Supplementary Information for:

Reverse Micelle Synthesis and Downsizing Effects in Iron(III) Spin Crossover Materials

Sharon E. Lazaro,[a] Phimphaka Harding,[b] Upsorn Boonyang,[c] Shane G. Telfer,[d] Wasinee Phonsri,[e] Keith S. Murray[e] and David J. Harding[b]*

[a]Functional Inorganic Materials Laboratory, Department of Chemistry, College of Science, Central Luzon State University, Science City of Munoz, Nueva Ecija, 3120, Philippines.

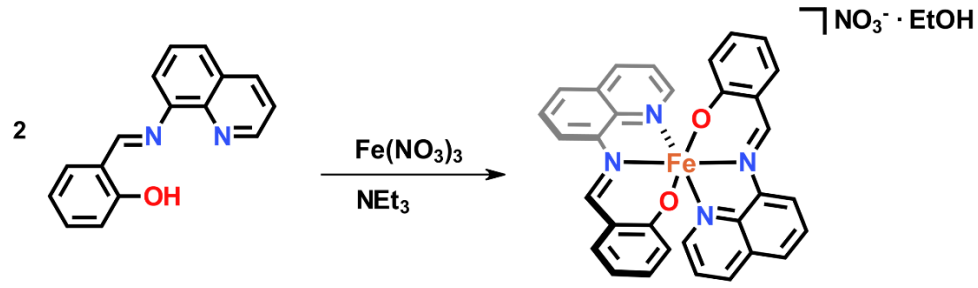
[b] School of Chemistry, Institute of Science, Suranaree University of Technology, Nakhon Ratchasima, 30000, Thailand.

[c]Walailak University, 222 Thaiburi, Thasala, Nakhon Si Thammarat 80160, Thailand.

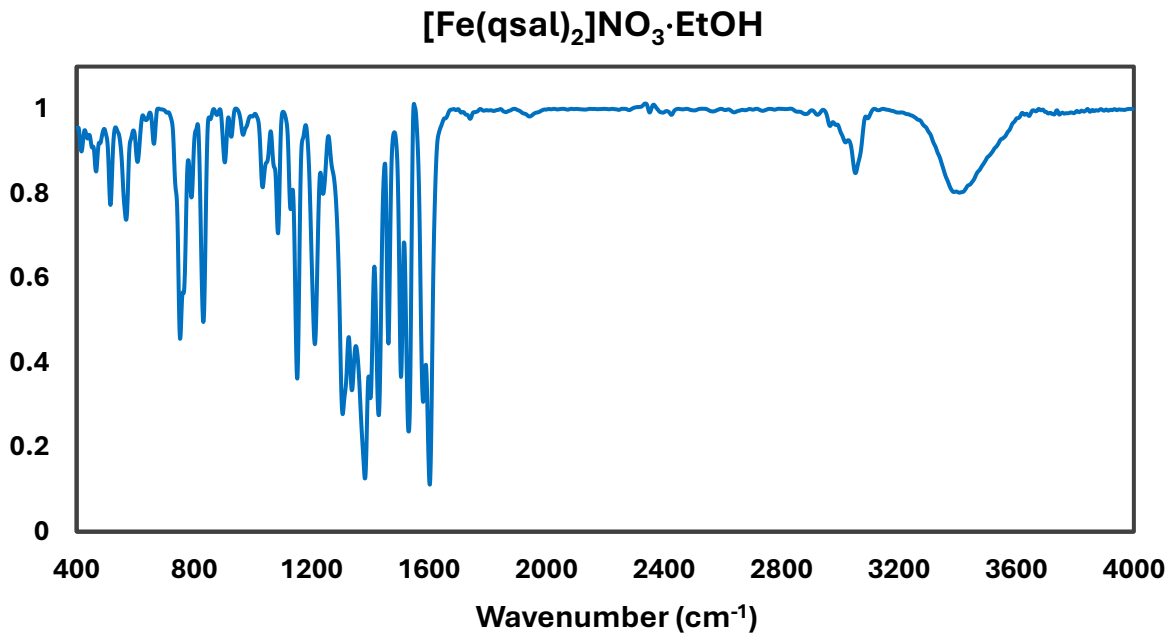
[d]MacDiarmid Institute for Advanced Materials and Nanotechnology, Institute of Fundamental Sciences, Massey University, New Zealand.

