Supporting Information for

Gd-Si Oxide Mesoporous Nanoparticles with Pre-Formed Morphology Prepared from Prussian Blue Analogue Template†

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1.1. Powder X-ray diffraction pattern

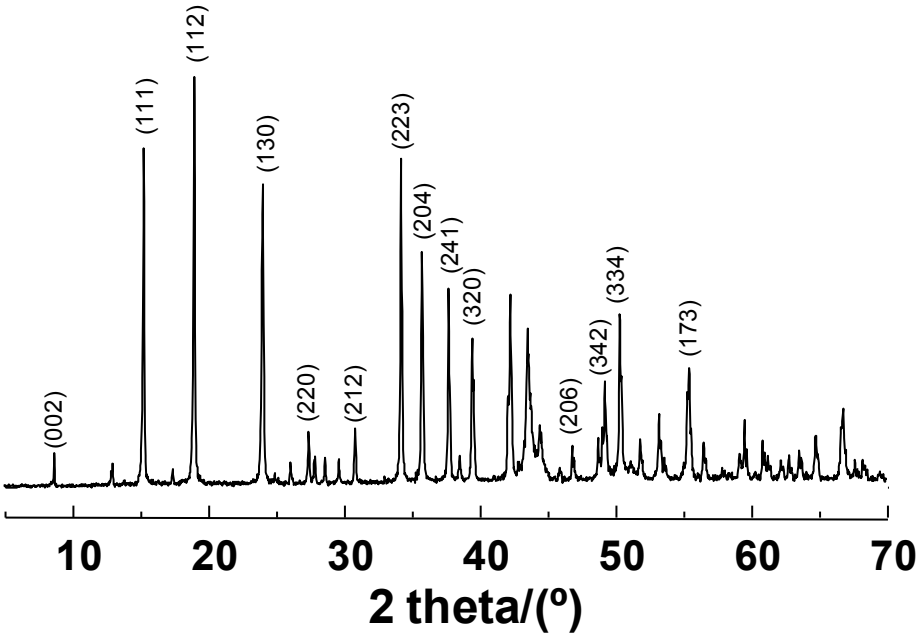

Figure S1. Powder XRD pattern of as-made GdFe nanoparticles.

1.2. Electron microscopy study by energy-dispersive X-ray spectroscopy analysis (EDS) of $Gd(H_2O)_4[Fe(CN)_6]$ (GdFe) pristine material

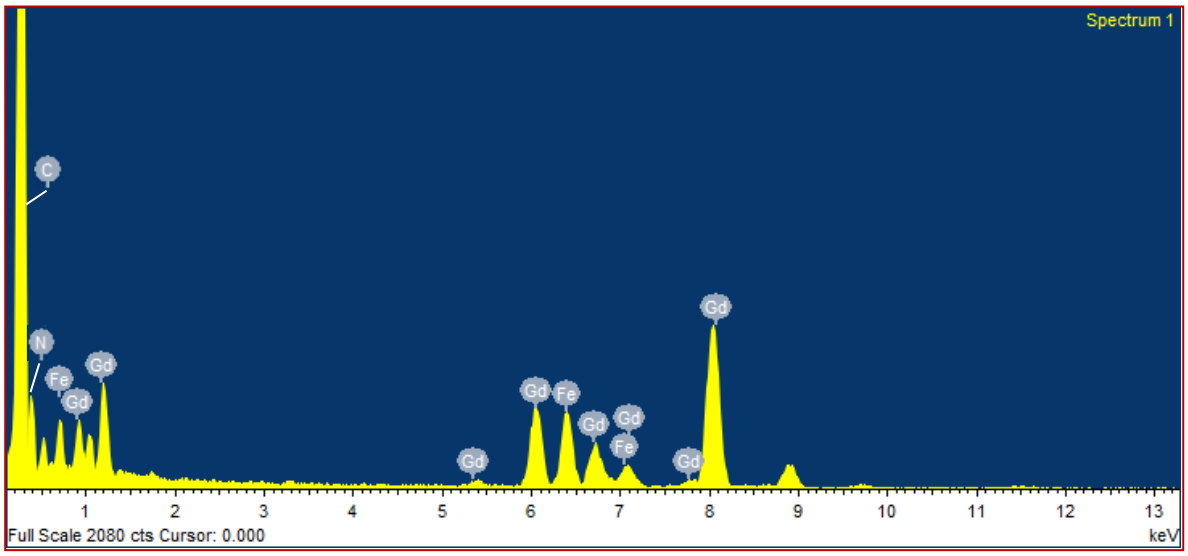

Figure S2. EDS analysis spectrum of GdFe sample showing peaks corresponding to component elements. Unlabeled peaks correspond to the grid signal (copper base or carbon film).

