- Electronic Supplementary Information -

Superparamagnetic nanoparticles with LC polymer brush shell as efficient dopants for ferronematic phases

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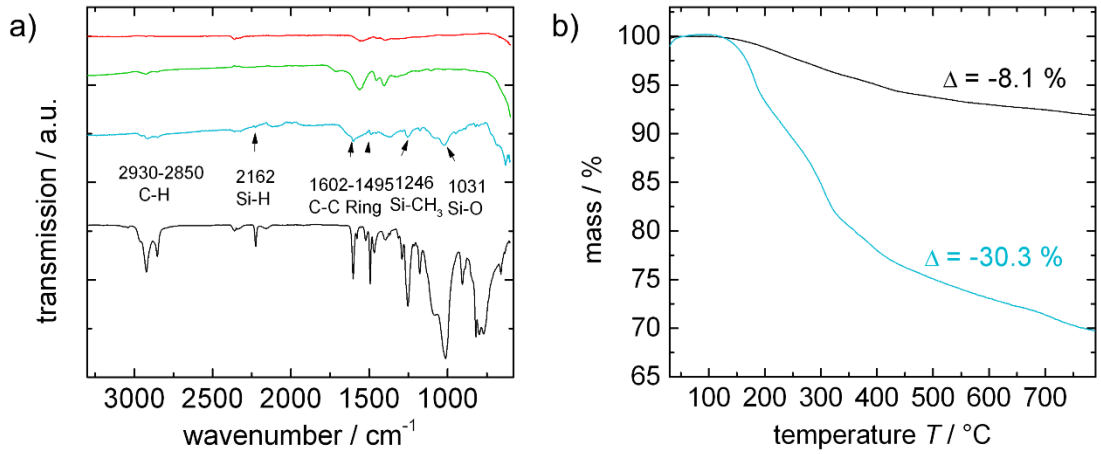

Figure S1. a) ATR-IR spectra of pure 9OCB-PHMS (—), CA@Fe_3O_4 (—), OTS@Fe_3O_4 (—) and 9OCB-PHMS@Fe_3O_4 (—), b) TGA of OTS@ Fe_3O_4 (—) and 9OCB-PHMS@ Fe_3O_4 (—).

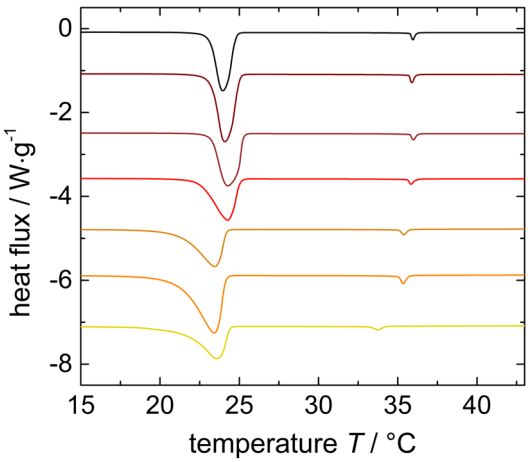

Figure S2. DSC thermograms of 5CB (—) and 9OCB-PHMS@Fe_3O_4 dispersed in 5CB for different solid dopant volume fractions $\phi_s = 3.6 \cdot 10^{-5}$ (—), $\phi_s = 7.2 \cdot 10^{-5}$ (•), $\phi_s = 1.8 \cdot 10^{-4}$ (—), $\phi_s = 3.7 \cdot 10^{-4}$ (—), $\phi_s = 7.2 \cdot 10^{-4}$ (—) and $\phi_s = 1.8 \cdot 10^{-3}$ (—).

Table S1. Mass loss Δm_{TGA}, specific particle functionality $f_{9OCB,p}$ and surface functionalization density σ_A for 9OCB-PHMS@$CoFe_2O_4$ and 9OCB-PHMS@Fe_3O_4.

particle	Δm_{TGA} %	$f_{9OCB,p}$ mmol·g^{-1}	σ_A mesogens·nm^{-2}
9OCB-PHMS@Fe_3O_4	30.3	1.46	12.98
9OCB-PHMS@$CoFe_2O_4$*	26.7	1.28	13.36

*taken from ref[1]

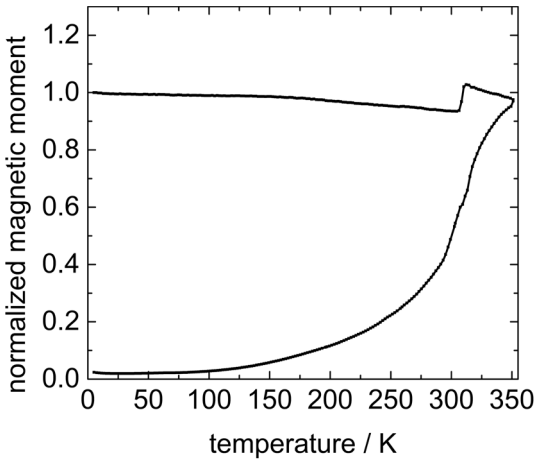

Figure S 3. Normalized ZFC-FC magnetization curve recorded at 10 mT for 9OCB-PHMS@$CoFe_2O_4$ in 5CB.

Table S2. Saturation magnetization M_s, magnetic moment m and coercitivity field H_c determined by VSM, and bulk saturation magnetization $M_{s,bulk}$ for $CoFe_2O_4$ and Fe_3O_4.

particle	M_s Am^{-2}·kg^{-1}	$M_{s,bulk}$ Am^{-2}·kg^{-1}	m A m^2	H_c kAm^{-1}	M_r / M_s
Fe_3O_4	61.2	86.3 [2]	$1.17 \cdot 10^{-19}$	-	-
$CoFe_2O_4$*	71.4	75.0 [3]	$1.39 \cdot 10^{-19}$	9.0	0.25

*taken from ref[1]

References

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