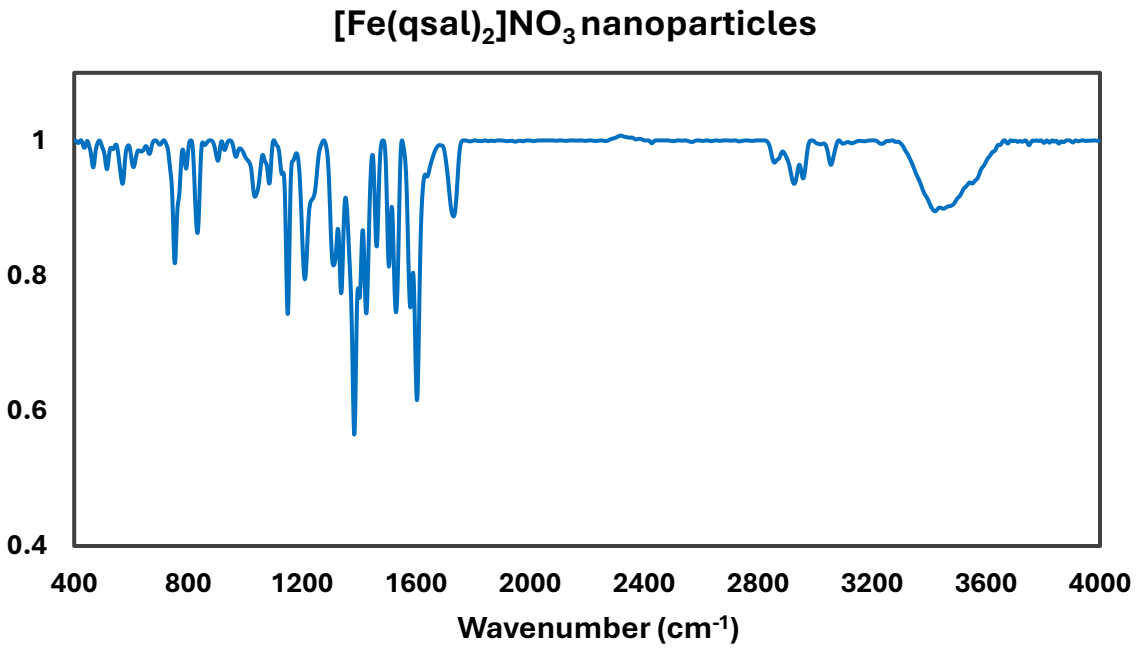
[e]School of Chemistry, Monash University, Clayton, Melbourne, Victoria, 3800, Australia.

