Supplementary Material (ESI) for *PCCP*

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Supporting Information

Synthesis and Studies of Water Soluble Prussian Blue-Type Nanoparticles into Chitosan Beads.

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Table 1S. Magnetic data for the samples **1** – **4**.

Samples	T_{max}[a], K	**Vogel-Fulcher law**			**2D model (T_g=0K)**		
		τ_0, s	E_a/k_B, K	T_0, K	τ_0, s	E_a/k_B, K	$z\nu$
1a	12.0	$3.57\cdot10^{-14}$	209(5)	2.0±8.0	$2.86\cdot10^{-29}$	185(3)	0.5
1b	11.6	$2.38\cdot10^{-24}$	484(9)	1.9±6.1	$7.91\cdot10^{-89}$	415(10)	0.3
1c	9.0	$2.43\cdot10^{-17}$	261(3)	2.1±3.5	$7.86\cdot10^{-63}$	274(8)	0.3
2a	9.2	$2.62\cdot10^{-13}$	189(2)	1.7±3.1	$5.12\cdot10^{-11}$	68(6)	3.2
2b	8.5	$3.61\cdot10^{-23}$	347(8)	1.1±2.0	$7.21\cdot10^{-55}$	312(1)	0.5
3a	8.2	$7.90\cdot10^{-15}$	169(1)	1.3±2.5	$1.60\cdot10^{-13}$	376(4)	1.4
4a	<1.4	-	-	-	-	-	-

[a] maximum value on the ZFC curve.

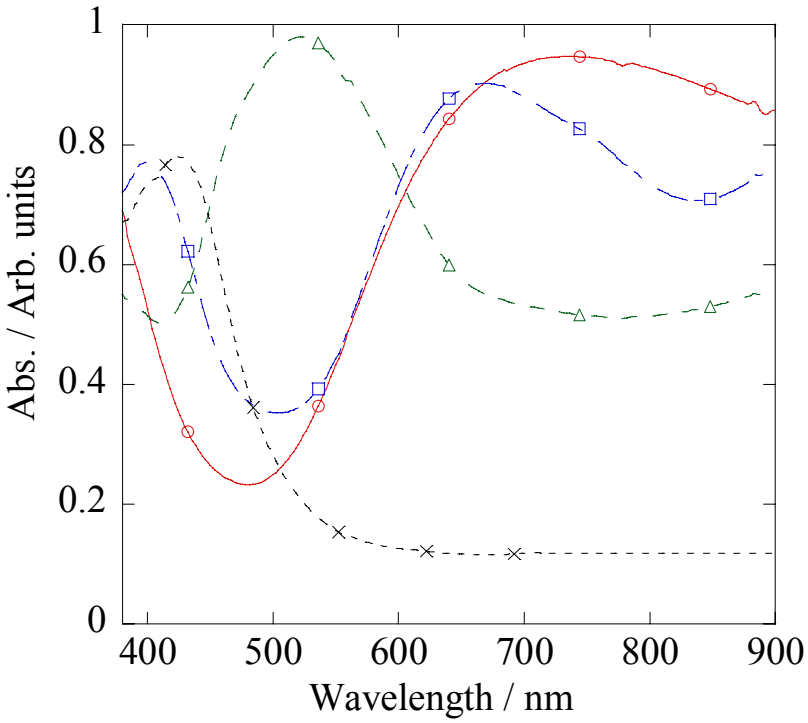


Figure 1S. UV-Vis spectra for the composite beads M^{2+}/chitosan (M^{2+} = Ni^{2+}, Cu^{2+}, Co^{2+}, Mn^{2+}). (-□-) for Ni^{2+}/chitosane, (-o-) for Cu^{2+}/chitosane, (-Δ-) for Co^{2+}/chitosan and (–x-) for Mn^{2+}/chitosane.

Figure 2S. a) Photographical images of the pristine chitosan beads and the nanocomposite beads **1a – 4a** and b) of the nanocomposite beads **1a-4a** along with the respective aqueous colloids **1b-4b**.

