Electronic Supplementary Material (ESI) for Polymer Chemistry.

Octavinylsilsesquioxane-based luminescent nanoporous inorganic-organic hybrid polymers constructed by Heck coupling reaction

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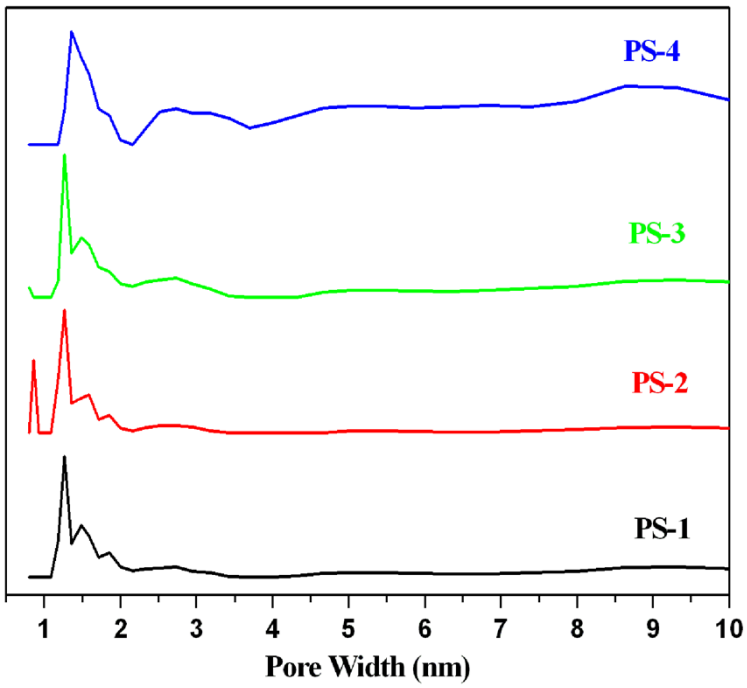

Fig. S1 The pore size distribution of **PS-n** (1-4) calculated by the NLDFT method.

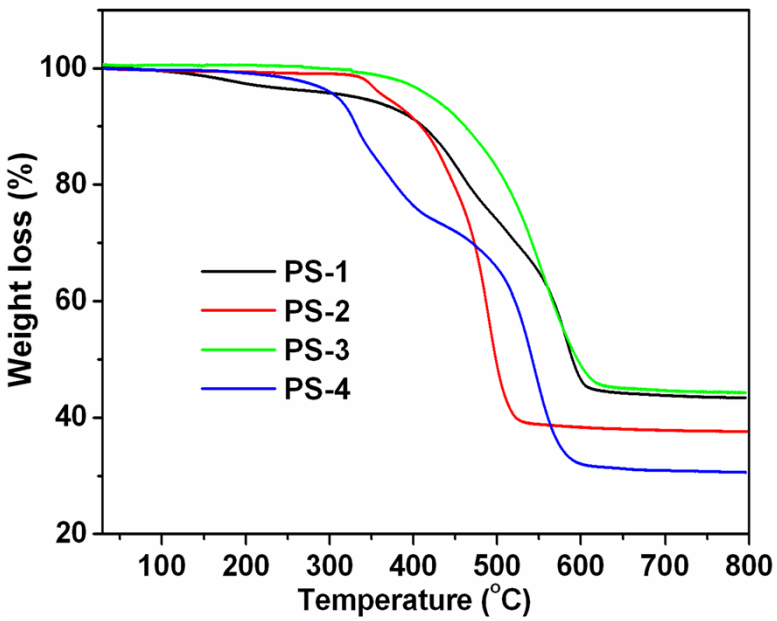

Fig. S2 TG curves for **PS-n** (1−4) under air atmosphere.

