, d) Yttrium based nanohybrids.

| Elements/Hybrid | Yttrium | Neodymium | Gadolinium | Samarium |
|---|---|---|---|---|
| C (%) | 27.04 | 18.16 | 21.40 | 26.25 |
| H (%) | 2.62 | 1.62 | 1.85 | 1.99 |
| N (%) | 0.0 | 0.0 | 0.0 | 0.0 |
| Total (%) | 29.66 | 19.78 | 23.25 | 28.24 |

Table S1: CHN Elemental analysis of the nanohybrids




S5 – TEM images of the yttrium a) and neodymium b) based nanohybrids synthesized at 300°C.