2. Characterization of Gd-Si oxide/hydroxide nanocomposite (GdSi)

2.1. Powder X-ray diffraction patterns.

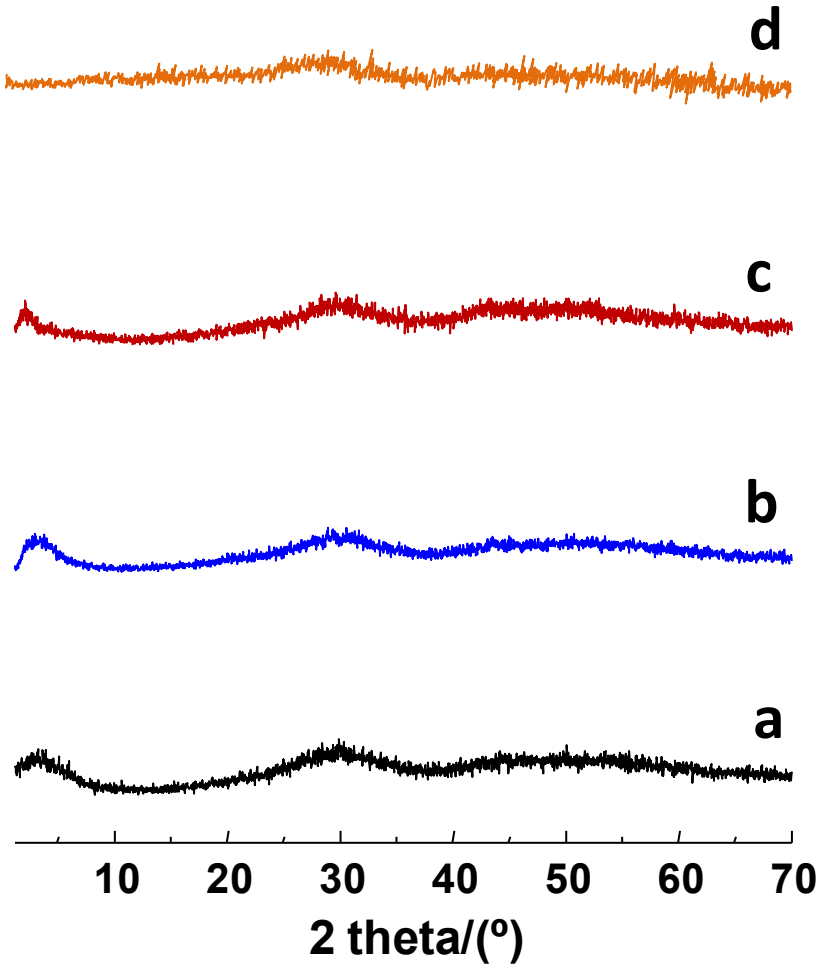

Figure S3. Powder XRD diffraction patterns of as-made GdSi dense sample and calcined mGdSi-4 and mGdSi-48 porous materials: (a) GdSi. (b) mGdSi-4 calcined in air at 500 ºC for 6 h. (c) mGdSi-48 calcined in air at 500 ºC for 6 h. (d) mGdSi-4 calcined in air at 700 ºC for 6 h.