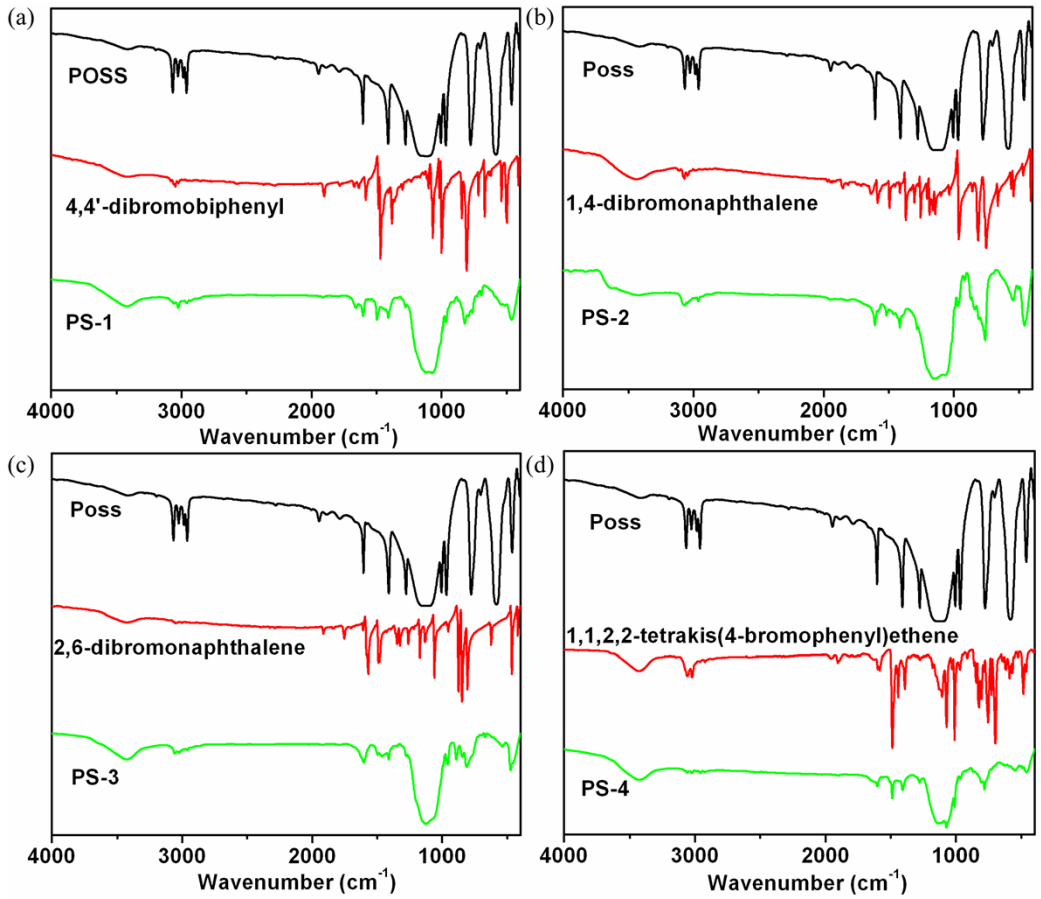

Fig. S3 FT-IR spectra of the monomers and **PS-n**: (a) monomers and **PS-1**; (b) monomers and **PS-2**; (c) monomers and **PS-3**; (d) monomers and **PS-4**.

