

Supporting Information.

The Effect of Nanocrystalline Silicon Host on Magnetic Properties of Encapsulated Iron Oxide Nanoparticles

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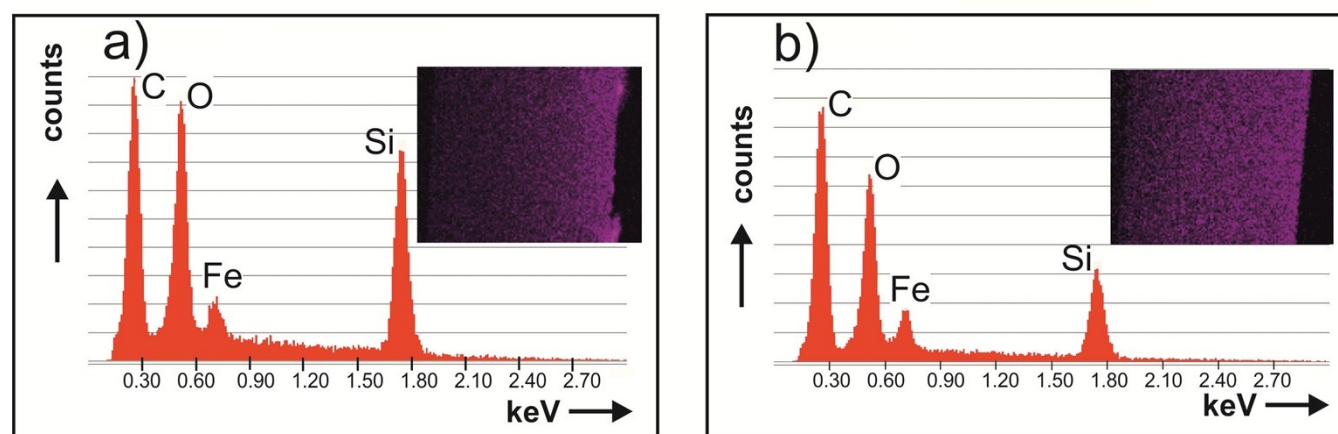
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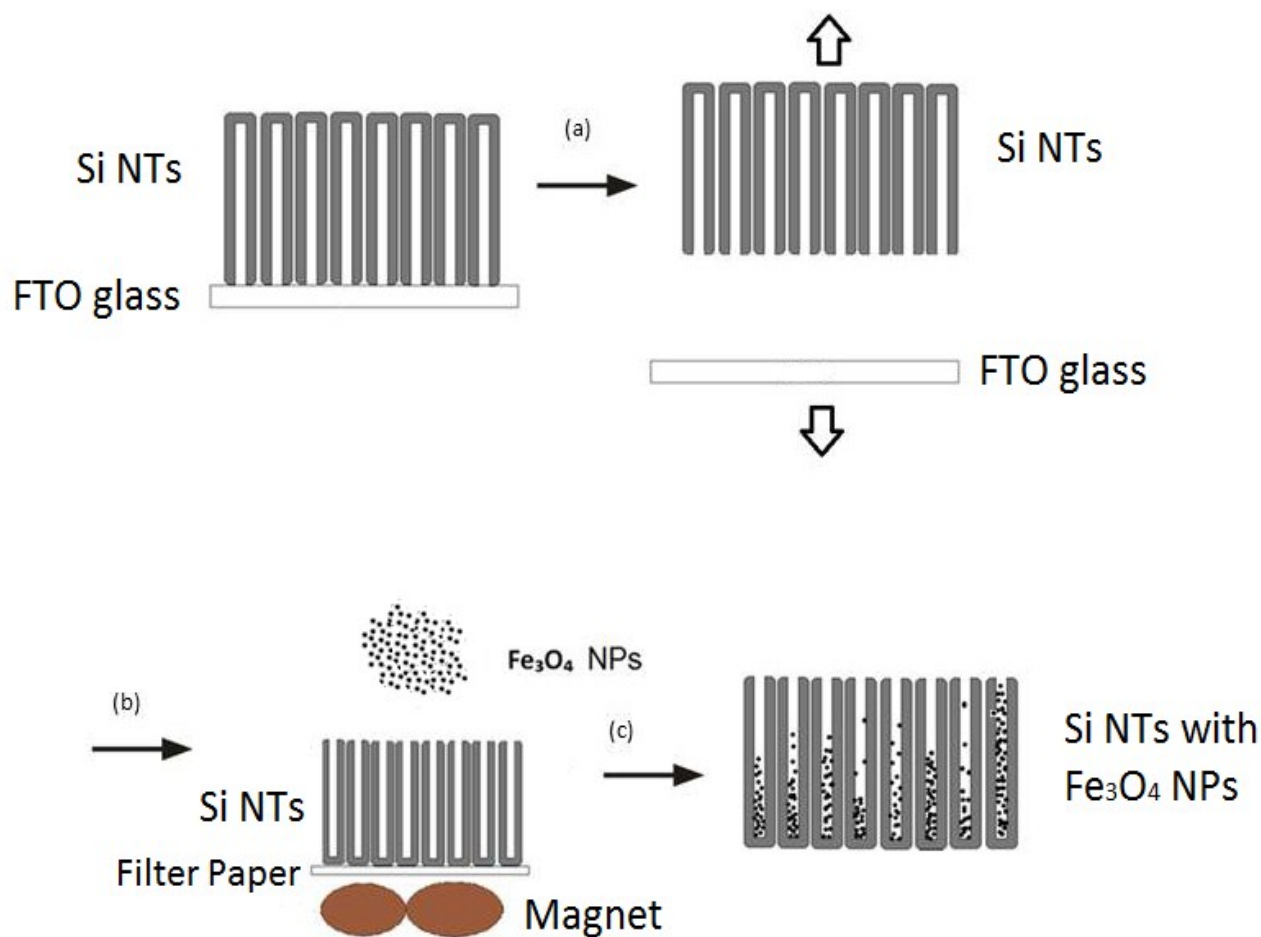
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Supplementary Figure 1. Energy dispersive X-ray spectra of PSi filled with Fe₃O₄-NPs of (a) 8 nm and (b) of 5 nm. The inset shows the corresponding mapping of a cross-sectional region.