2.2. N_2 adsorption-desorption isotherms

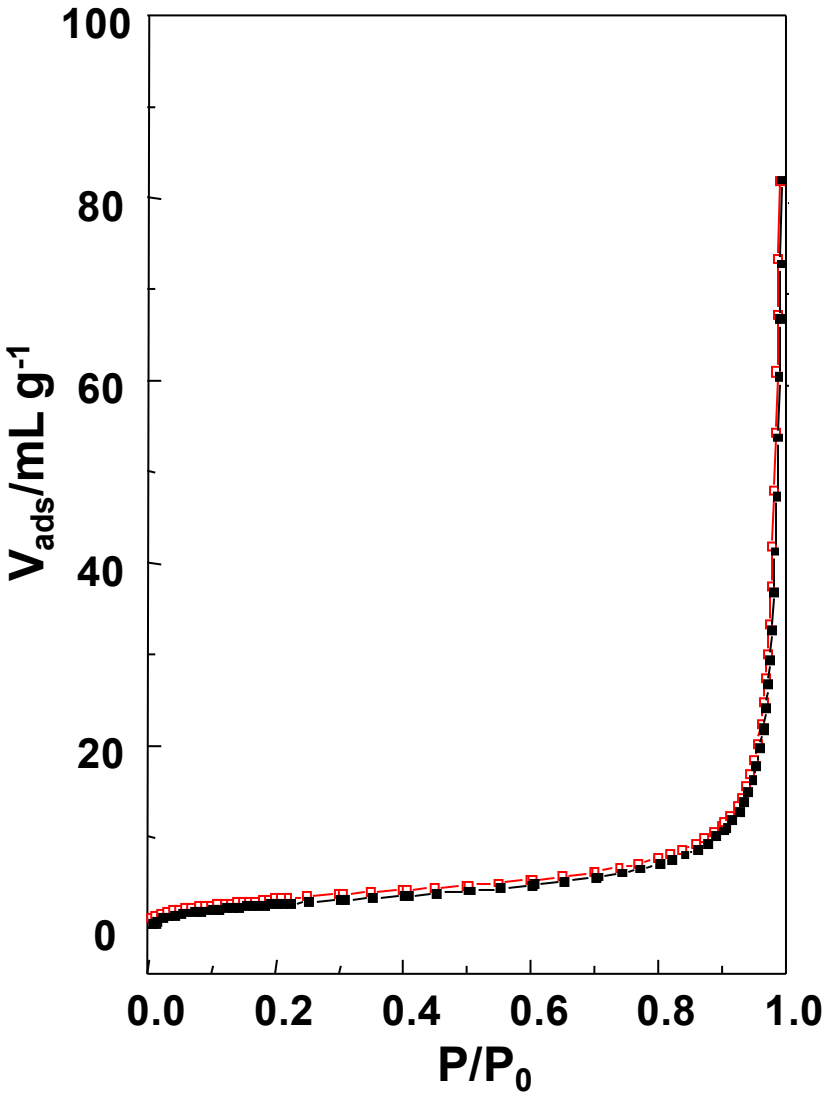

Figure S4. Nitrogen adsorption-desorption isotherms of as-prepared GdSi sample.

2.3. Electron microscopy study by energy-dispersive X-ray spectroscopy analysis (EDS)

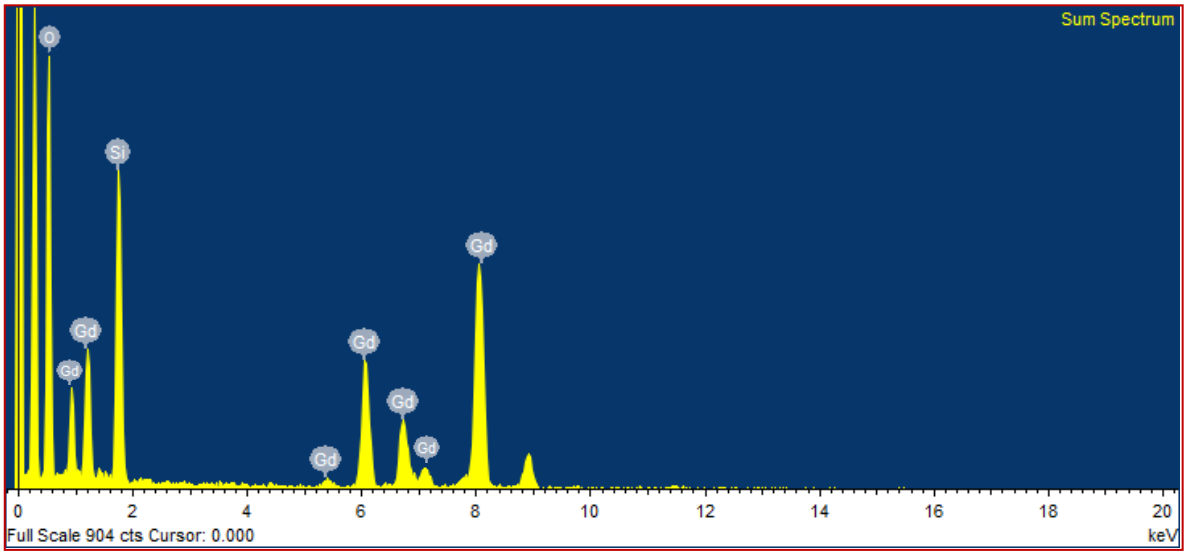

Figure S5. EDS analysis spectrum of GdSi sample showing peaks corresponding to component elements. Unlabeled peaks correspond to the grid signal (copper base or carbon film).

