Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.

Preserving Spin Transition Properties of Iron-Triazole Coordination Polymers Within Silica-Based Nanocomposites

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Supplementary Information

1. DSC OF AN AMORPHOUS GEL AND CRYSTALLINE PRECIPITATE

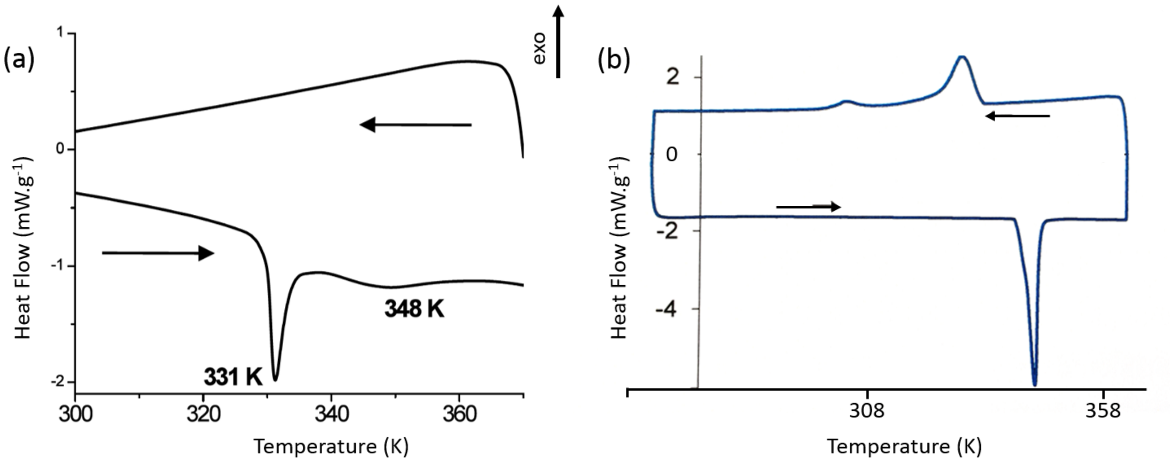

Figure S1. DSC curves performed at scan rate of 5K.min^{-1} upon a second cycle (a) for pink $[Fe(HTrz)_3]Br_2$ in glycerol and (b) for pink $[Fe(ATrz)_3](SO_4)$ crystalline precipitate in water.

2. XRPD OF THE SUSPENSION AT DIFFERENT TEMPERATURES

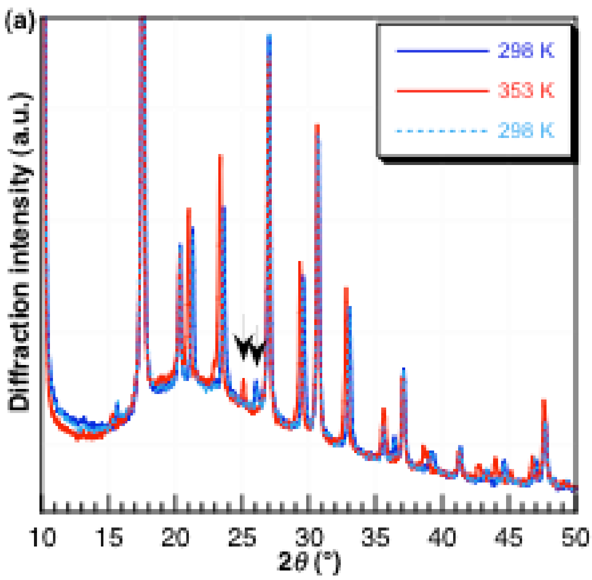

Figure S2. XRPD diffractograms of the 9 days-old Fe/ATrz/SO_4 suspension at room temperature (line blue), at T = 353 K (red) and at room temperature after the heating/cooling cycle (dashed line blue).