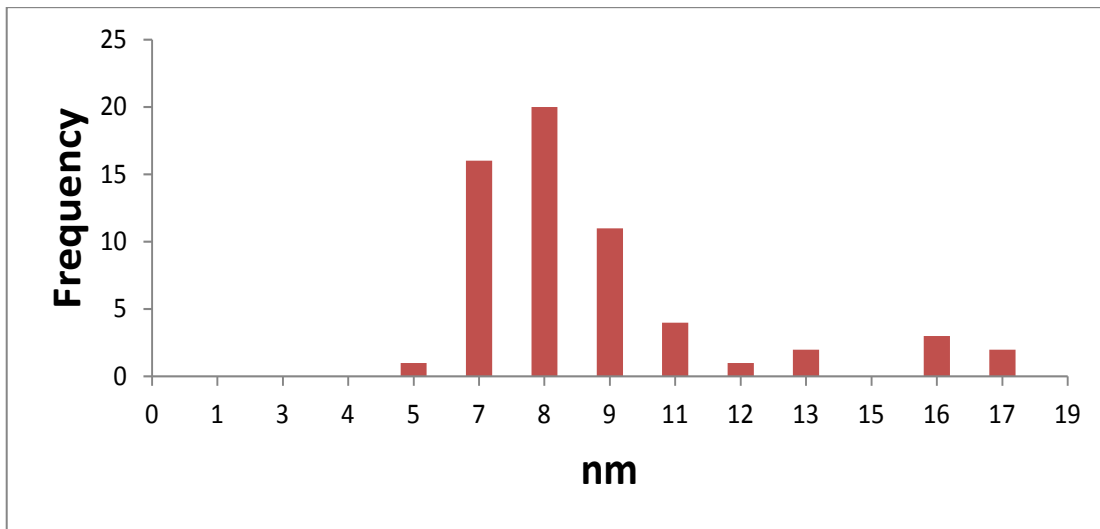


Supplementary Figure 2. Process for loading Fe₃O₄ NPs into Si NTs, consisting of: (a) physical detachment of SiNTs grown on a substrate and inversion of the NT film, followed by (b) dropwise addition of a solution of Fe₃O₄ NPs, facilitated by placing a Nd magnet underneath the film; (c) subsequent formation of the Fe₃O₄ NP-loaded SiNTs.

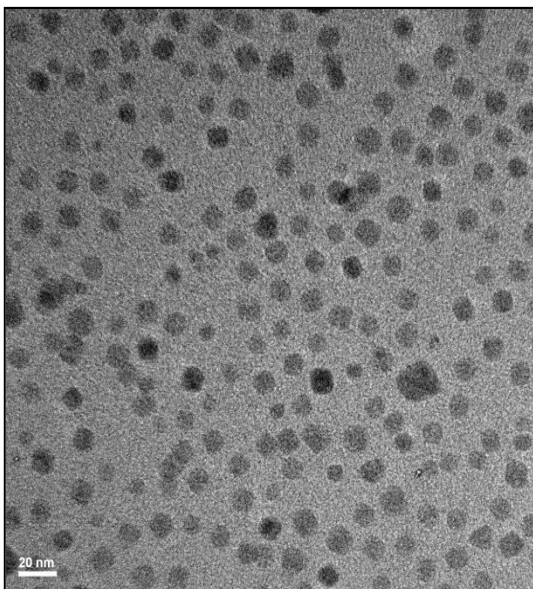
Supplementary Table 1. Size dependent blocking temperatures of SiNTs of 10 nm wall thickness filled with Fe₃O₄ NPs.

NP size (nm)	SiNTs TB (K)
4	10
5	12
8	16
10	40

10 nm Fe₃O₄ Nanoparticles (Sigma-Aldrich)



Mean	9.61
SD	2.85
Min	6.61
Max	18.10



Supplementary Figure 3. TEM image and associated size distribution data for a commercial Fe₃O₄ NP sample (Aldrich) with stated average particle size of 10 nm.

Supplementary video.

Brief video demonstrating the ability of Fe_3O_4 nanoparticles loaded into silicon nanotubes to be manipulated by a simple bar magnet.