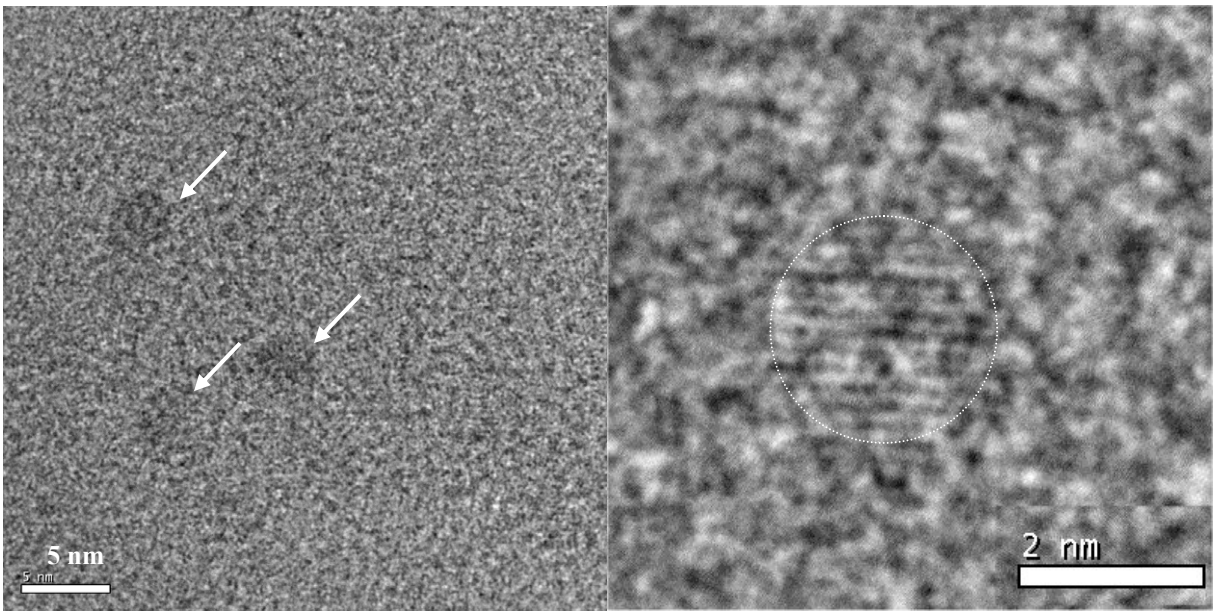


Figure 3S. HRTEM image of sample **1b** showing the cyano-bridged metallic core of a nanoparticle surrounded with an eye-guide.

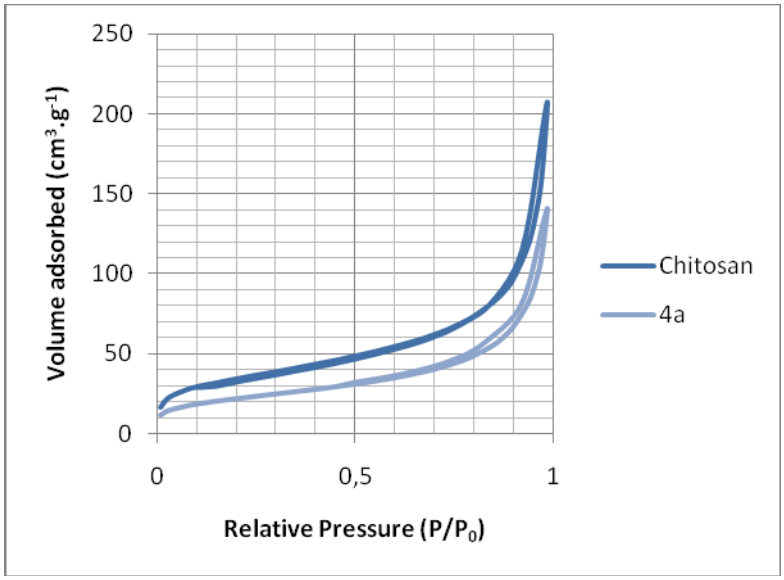
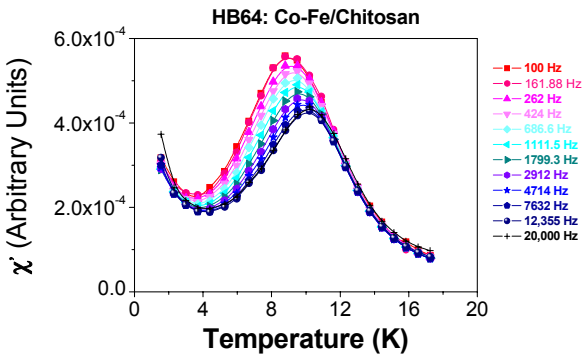
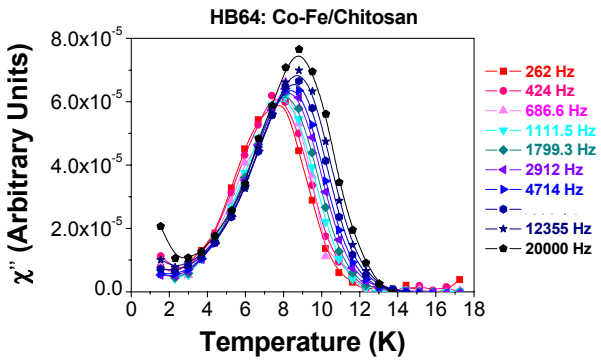