3. EFFECT OF SILICA PARTICLES ADDITION AND SURFACE CHEMISTRY

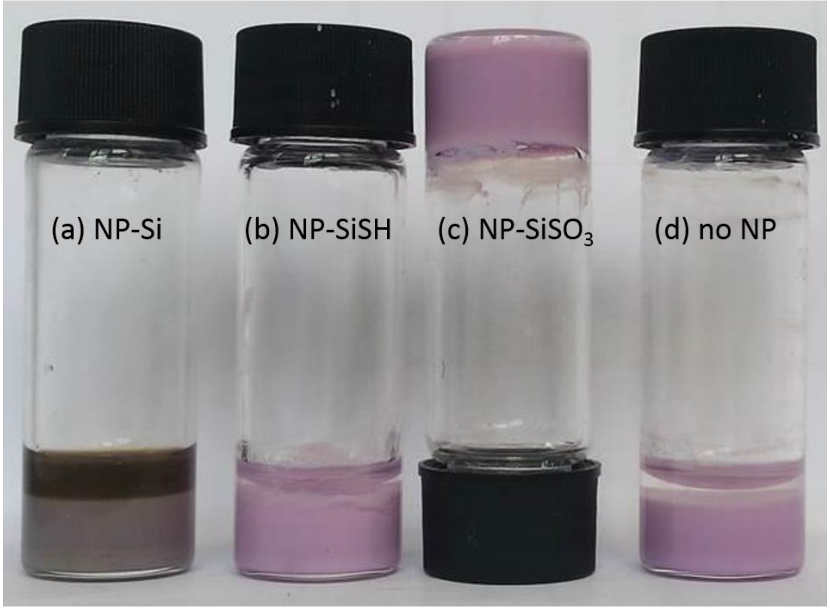

Figure S3. Macroscopic aspect of (a-c) NP-Si@Fe/ATrz/SO_4 composites with different surface chemistry of silica nanoparticles: (a) unmodified silica nanoparticles (NP-Si), (b) thiol-modified silica nanoparticles (NP-SiSH), and (c) sulfonate-modified silica particles (NP-$SiSO_3$. (d) Macroscopic aspect of Fe/ATrz/SO_4 suspension in absence of nanoparticles.

4. XRPD OF THE COMPOSITE SYSTEM AND OF ITS COMPONENTS

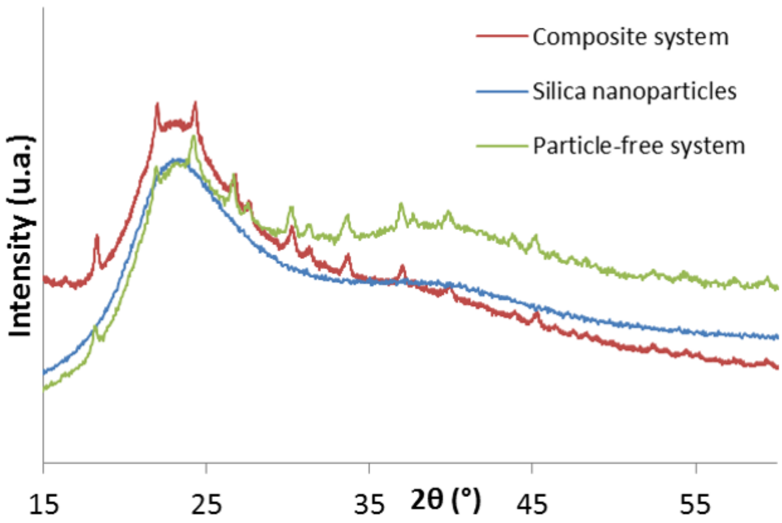

Figure S4. XRPD diffractograms of the 9 days-old NP-$SiSO_3$@Fe/ATrz/SO_4 composite (red), of the NP-$SiSO_3$ nanoparticles alone (blue) and of the 9 days-old Fe/ATrz/SO_4 suspension (green).

5. DSC OF Fe/ATrz/SO$_4$ SUSPENSION AND NP-SiSO$_3$@Fe/ATrz/SO$_4$ COMPOSITE

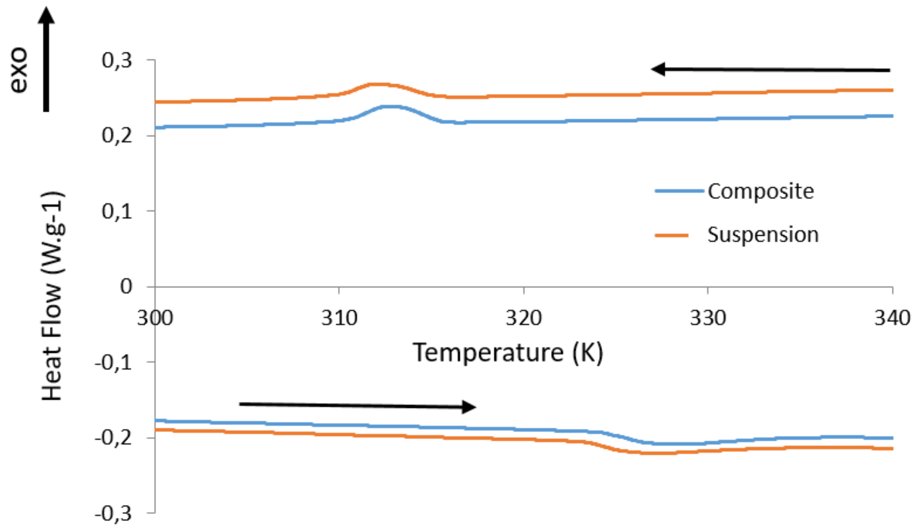

Figure S5. DSC profiles for NP-SiSO$_3$@Fe/ATrz/SO$_4$ composite (in blue) and Fe/ATrz/SO$_4$ suspension (in red) aged for 9 days in a mixture of water/glycerol at scan rate of 5 K.min^{-1} upon a second thermal cycle.