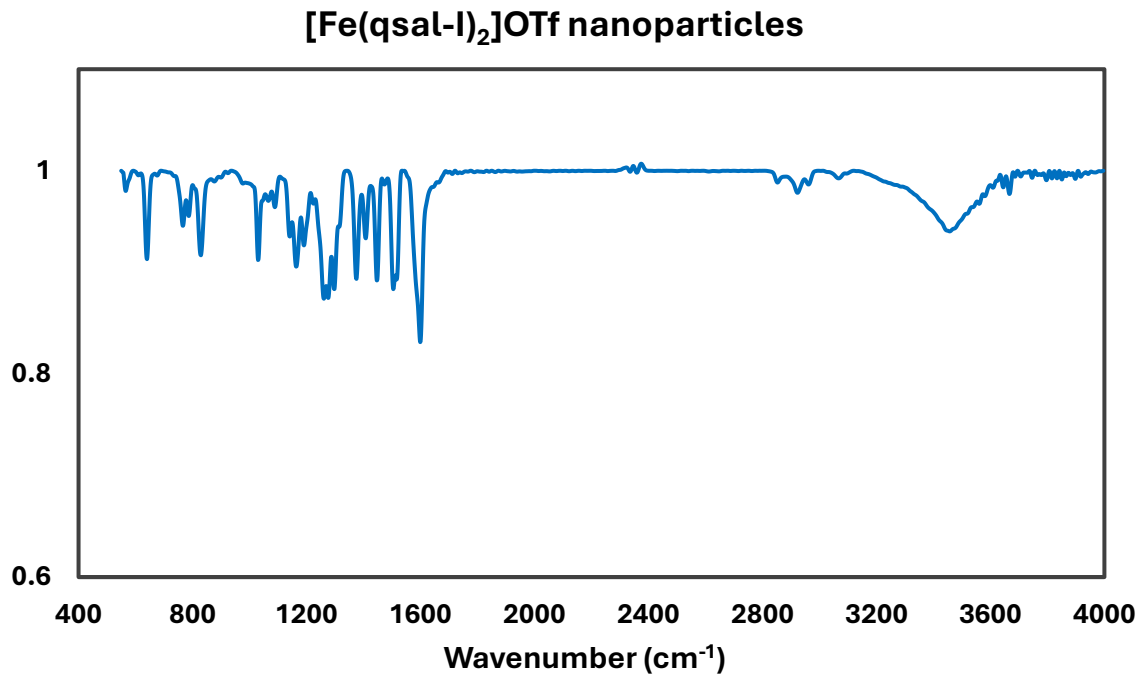
E-mail: selazaro@clsu.edu.ph, phimphaka@sut.ac.th and david@sut.ac.th



Scheme S1. Synthesis of $[Fe(qsal)_2]NO_3 \cdot EtOH$.