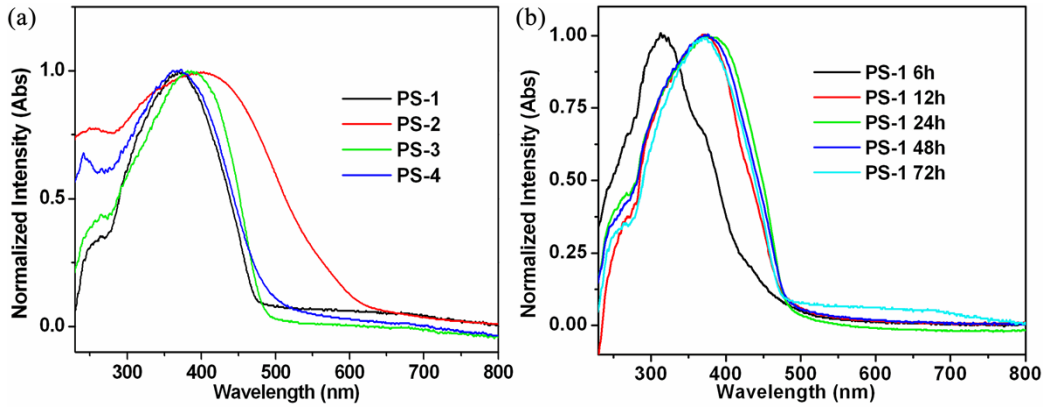

Fig. S4 (a) Solid state UV-vis absorption spectra for **PS-n** (1−4); (b) Solid state UV-vis absorption spectra for **PS-1-n** (n = 6, 12, 24, 48, 72 h).

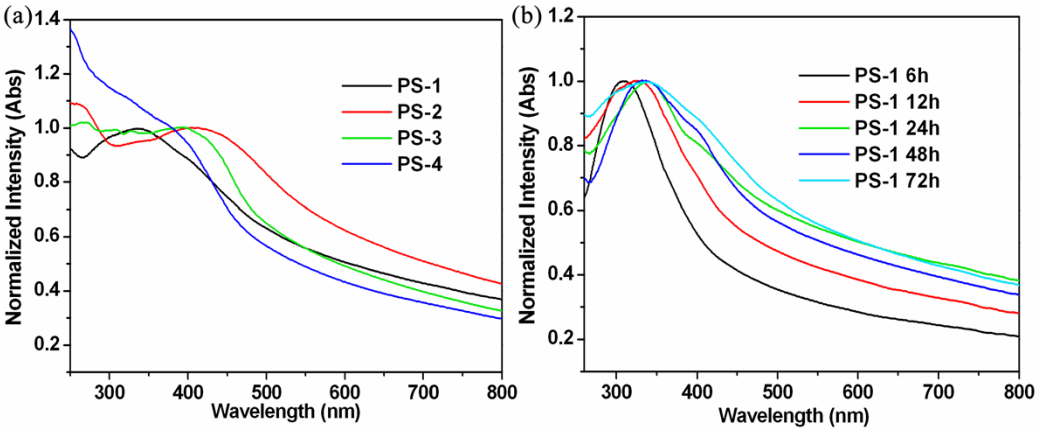

Fig. S5 (a) UV-vis absorption spectra for **PS-n** (1−4) in ethanol; (b) Solid state UV-vis absorption spectra for **PS-1-n** (n = 6, 12, 24, 48, 72 h) in ethanol.