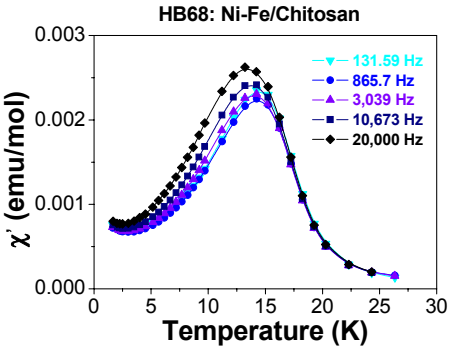
Figure 4S. The nitrogen physisorption isotherms of the pristine chitosan and after cyano-bridged networks incorporation in the case of nanocomposite **4a**.

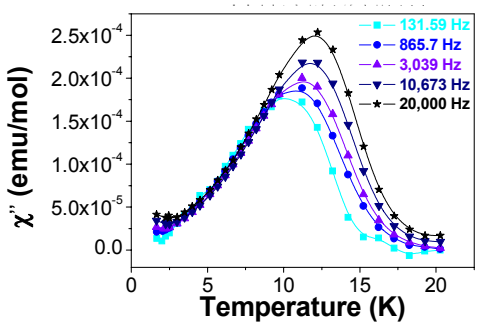
Co-Fe/ Chitosan



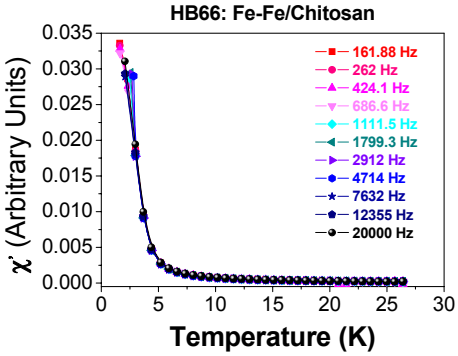


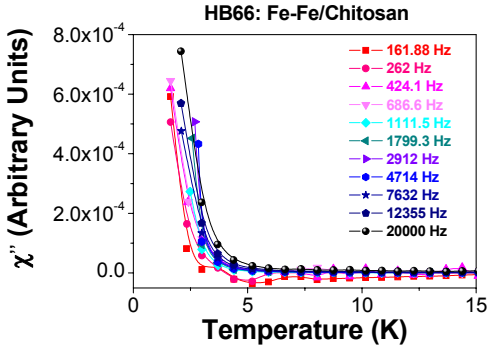
Ni-Fe/ Chitosan



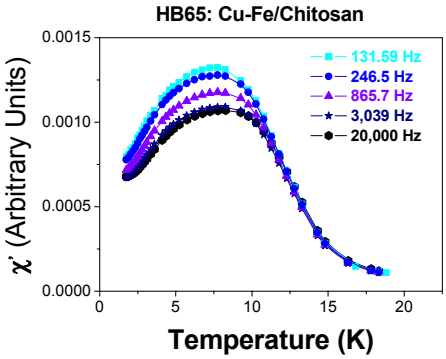


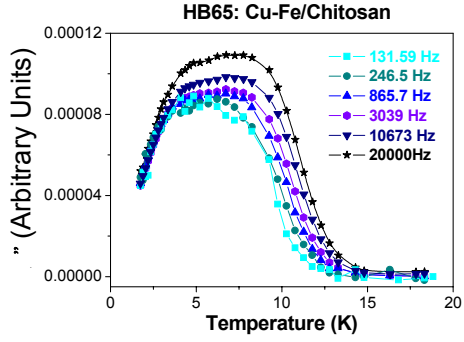
Fe-Fe/ Chitosan