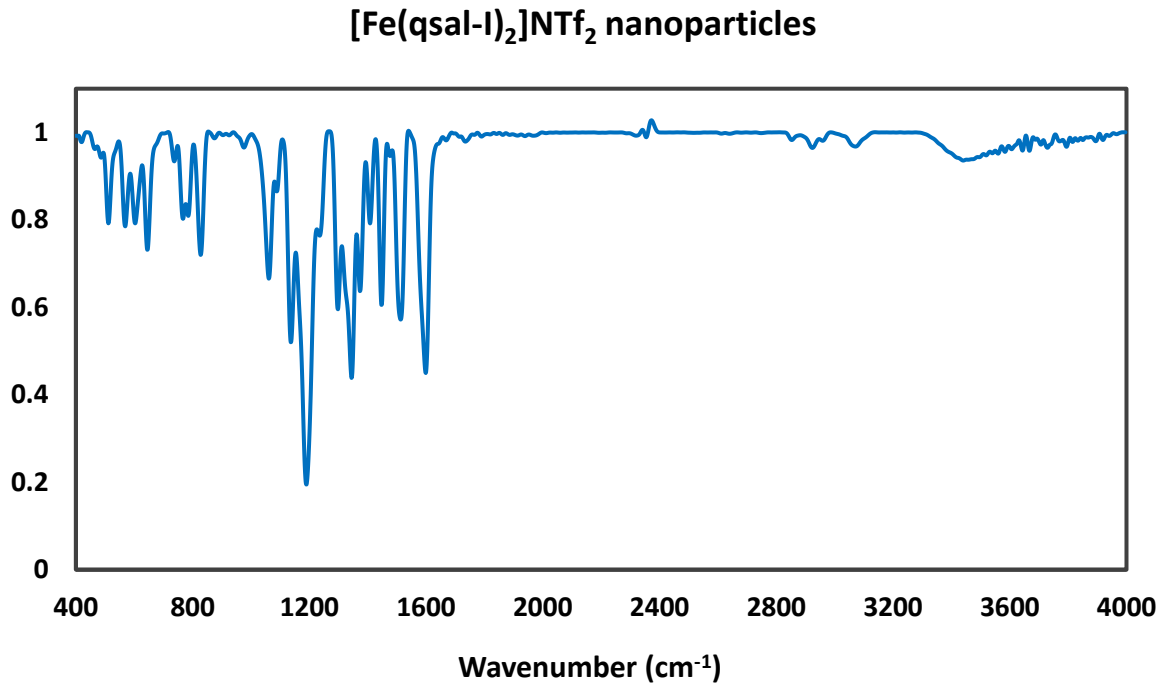
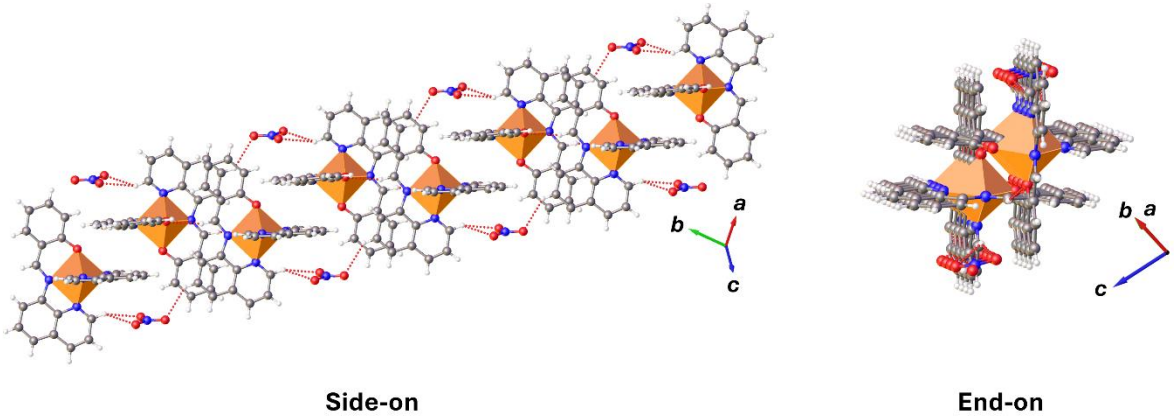


Figure S1. IR spectra of $[Fe(qsal)_2]NO_3 \cdot EtOH$, and the nanoparticles of $[Fe(qsal)_2]NO_3$ **2**, $[Fe(qsal\text{-}I)_2]OTf$ **3** and $[Fe(qsal\text{-}I)_2]NTf_2$ **4**.



Side-on End-on

Figure S2. View of the 1D π-π chains in $[Fe(qsal)_2]NO_3 \cdot EtOH$.