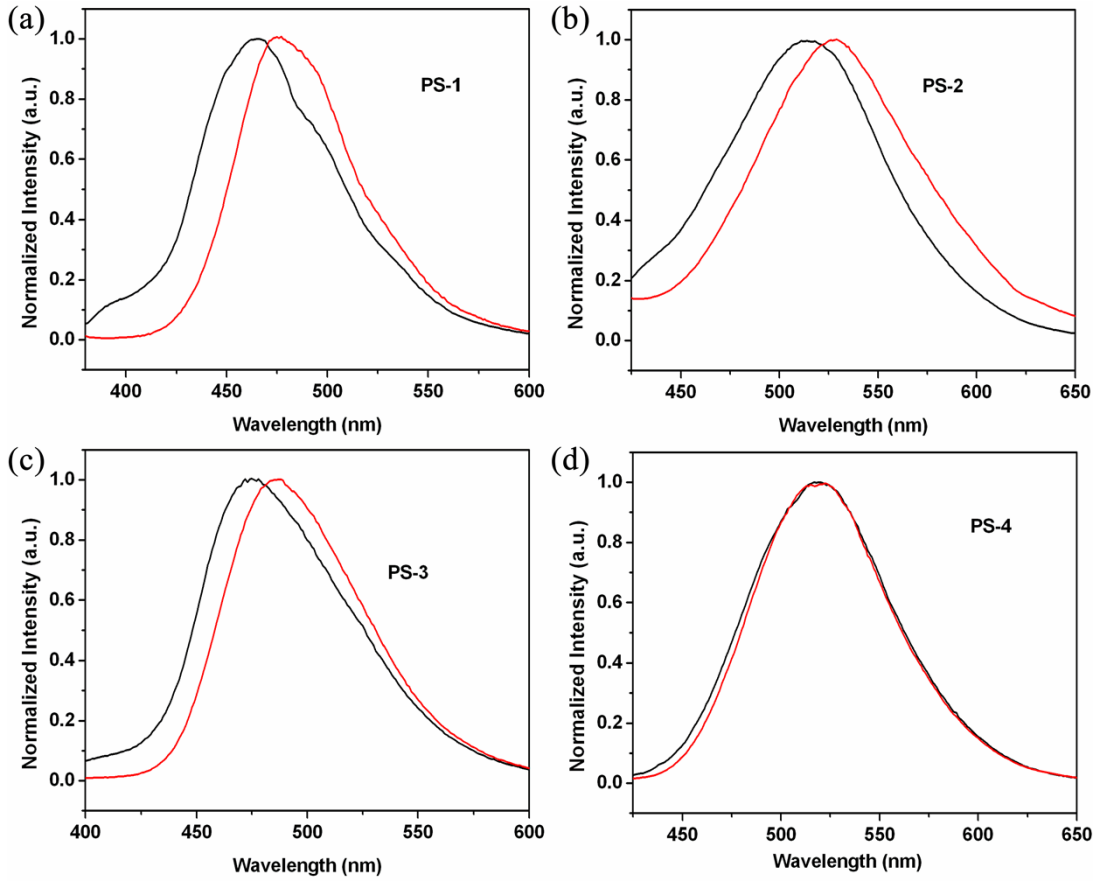

Fig. S6 Luminescent spectra of **PS-n** (1−4) in the solid state (red) and ethanol (black).

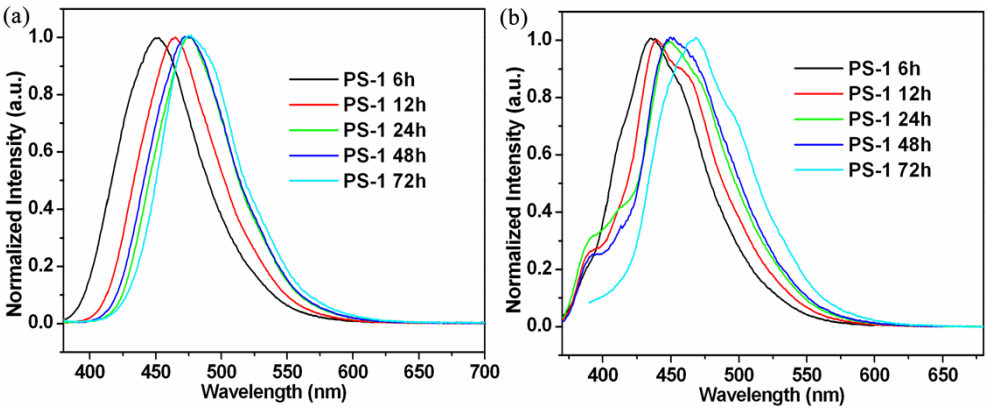

Fig. S7 Luminescent spectra of **PS-1-n** (n = 6, 12, 24, 48, 72 h) in the solid state (left) and ethanol (right).

