Supporting Information

Block Copolymer-mediated Formation of Superparamagnetic Nanocomposites

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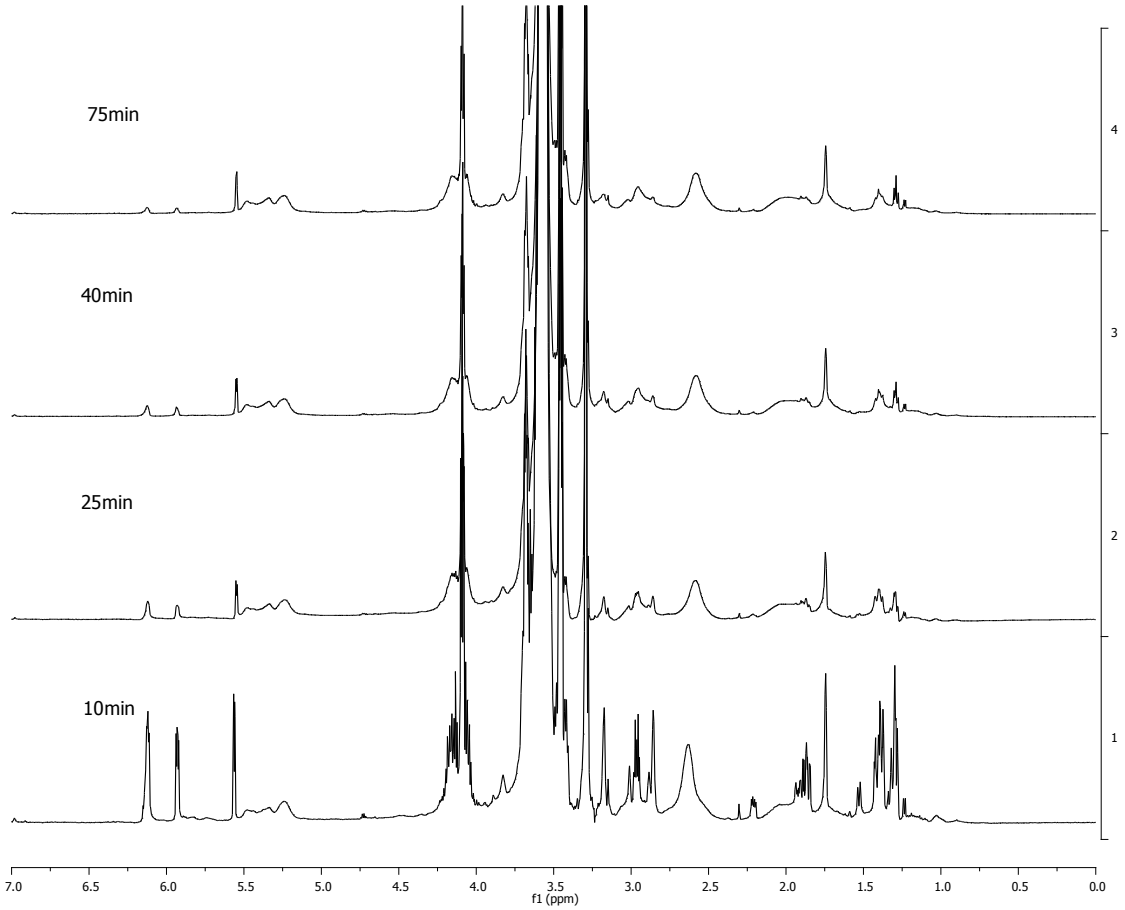

Figure S1. ^{1}H NMR spectra to study the progress of the homopolymerization of **2** as a function of time, showing the disappearance of vinyl peaks of monomer **2** and formation of the homopolymer.