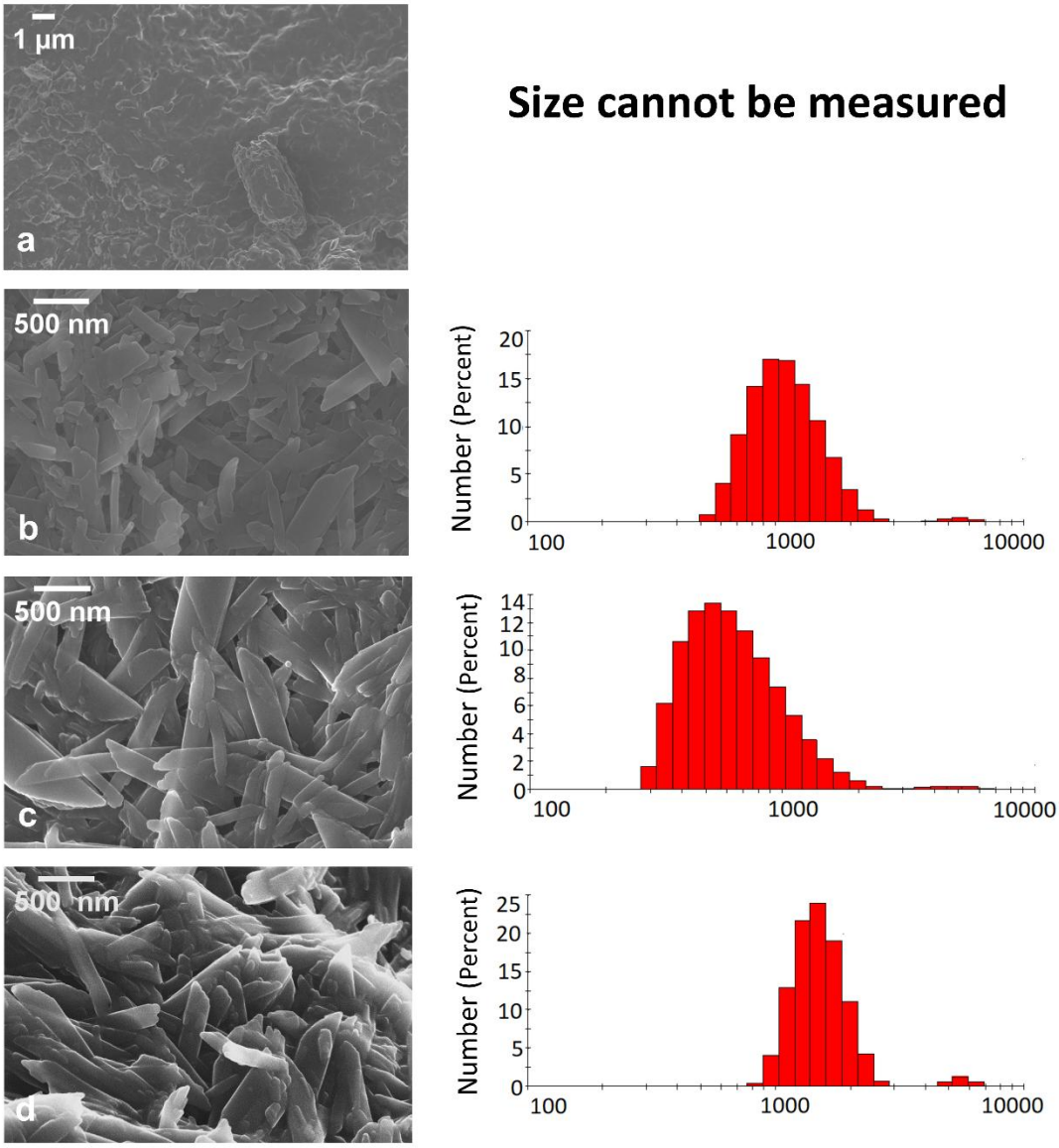


Figure S3. FESEM images and DLS size distribution graph of **2** prepared at a) 1 b) 12 c) 24 and d) 48 hrs reaction time.