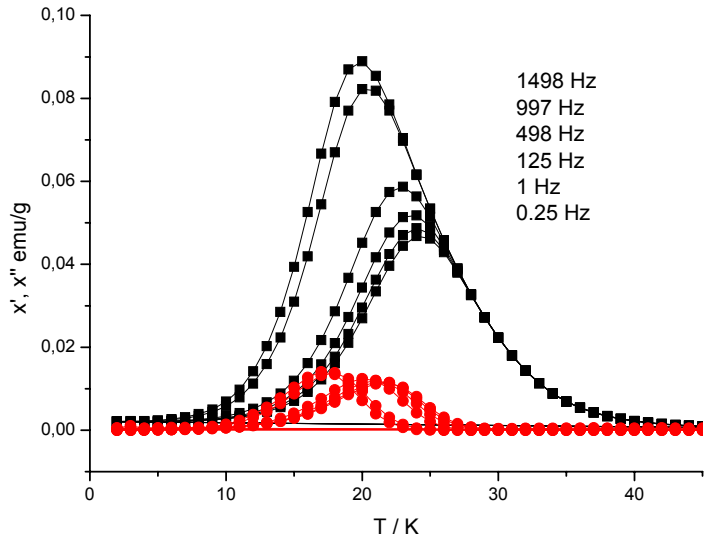


Cu-Fe/ Chitosan



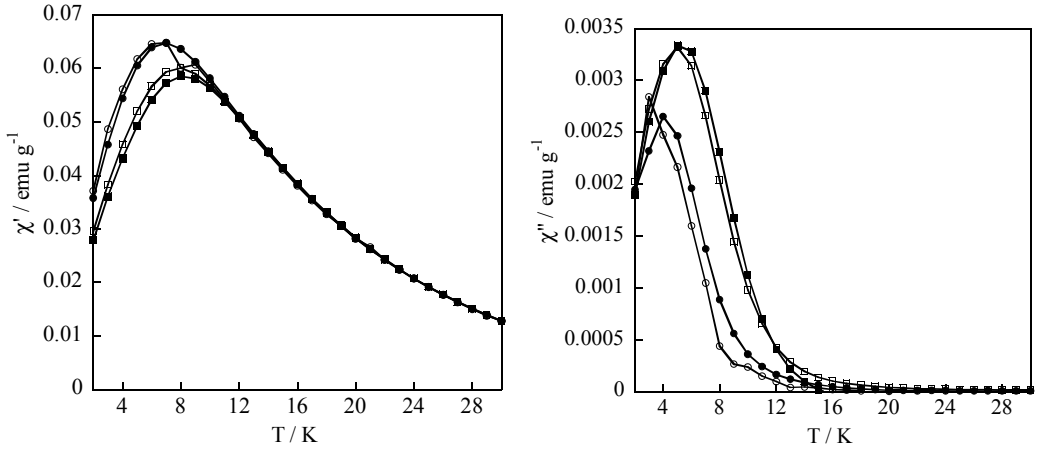


Mn-Cr/chitosan



Frequencies: 0.25 Hz (-o-), 1 Hz (-•-), 125 Hz (- -), 498 (■), 997 (-∇-) and 1488 (-▲-).

Ni-Cr/chitosan



Frequencies: 0.25 Hz (-o-), 1 Hz (-•-), 125 Hz (- -), 498 (■).

Figure 5S. a) Temperature dependences of in-phase, χ', (left) component of the ac susceptibility and out-of-phase, χ'', component of the ac susceptibility of **2** - **6** with zero dc magnetic field.