Molecular weight of Polymers by Gel Permeation Chromatography (GPC):

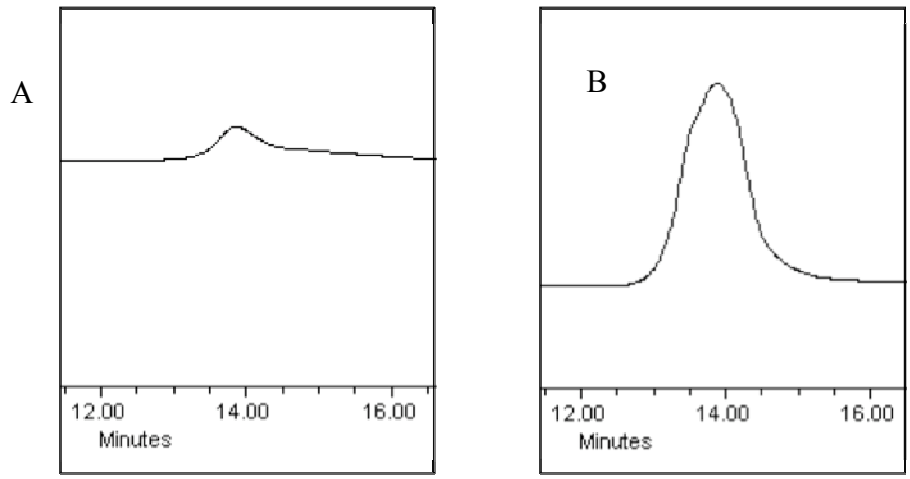

Figure S2. Molecular weight of the (A) Hompolymer **4** and (B) Block copolymer **5** in THF were determined by GPC with respect to polystyrene as standard.

Thermal Properties of Polymer:

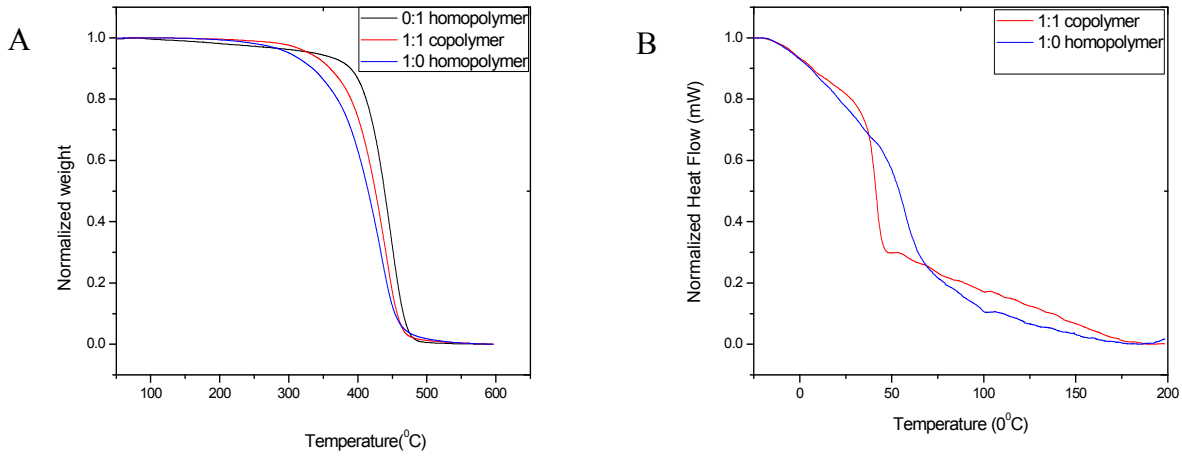

Figure S3. Comparison of thermal stability of the polymers. (A) TGA analysis and (B) DSC analysis.