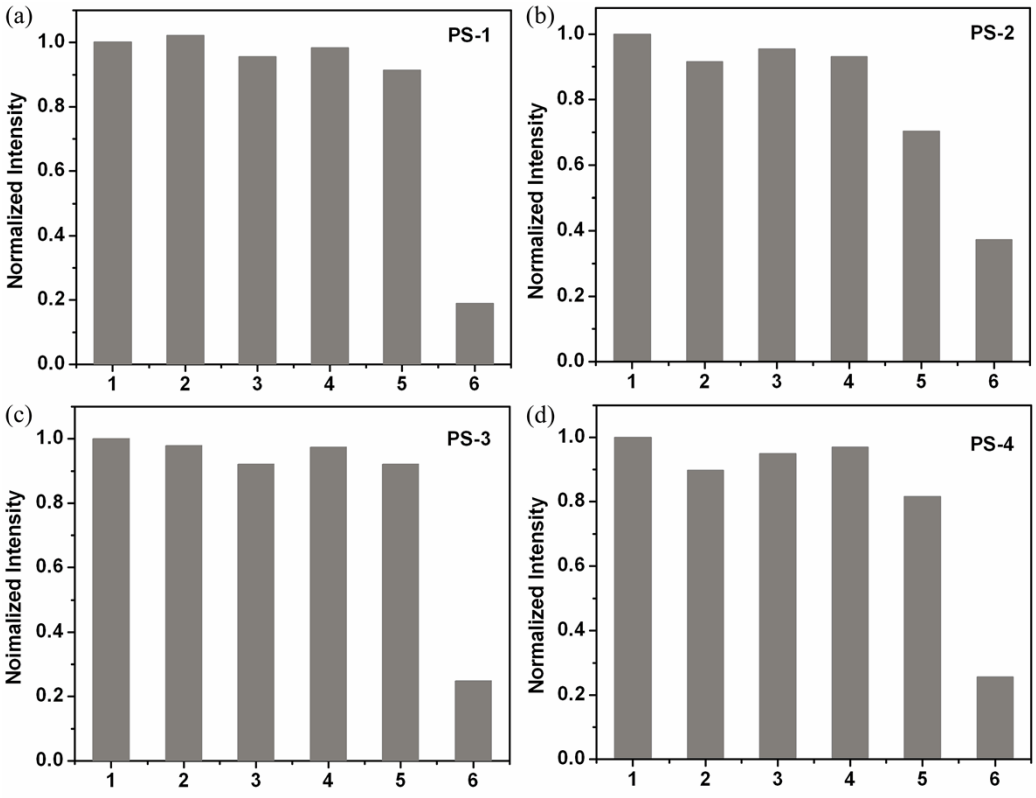

Fig. S8 The normalized luminescent intensity of **PS-n** (a: **PS-1**, b: **PS-2**, c: **PS-3**, d: **PS-4**) in ethanol (0.05 mg/mL) upon addition of ca. 46.5 μM different analytes (1: original, 2: 2,4-dinitrochlorobenzene, 3: 2,4-dinitrotoluene, 4: 4-nitrotoluene, 5: 4-nitrophenol, 6: picric acid).

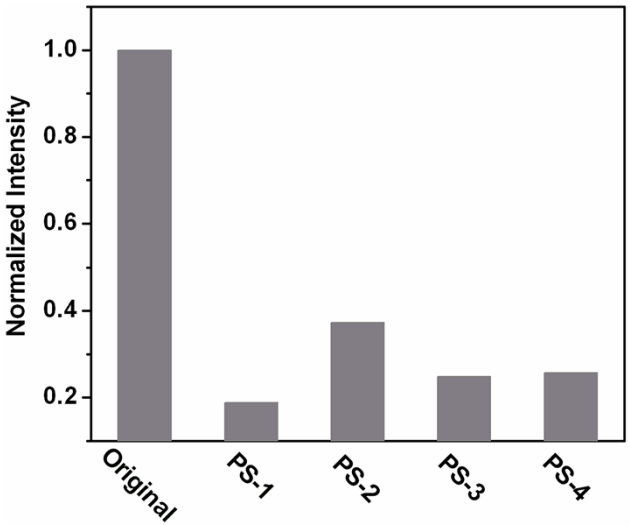

Fig. S9 The normalized luminescent intensity of **PS-n** (1−4) in ethanol (0.05 mg/mL) upon addition of ca. 46.5 μM PA.