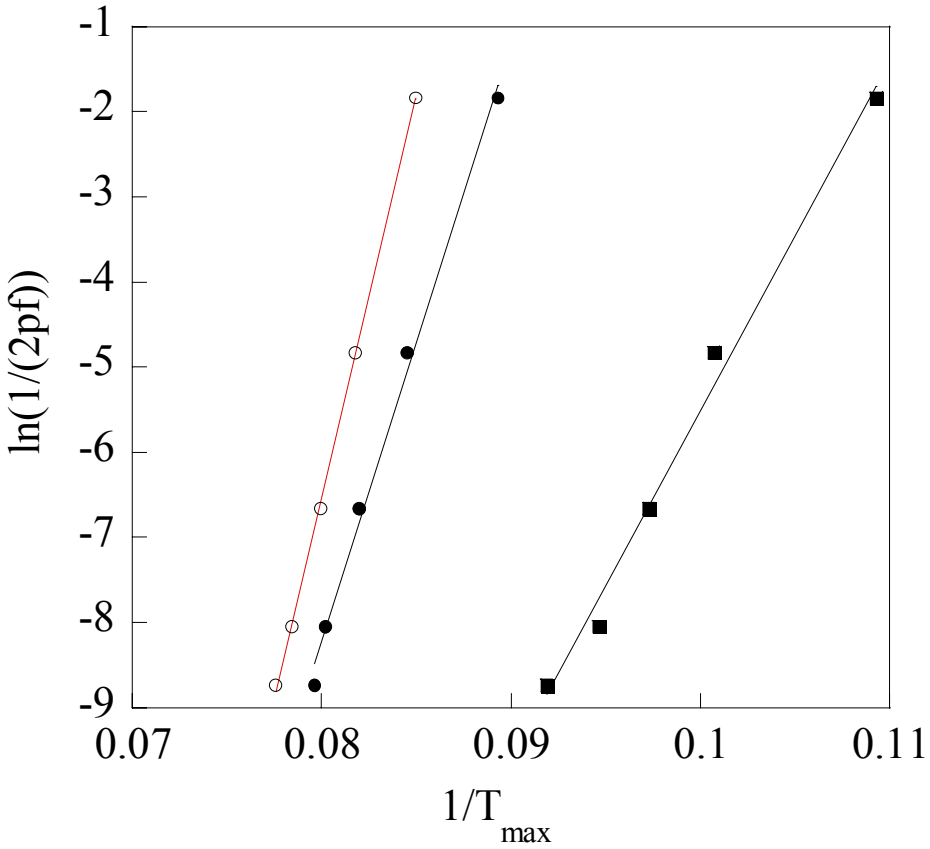


Figure 6S. Arrhenius fit for the samples **1a (■)**, **1b** (o) and **1c (•)**.

