

Supporting Information

A metal–organic gel based on Fe(III) and bi-pyridine ligand for template synthesis of core/shell composite polymer nanowires

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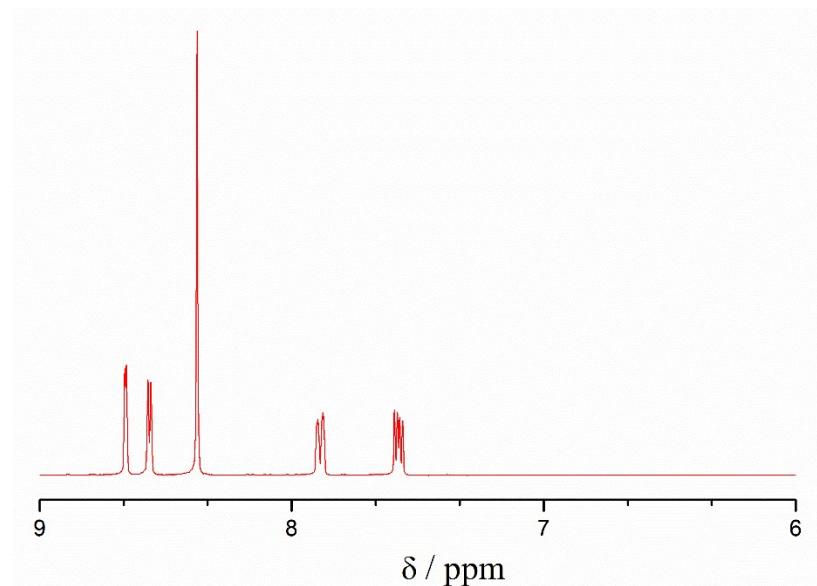


Fig. S1 ¹H NMR specturm of ligand 3-BPT

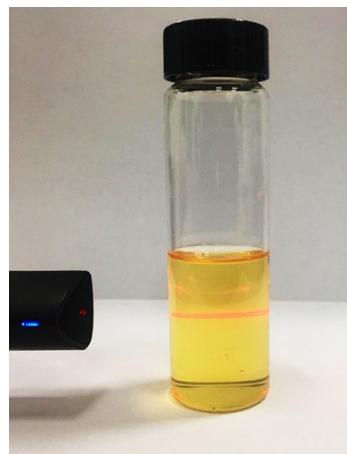


Fig. S2 Tyndall effect of dilute solution(0.8 mg/mL)

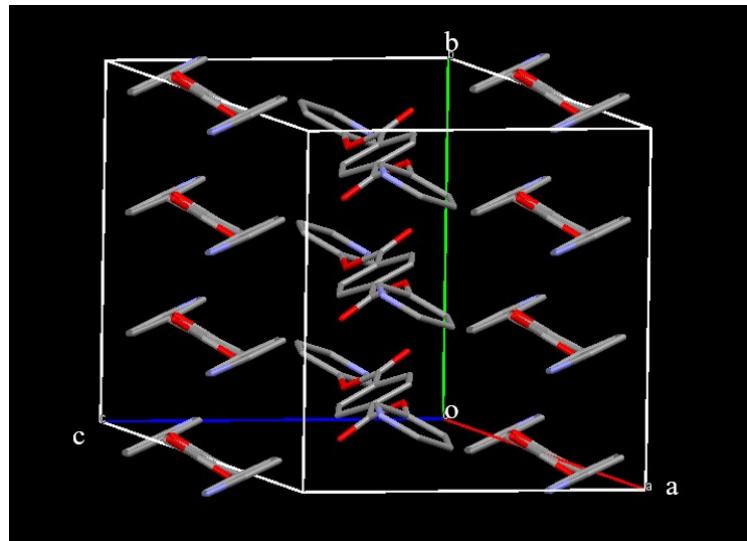


Fig. S3 3D model of the unit cell of 3-BPT (monoclinic crystal).