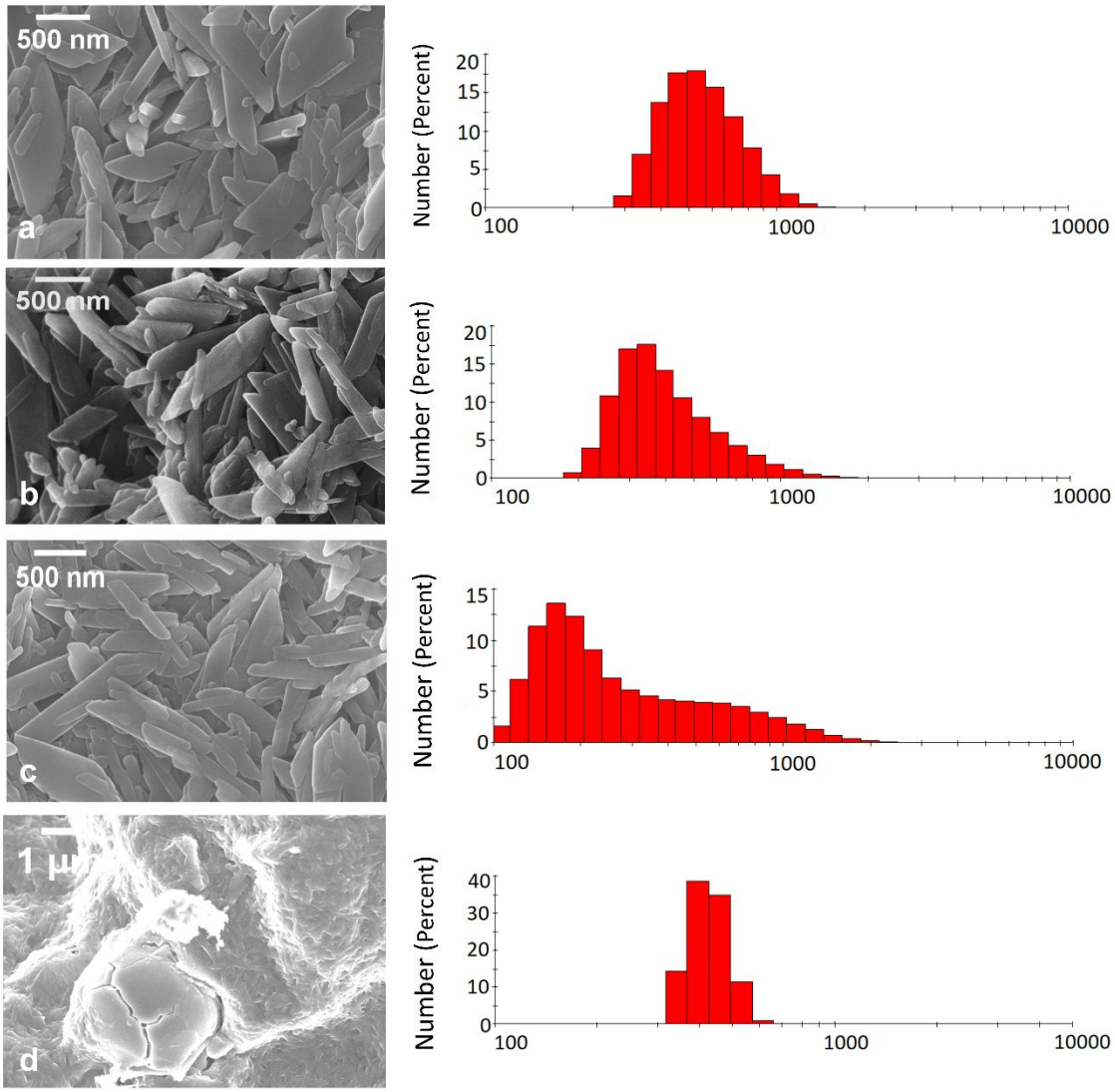
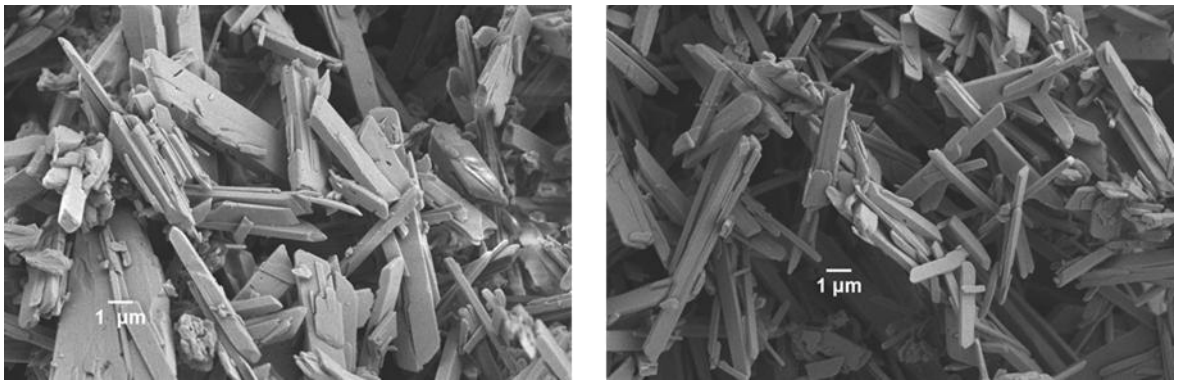


Figure S4. FESEM images and DLS size distribution graph of **2** using a) 0.5 b) 1.0 c) 2.0 and d) 4.0 g NaAOT in both the organic and polar phases.



a **b**

Figure S5. FESEM images of **4** synthesized for **a**) 2 and **b**) 4 hrs.