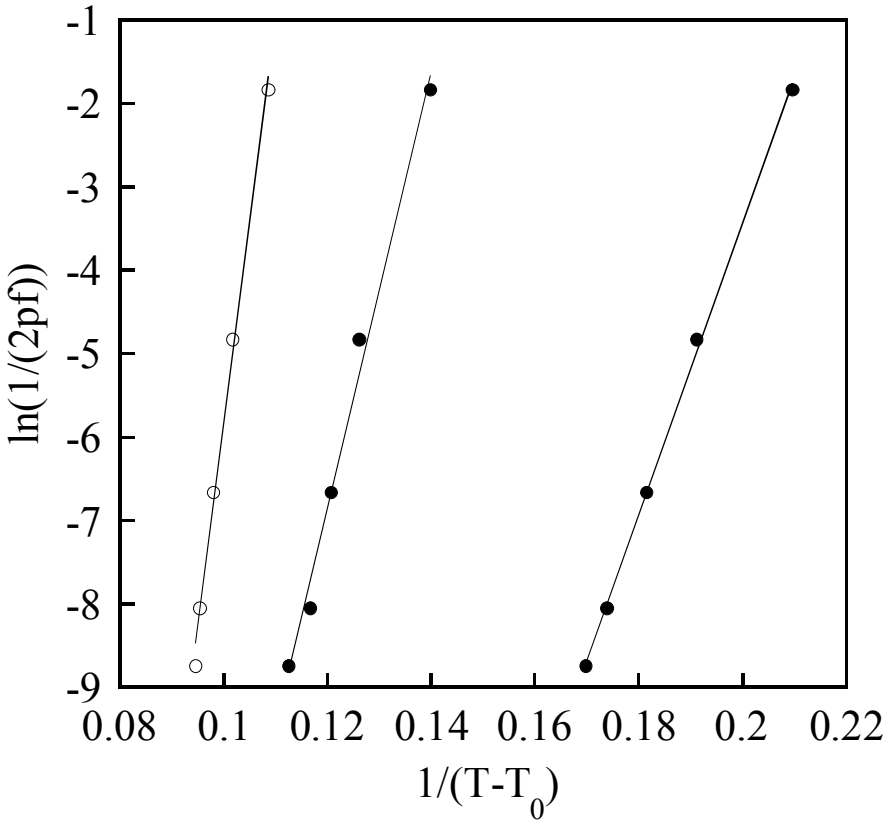


Figure 7S. a) Thermal variation of the relaxation time according to the Vogel-Fulcher law for 1a **(■)**, **1b** (o) and **1c (•)** samples.

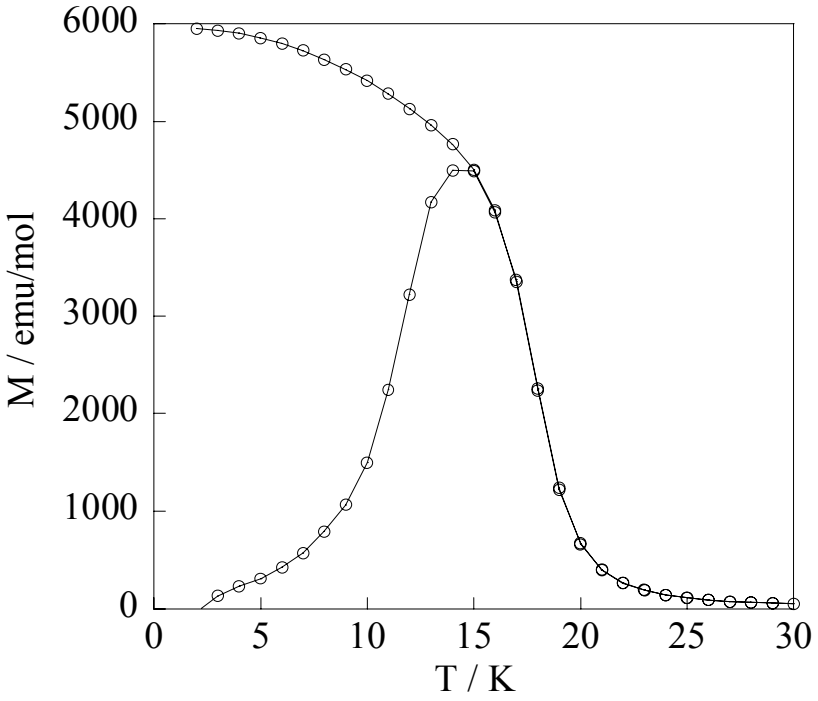
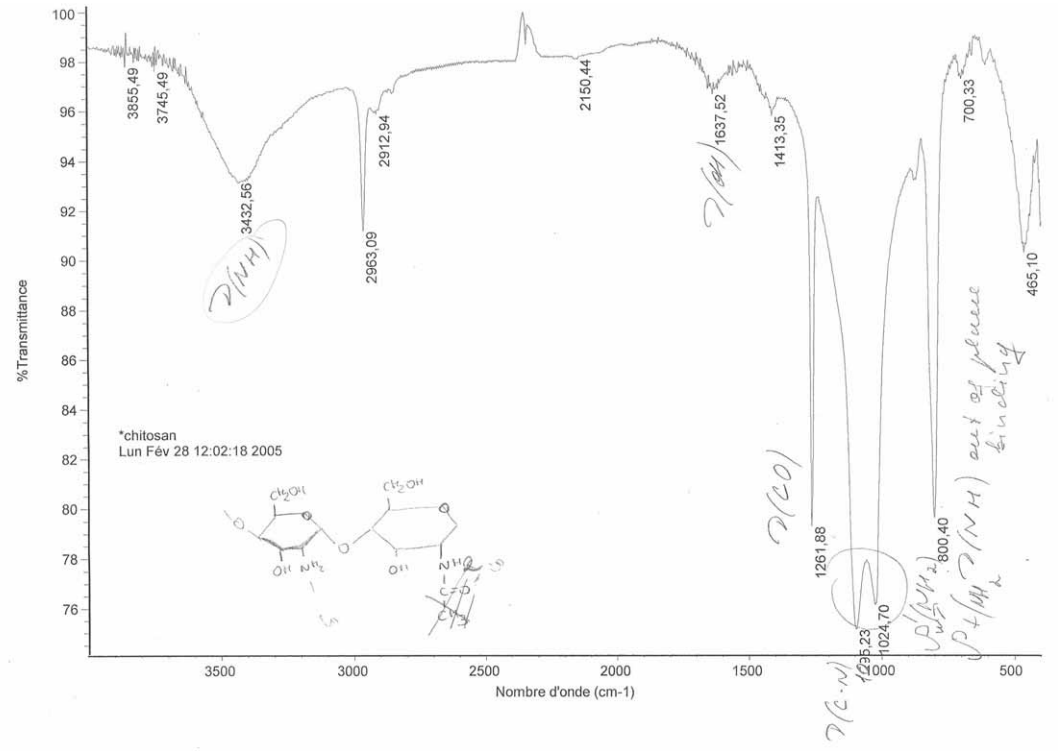


