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Electronic Supplementary Information (ESI)

Mn^{2+} induced structure evolution and dual-frequency microwave absorption of $Mn_xFe_{3-x}O_4$ hollow/porous spherical chains made by one-pot solvothermal approach

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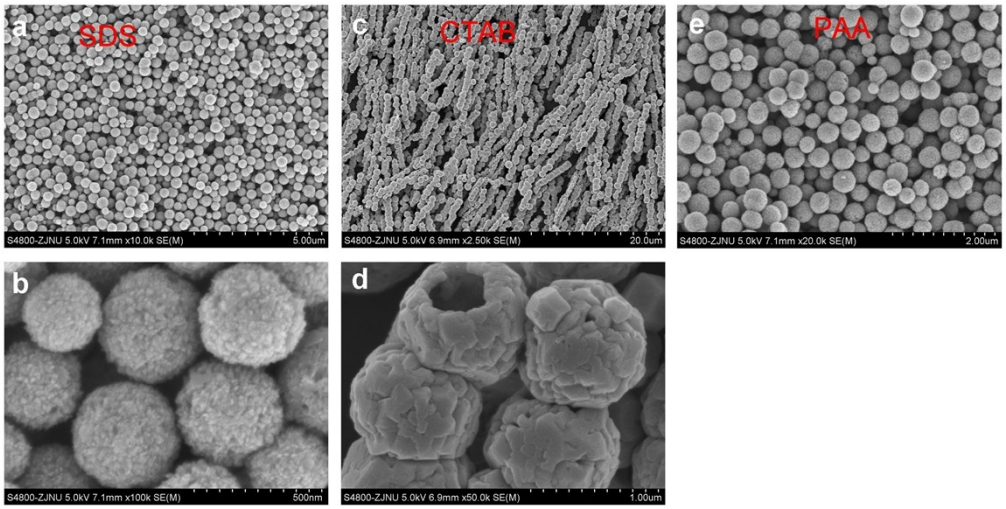

Fig. S1 SEM images of the products obtained using (a and b) SDS, (c and d) CTAB, and (e) PAA as surfactants at 220 ^{o}C for 12h obtained under the external magnetic field.

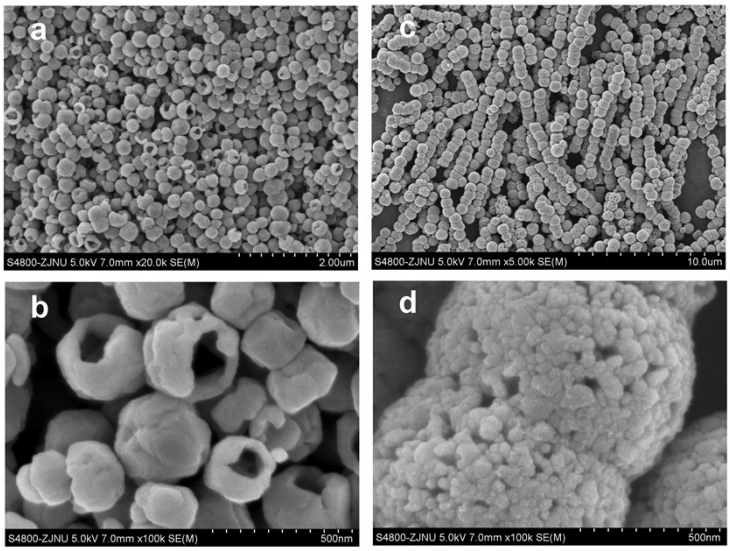

Fig. S2 SEM images of the products obtained with various EDA volumes (a and b) 0.34 ml and (c and d) 1.34 ml at 220 ^{o}C for 12 h obtained under the external magnetic field.

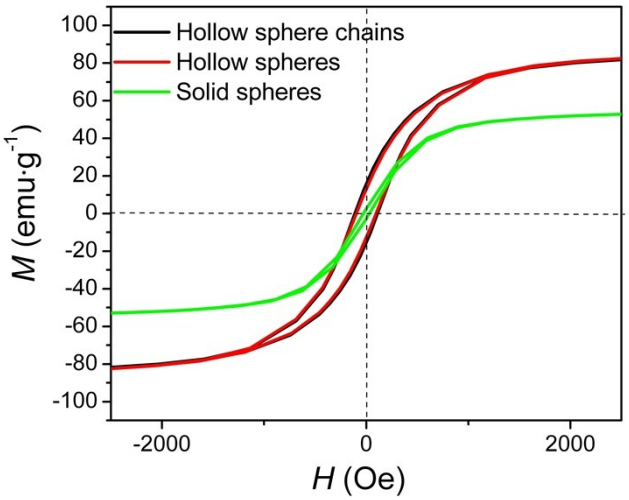

Fig. S3 Magnetic hysteresis loops of Fe_3O_4 samples with various morphologies and structures.

Table S1 A comparison of static magnetic properties for $MnFe_2O_4$ nanostructures.

sample	method	Shape/structure	H_c(Oe)	M_s	Refer.
$MnFe_2O_4$	hydrothermal	nanorods	361	68.02	[1]
$MnFe_2O_4$	microwave	spongy	72.63	79.98	[2]
$MnFe_2O_4$	hydrothermal	nanopartiles	43.9	52.40	[3]
$MnFe_2O_4$	sol–gel/calcining	nanofibers	$1*10^4$	61.00	[4]
$MnFe_2O_4$	one-pot microwave	nanoplatelets	51.45	66.89	[5]
$MnFe_2O_4$	solvothermal	hollow spheres	39.5	76.50	[6]
$MnFe_2O_4$	solvothermal	octahedrons	520	67.26	[7]
$MnFe_2O_4$	arc-discharge	nanocapsules	600	97.00	[8]