3. Characterization of Gd-Si oxide mesoporous nanoparticles (mGdSi)

3.1. N_2 adsorption-desorption isotherms and pore size distribution

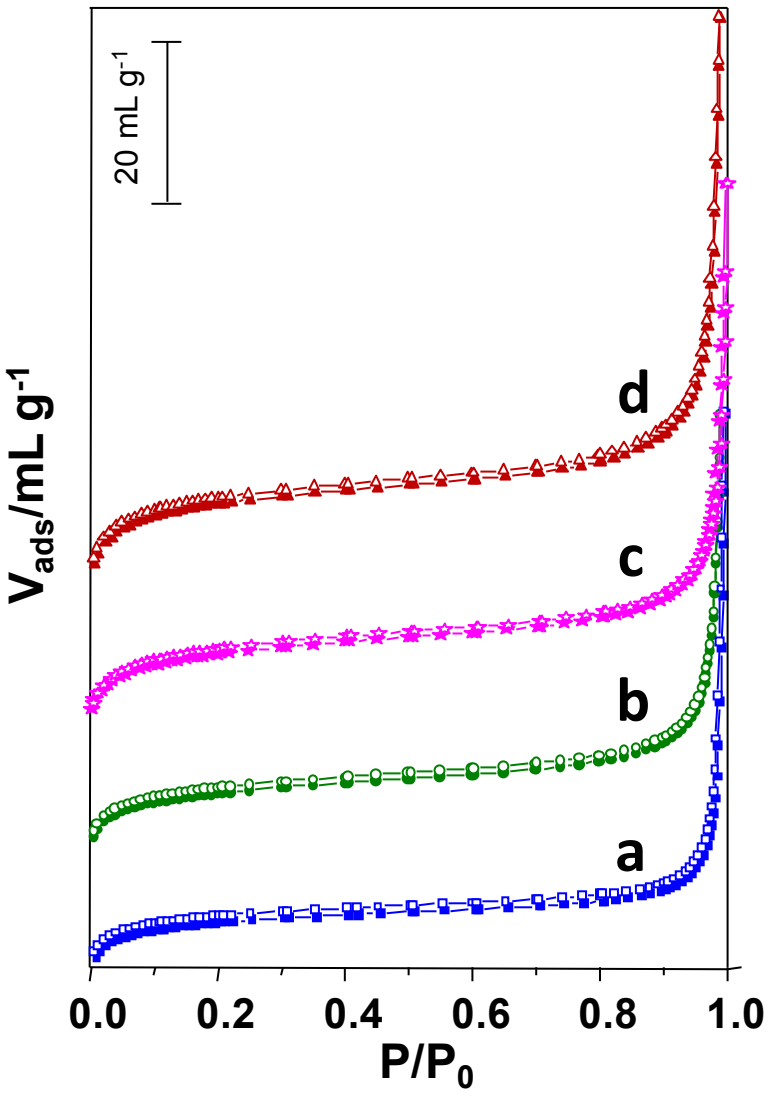

Figure S6. Nitrogen adsorption-desorption isotherms of calcined mGdSi-*n* samples: (a) mGdSi-4. (b) mGdSi-12. (c) mGdSi-24. (d) mGdSi-48.