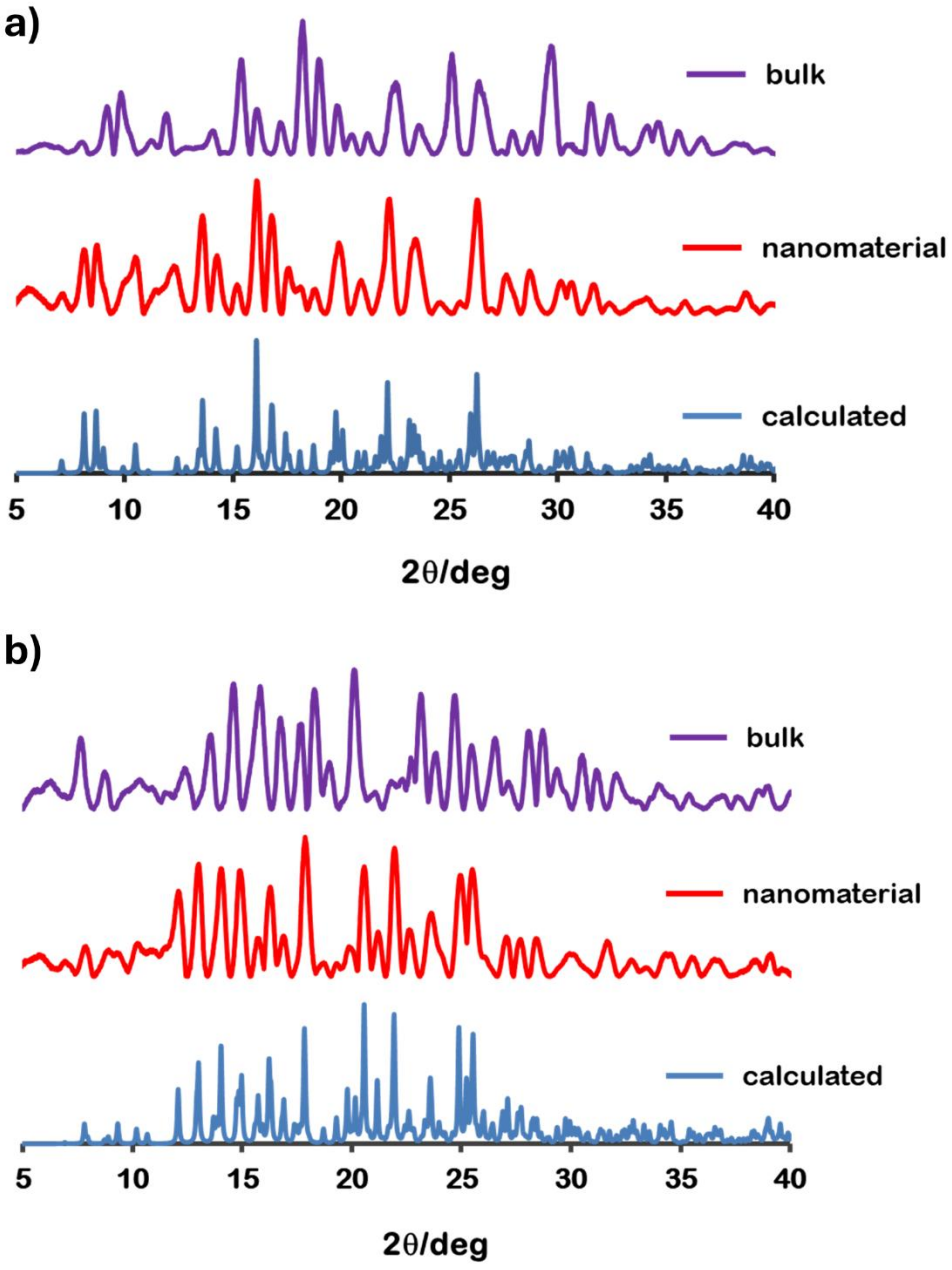


Figure S6. Room temperature PXRD diffractograms of the bulk and nanomaterials of **a**) [Fe(qsal-I)$_2$]OTf and b) [Fe(qsal-I)$_2$]NTf$_2$ calculated from the single crystal structure at 293 K.