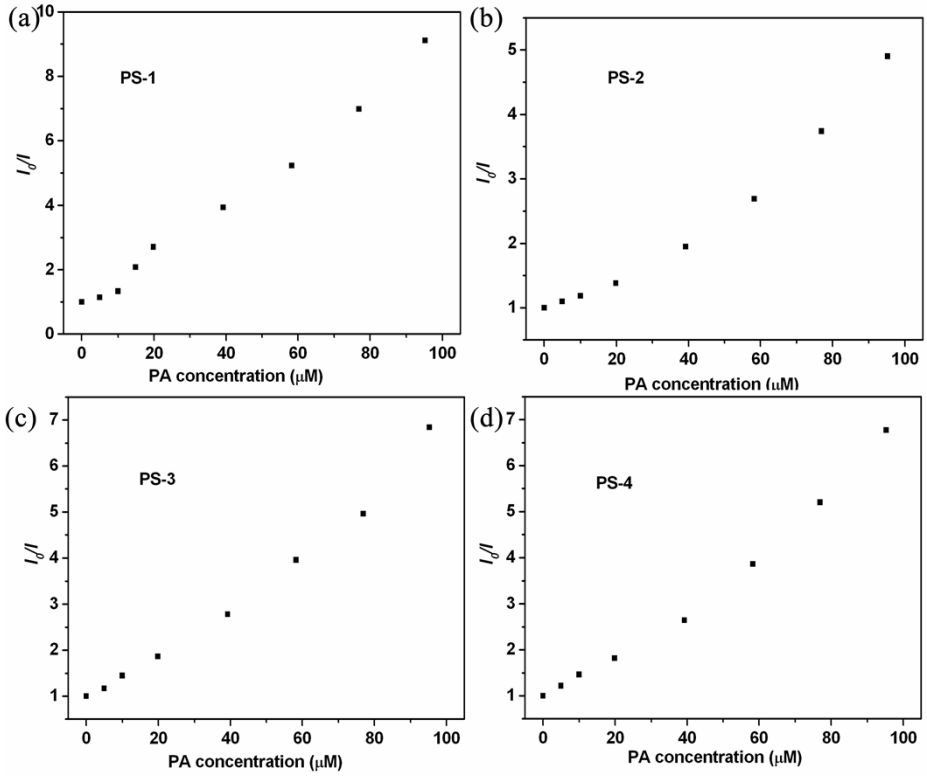

Fig. S10 The relative Stern-Volmer plots of relative PL intensity (I_0/I) versus TNP.

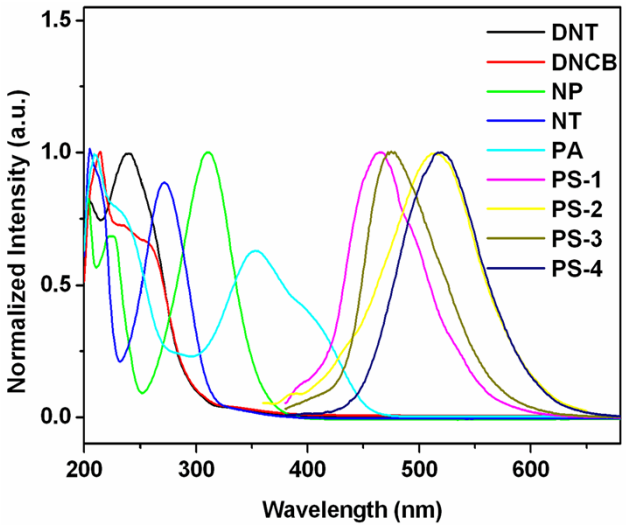

Fig. S11 Spectral overlap between the absorption spectra of analytes and the emission spectra of PS-n in ethanol.