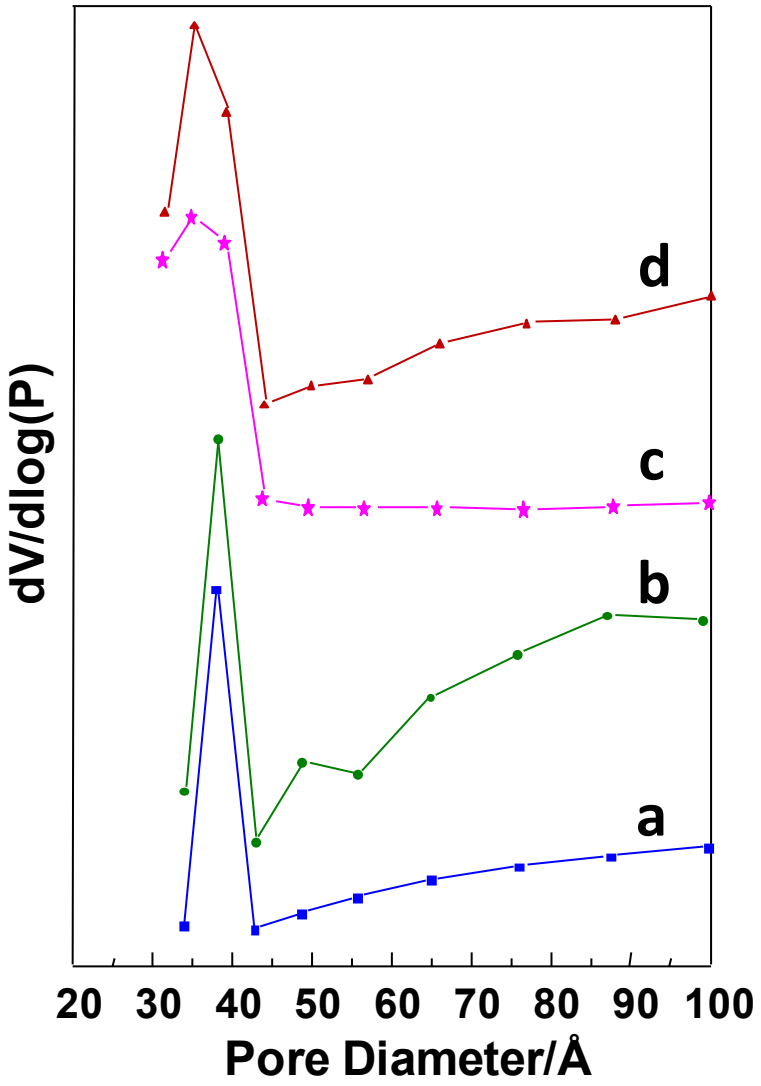

Figure S7. Pore size distribution of calcined mGdSi-*n* samples: (a) mGdSi-4. (b) mGdSi-12. (c) mGdSi-24. (d) mGdSi-48.

3.2. Electron microscopy study by TEM, STEM and FESEM, and energy-dispersive X-ray spectroscopy analysis (EDS)

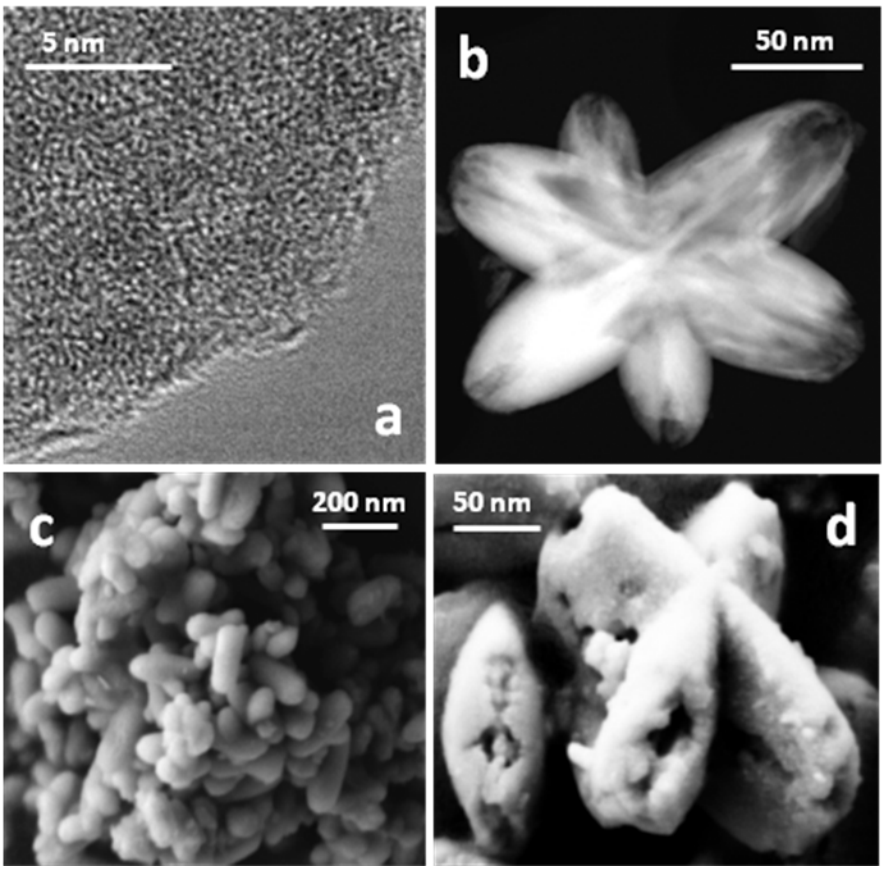

Figure S8. Electron microscopy study of mGdSi-*n* nanocrosses and nanorods developed by hydrothermal transformation of preformed GdSi at 100 ºC. (a): TEM image of mGdSi-12 material exhibits detail of the irregular, wormhole-like porous mesophase, with no long-range order. (b): STEM image of mGdSi-24 sample shows that, rarely, nanocross particles may also growth further into the asterisk morphology. (c-d): FESEM images of regular mGdSi-4 nanoparticles (c) and mGdSi-48 particles (1 nanocross, 1 nanorod) exhibiting severe damage due to long hydrothermal treatment (d).