6. SUMMARY TABLE OF RESULTS FROM DSC AND MAGNETIC MEASUREMENTS FOR THE FOUR SYSTEMS

	Fe/ATrz/SO$_4$ Suspension	NP-SiSO$_3$@Fe/ATrz/SO$_4$ Composite	DRIED Suspension	DRIED Composite
T ↑ (K) [a] Or T_{max} ↑ (K)[b]	**322 (325)**	**330 (328)**	**343 (333)**	**343 (329)**
T ↓ (K)[a] Or T_{max}↓ (K)[b]	**311 (310)**	**316 (315)**	**329 (321)**	**329 (312)**
ΔT (K)[a] Or ΔT (K)[b]	**10 (15)**	**14 (13)**	**14 (12b)**	**14 (17)**
ΔH ↑ (kJ.mol^{-1}) Or ΔH ↑ (kJ.sample g^{-1})	**n.d.**	**12.5 (11.1)**	**14.5 (35.3)**	**14.5 (8.7)**
ΔH ↓ (kJ.mol^{-1}) Or ΔH ↑ (kJ.sample g^{-1})	**n.d.**	**11.9 (10.6)**	**14.5 (36.0)**	**14.5 (7.9)**

Table S1: Transition temperatures on warming and cooling from (a) magnetic and (b) DSC measurements, and thermodynamic parameters for Fe/ATrz/SO$_4$ suspension, NP-SiSO$_3$@ Fe/ATrz/SO$_4$ composite and the dried samples (n.d.: not determinated).

7. EFFECT OF DRYING AND RESOLVATION OF THE Fe/ATrz/SO_4 SUSPENSION

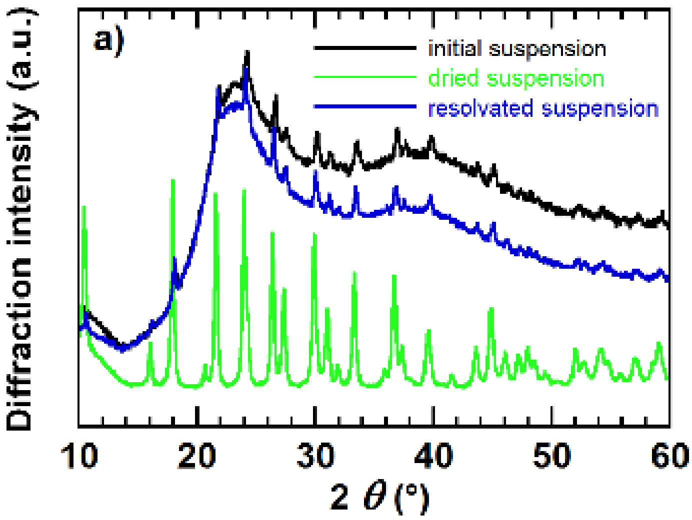

Figure S6. XRPD diffractograms of the initial Fe/ATrz/SO_4 suspension (in black), the dried suspension powder (in green) and the resolvated suspension (in blue).

8. DSC PROFILES OF THE DRIED AND RESOLVATED SAMPLES

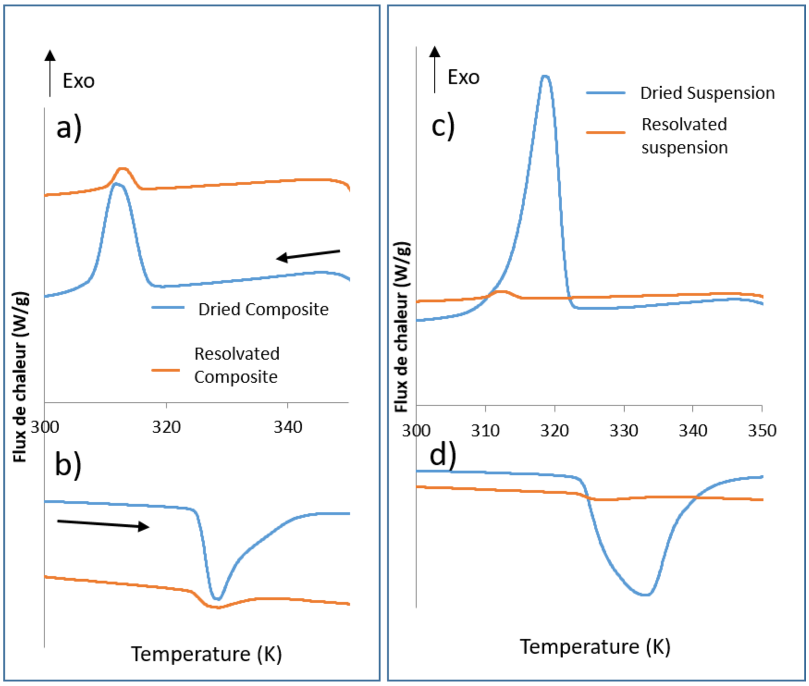

Figure S7. DSC Profiles for the dried (in blue) and resolvated (in red) samples of NP-$SiSO_3$@Fe/ATrzSO_4 composite or Fe/ATrz/SO_4 suspension studied on warming (b and d) and cooling (a and c) at variable temperatures with a scan rate of 5K.min^{-1} upon a second thermal cycle.