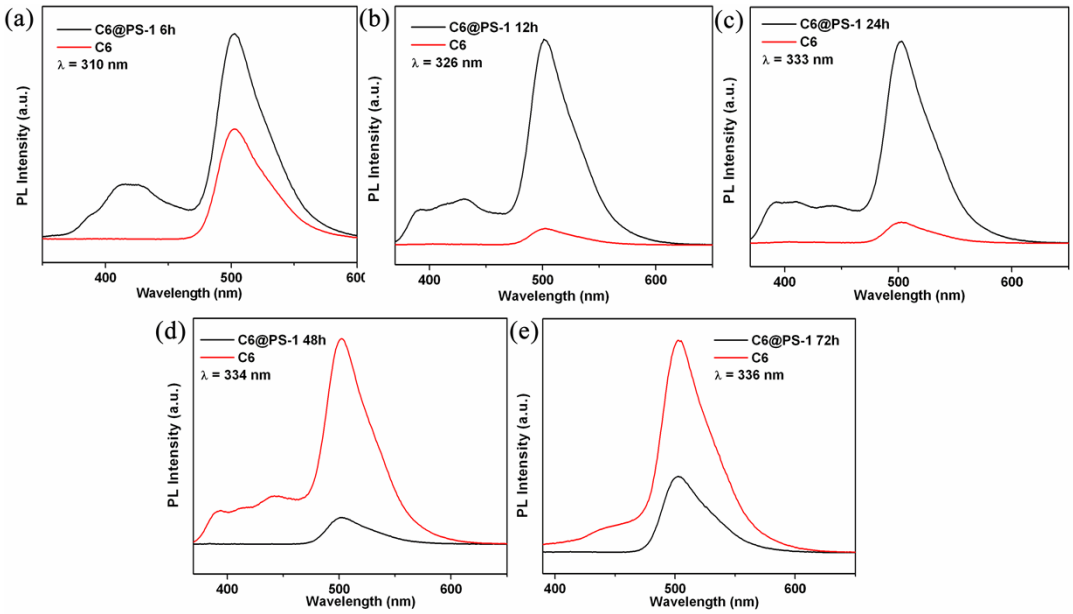

Fig. S12 Comparison emissions of C6 with and without the addition of **PS-1-n** in ethanol solution.