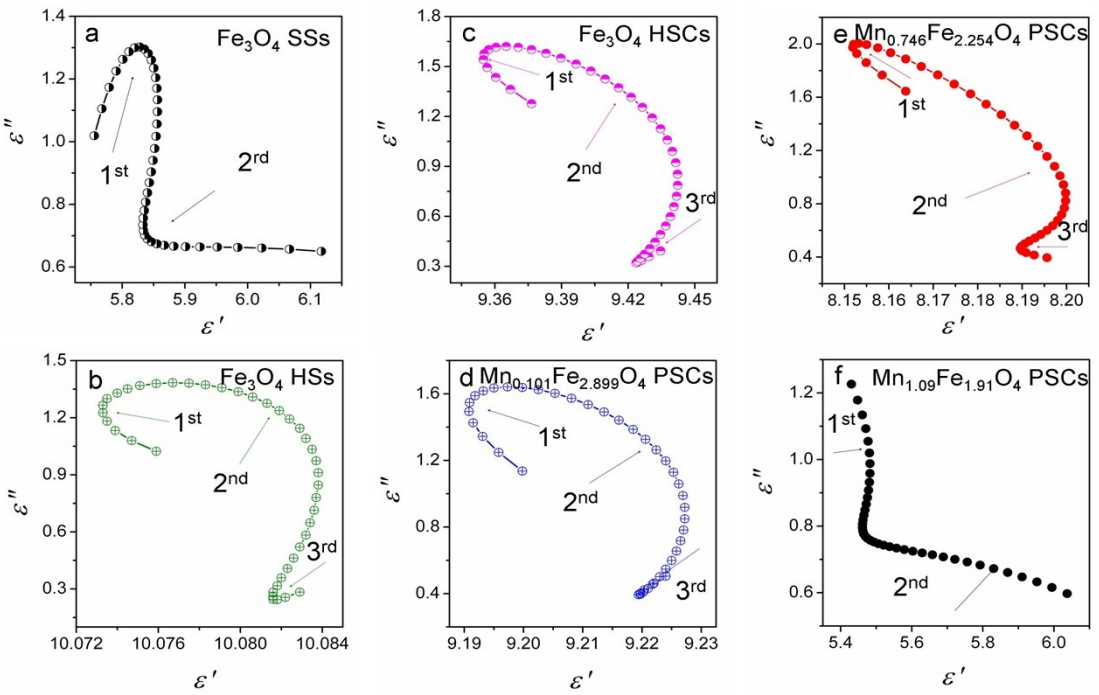

Fig. S4 Cole-Cole semicircles (ε' versus ε'') of the various samples.

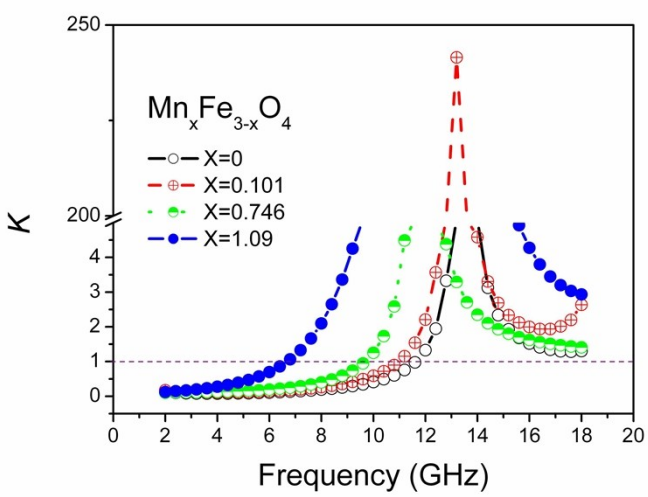

Fig. S5 Matching constants (*K*) of wax composites containing 60 w% $Mn_xFe_{3-x}O_4$ PSCs ($0 \leq X \leq 1.09$) samples.

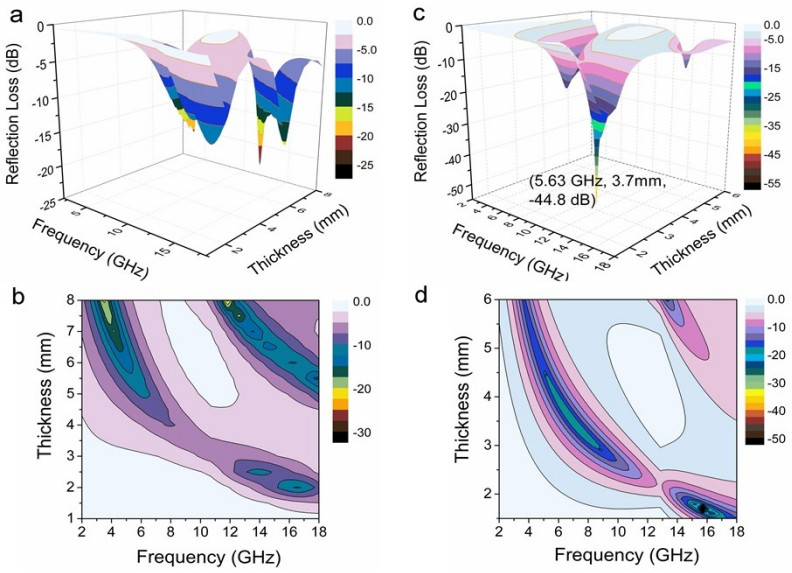

Fig. S6 Frequency dependences of reflection loss calculated for paraffin composites containing 60wt.% (a-b) Fe_3O_4 SSs and (c-d) Fe_3O_4 HSs. (a and c) Three-dimensional (3D) reflection loss curves and (b-d) the corresponding 2D contour curves.

References

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