Figure 8S. ZFC/FC curve for the bulk compound $Ni_3[Fe(CN)_6]_2$.



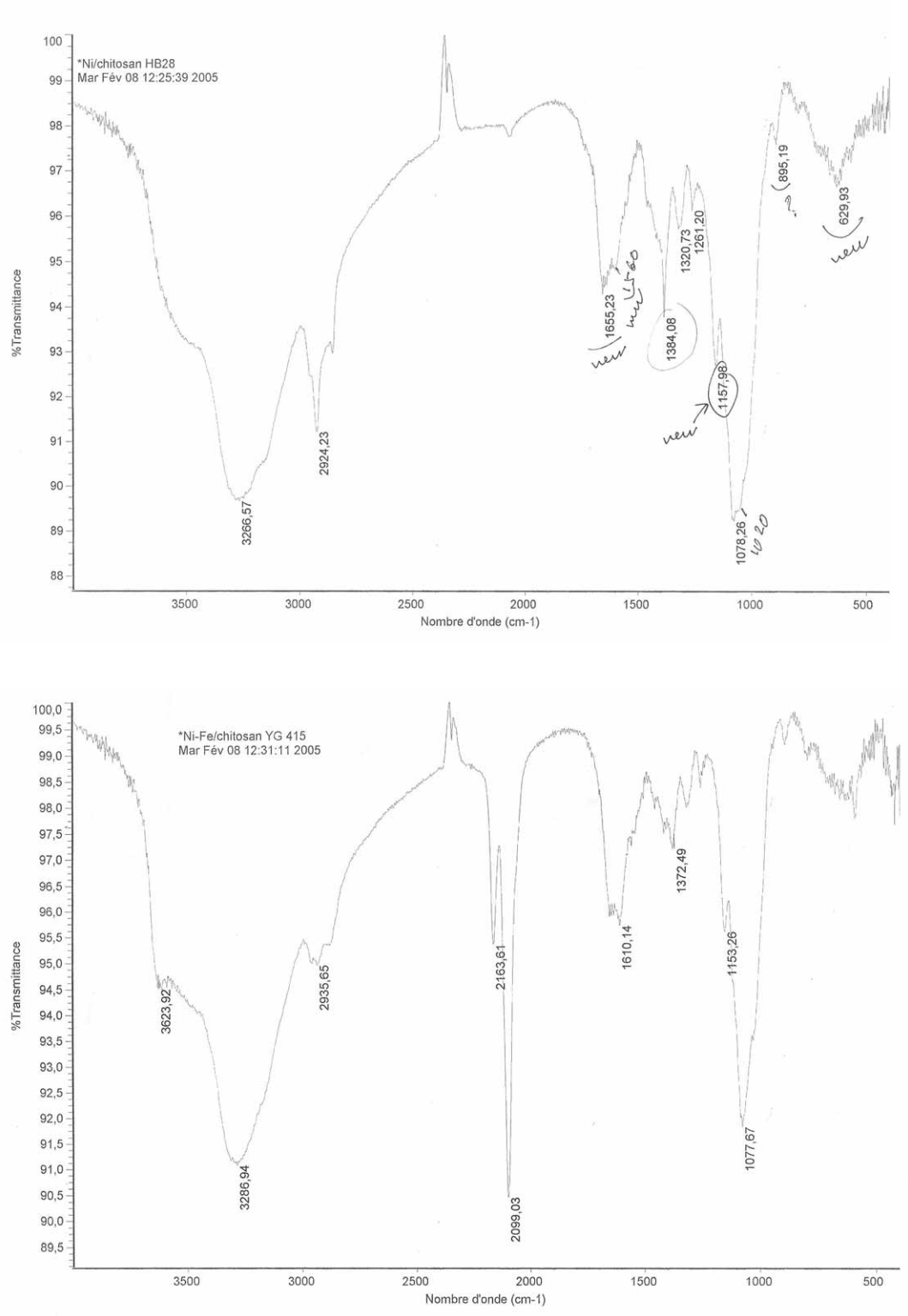


Figure 9S. IR spectra of (a) the pristine chitosan, (b) composite bead Ni^{2+}/chitosan, c) sample **1a**.