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Bond precision: C-C = 0.0055 Å          Wavelength=1.54184

Cell:           a=17.958(2)      b=11.2526(11)      c=10.7831(12)
                alpha=90          beta=100.308(13)     gamma=90
Temperature:   100 K

                    Calculated          Reported
Volume          2143.8(4)        2143.8(4)
Space group    P 21/c          P 1 21/c 1
Hall group     -P 2ybc         -P 2ybc
Moietiy formula C18 H12 N2 O4  C18 H12 N2 O4
Sum formula    C18 H12 N2 O4  C18 H12 N2 O4
Mr              320.30          320.30
DX,g cm-3     1.489           1.489
Z               6                6
Mu (mm-1)      0.892           0.892
F000           996.0           996.0
F000'          999.34
h,k,lmax       22,13,13        21,13,13
Nref            4231            4077
Tmin,Tmax     0.852,0.974     0.602,1.000
Tmin'          0.837

Correction method= # Reported T Limits: Tmin=0.602 Tmax=1.000
AbsCorr = MULTI-SCAN

Data completeness= 0.964          Theta(max)= 72.260
R(reflections)= 0.0573( 1290)    wR2(reflections)= 0.2323( 4077)
S = 1.030                      Npar= 325

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Fig. S4 Unit cell parameters of ligand 3-BPT.

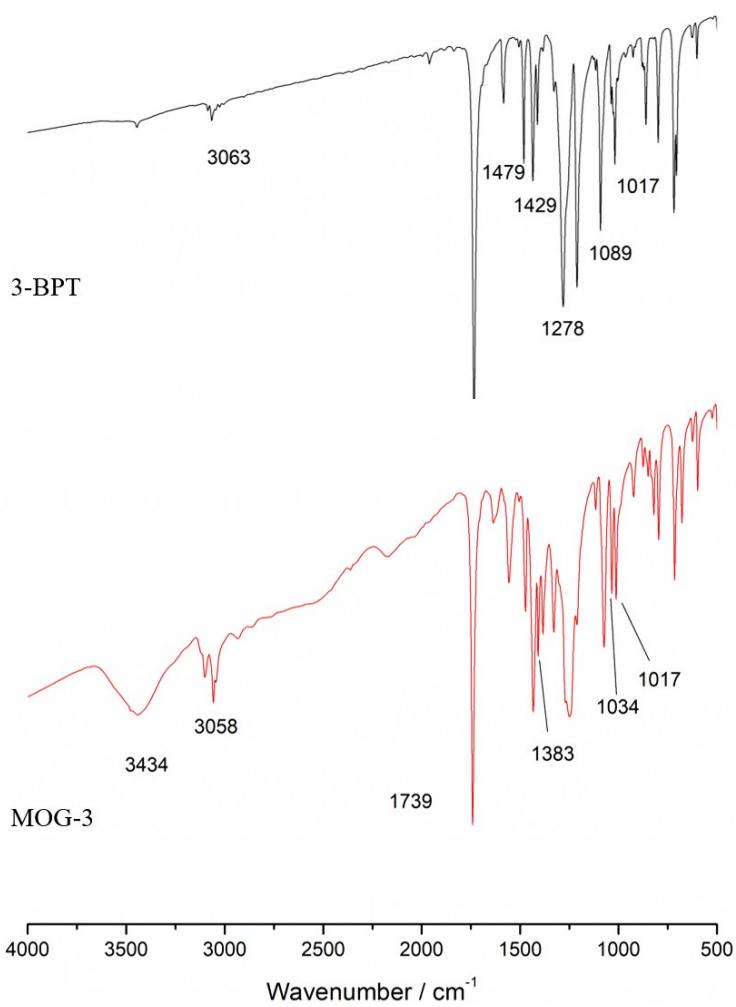


Fig. S5 Infrared spectra of ligand 3-BPT and MOG-3.