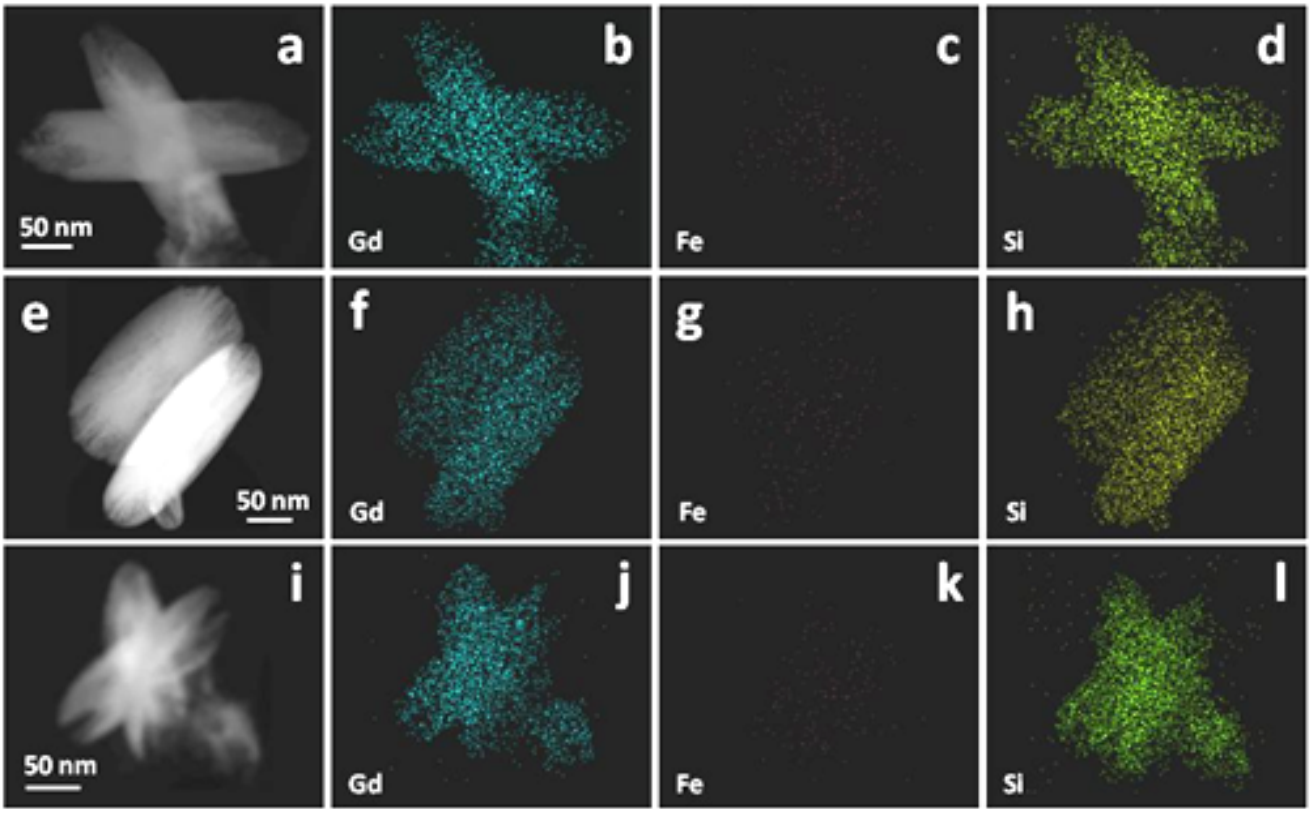

Figure S9. STEM images (a,e and i) and EDS elemental mapping pictures (b-d, f-h and j-l) of one single nanoparticle of mGdSi-12 (a-d), mGdSi-24 (e-h) and mGdSi-48 (i-l) samples.