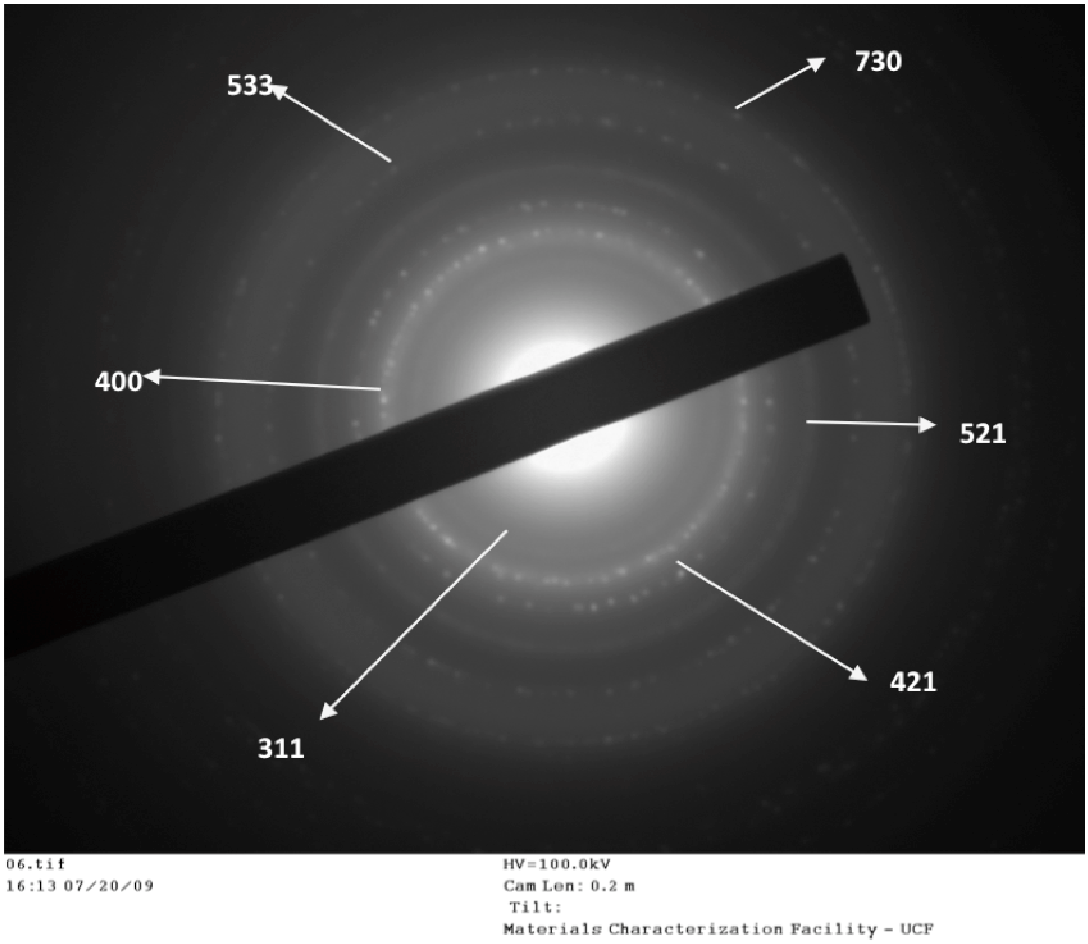

Figure S4. Electron diffraction pattern of **NC1-B1** from TEM.

Table S1: Comparison between crystal structure of **NC1-B1** and standard maghemite-C-syn nanocrystal

Ring #	r_2	d_2(nm)	d(spacing) of γ-Fe_2O_3 (nm) std.	hkl
1	1.950	0.2514	0.2518	311
2	2.339	0.2096	0.2089	400
3	2.695	0.1818	0.1822	421
4	3.232	0.1517	0.1525	521
5	3.827	0.1280	0.1273	533
6	4.476	0.1095	0.1096	730

where the camera length was 20 cm, r_1 = 2.097, d_1 = 0.2338 nm were used from the calibration file.[1]