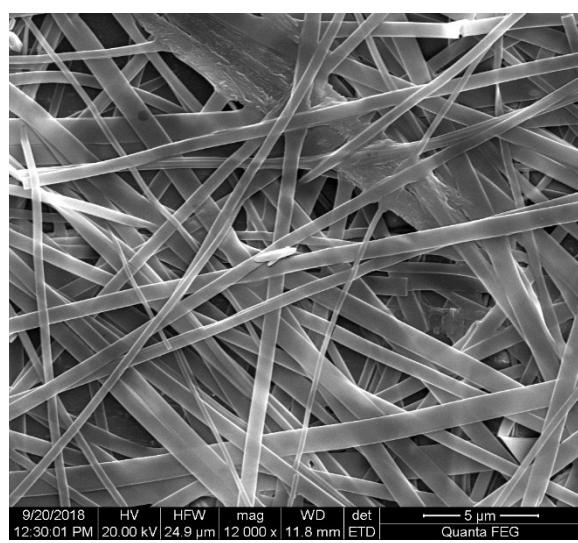


Fig. S6 SEM image of the Fe(II) MOG

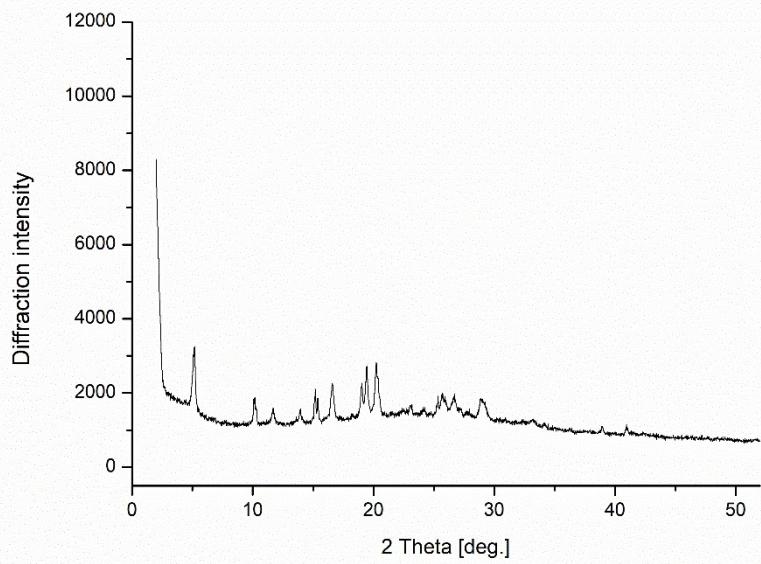


Fig. S7 PXRD pattern of the Fe(II) MOG

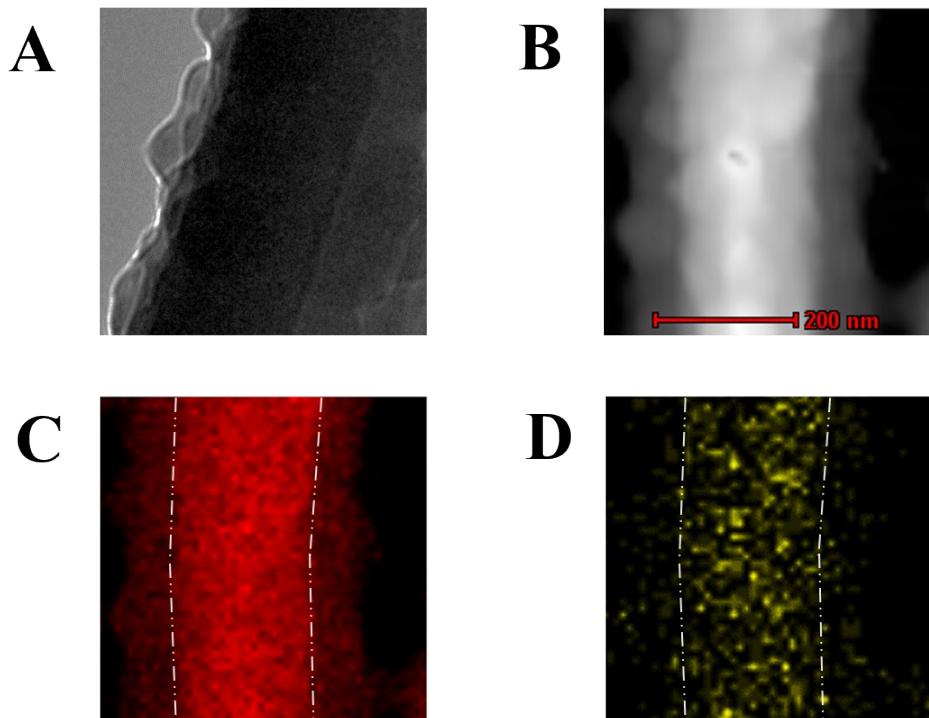


Fig. S8 (A) TEM image and (B) STEM image of a single nanowire, and its EDS mapping of (C) C and (D) Fe in core-shell structure

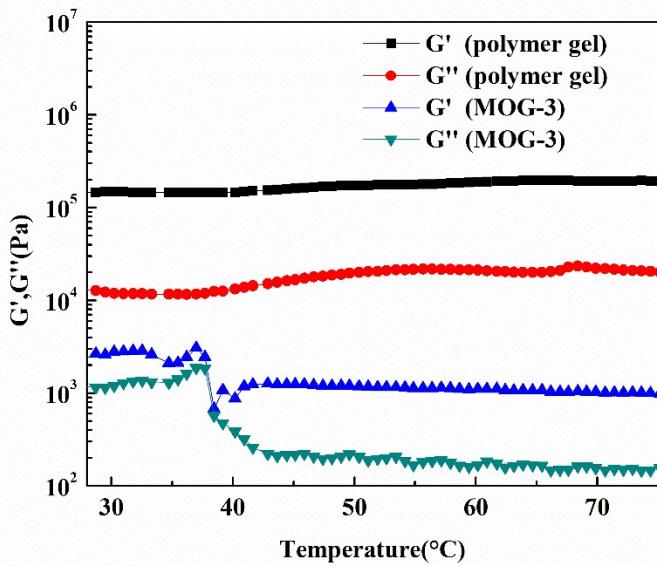


Fig. S9 Temperature dependence of the storage moduli (G') and the loss moduli (G'') of the polymer gel and the MOG-3.

Table S1 Gelation ability of the ligand 3-BPT with various metal salts.

Entry	Metal salt	Status ^{a)}
1	$\text{Cu}(\text{NO}_3)_2$	P
2	$\text{Ni}(\text{NO}_3)_2$	PG
3	$\text{Co}(\text{NO}_3)_2$	P
4	$\text{Zn}(\text{NO}_3)_2$	P
5	$\text{Fe}(\text{NO}_3)_3$	G
6	AgNO_3	P

^{a)} G=stable gel, PG=partial gelation, P=precipitate; Solvent: THF; complex concentration: 17 mg/mL.

Table S2 Zeta potential of the nanoparticles.

Sample ^{a)}	Mean zeta potential(mV)
3-BPT	-8.52
S-1 ^{b)}	11.15
S-2 ^{b)}	13.52
S-3 ^{b)}	15.02

^{a)} Solvent: THF; complex concentration: 0.5 mg/mL

^{b)} S-1: MR=1/1, S-2: MR=1/2, S-3: MR=1/3

Table S3 Gelation ability of the Fe(III) – organic complex in various solvents.

Entry	Solvent	Status ^{a)}
1	THF	G
2	ethanol	P
3	acetone	P
4	butanone	PG
5	DMF	S
6	n-butanol	P
7	ethyl acetate	P
8	acetonitrile	PG
9	chloroform	P
10	DMSO	S

^{a)} G=stable gel, PG=partial gelation, P=precipitate, S=soluable; MR=1/3; complex concentration: 17 mg/mL.