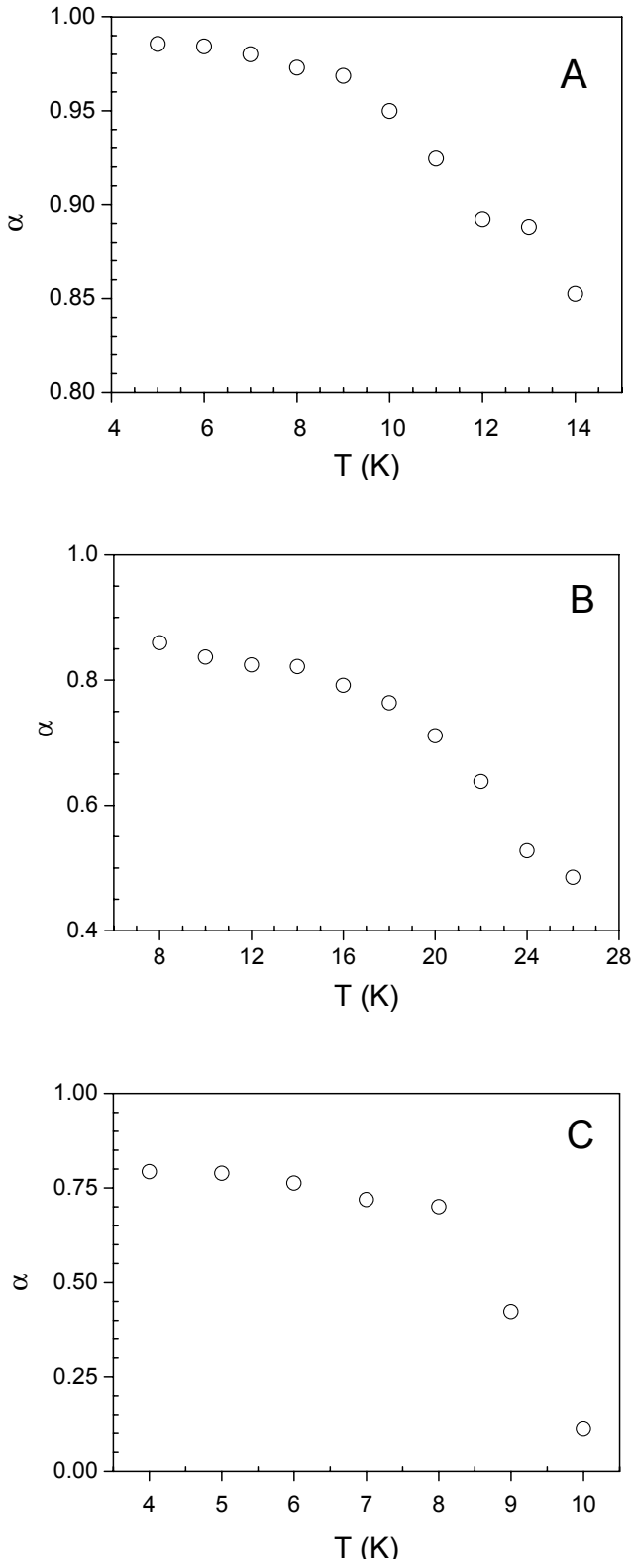


Figure 10S. Thermal dependence of the α parameter obtained from fit to equation (4) for **1a** (**A**), **5a** (**B**) and **6a** (**C**)..