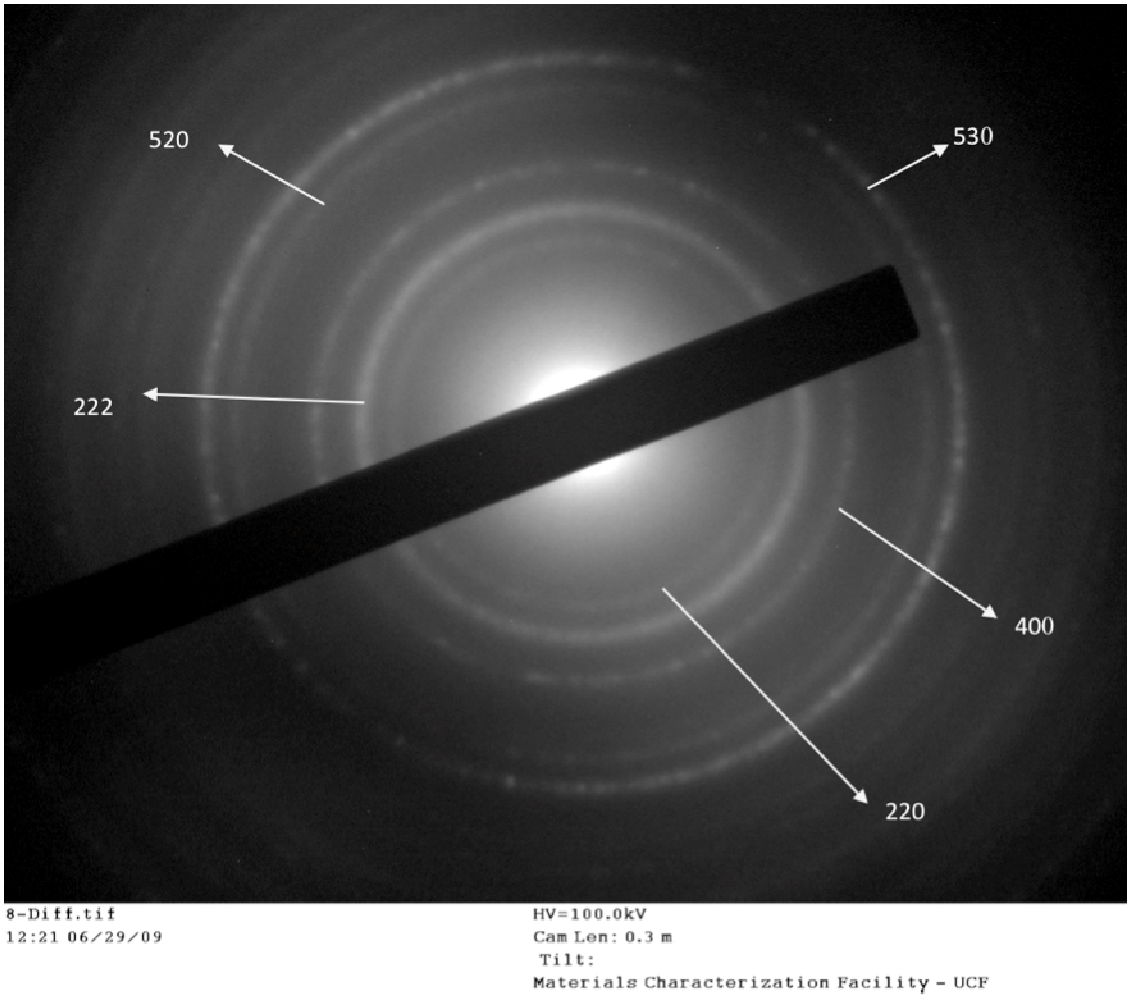

Figure S5. Electron diffraction pattern of **NC1-B1** from TEM.

Table S2: Comparison between crystal structure of **NC1-B2** and standard maghemite-C-syn nanocrystal

Ring #	r_2	d_2(nm)	d(spacing) of γ-Fe_2O_3 (nm)	hkl
1	2.261	0.2954	0.2953	220
2	2.765	0.2415	0.2411	222
3	3.205	0.2084	0.2088	400
4	4.286	0.1558	0.1551	520
5	4.636	0.1440	0.1432	530

where the camera length was 30 cm, r_1 = 2.857, d_1 = 0.2338 nm were used from the calibration file.

References:

(1) Sun, Y.; Ma, M.; Zhang, Y.; Gu, N. *Colloids Surf., A* **2004**, *245*, 15-19.