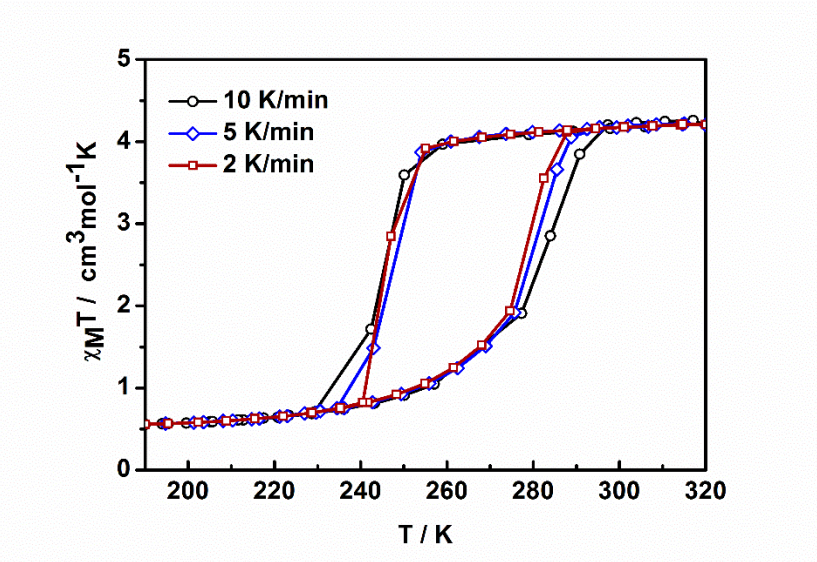


Figure S7. $\chi_M T$ versus T plot of the bulk and nanomaterials of [Fe(qsal-I]NTf_2 at different cycling rates.

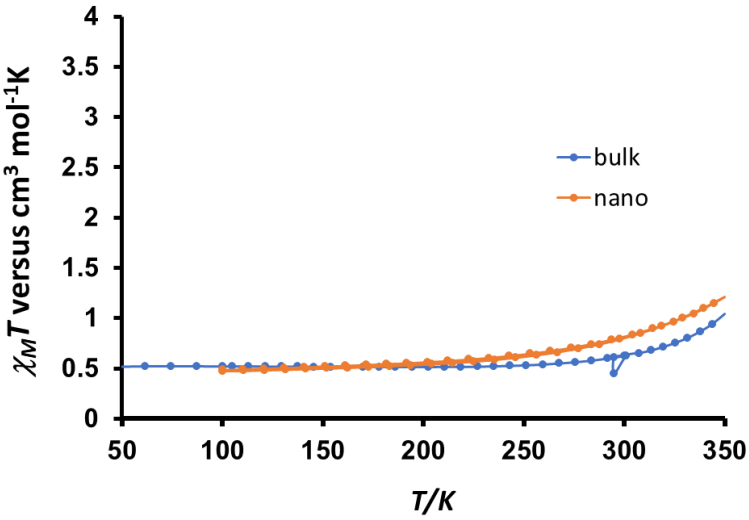


Figure S8. $\chi_M T$ versus T plot of **1** and **2**.