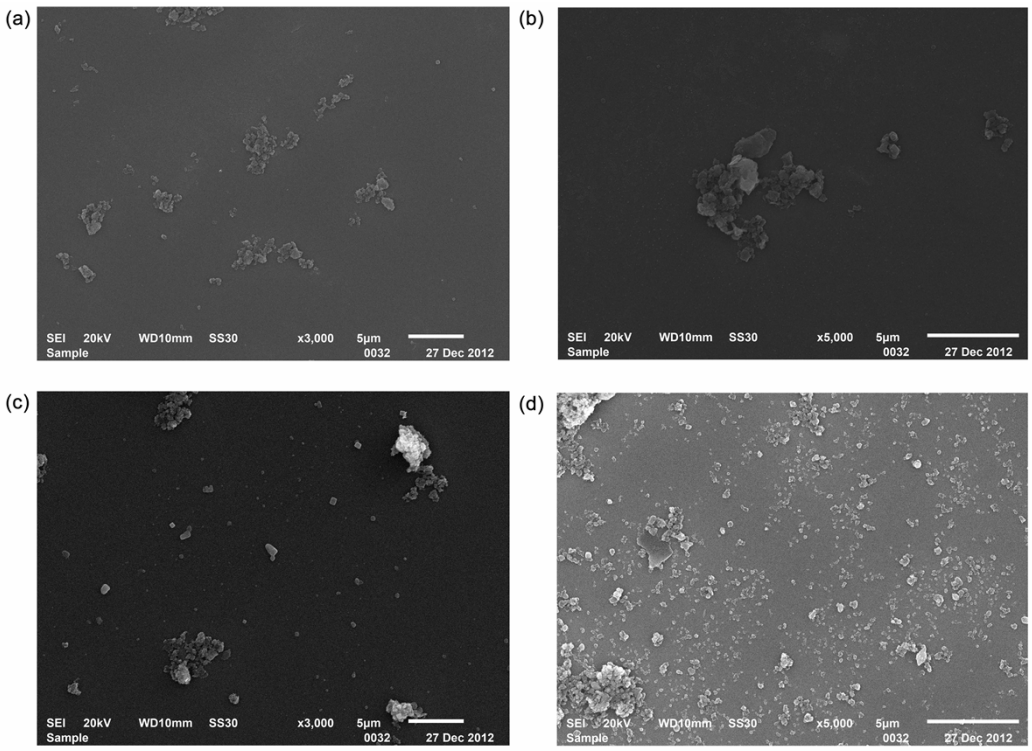

Fig. S13 Scanning electron microscope images for **PS-1** (a), **PS-2** (b), **PS-3** (c) and **PS-4** (d) at different magnifications. The samples were sputter-coated with gold before analysis.

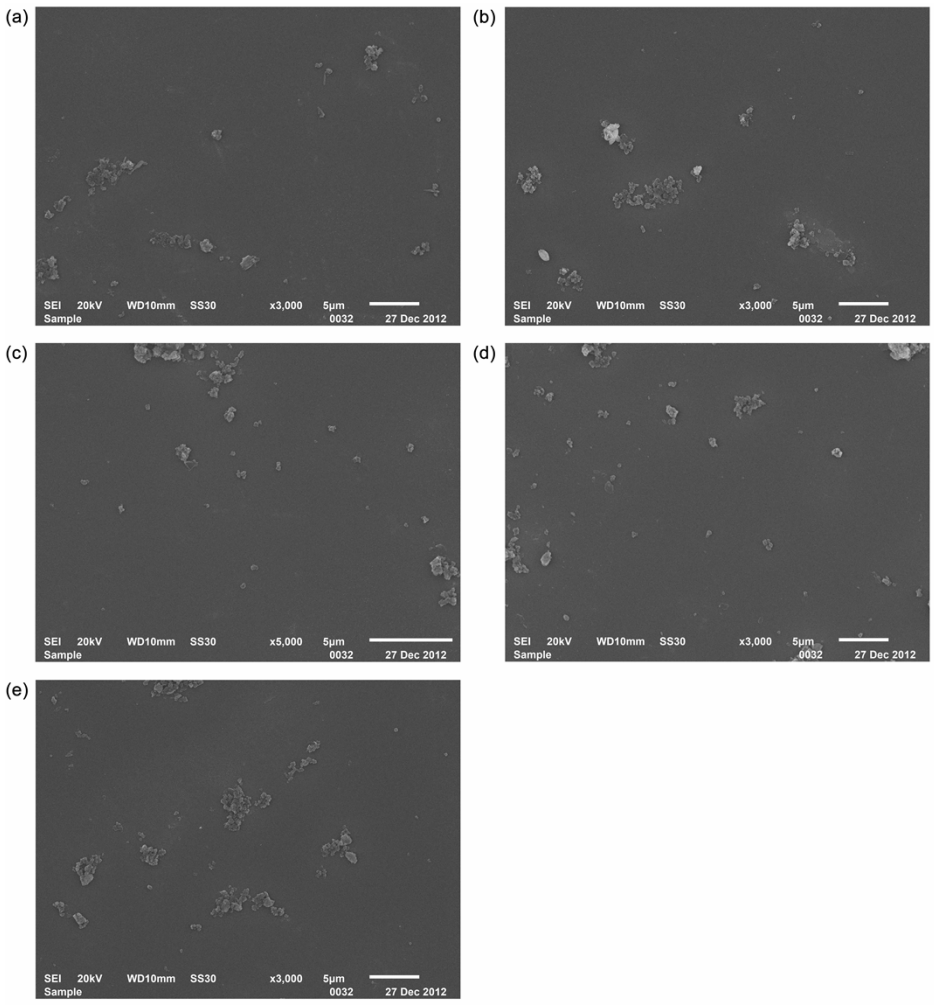

Fig. S14 Scanning electron microscope images for **PS-1** (6 h) (a), **PS-1** (12 h) (b), **PS-1** (24 h) (c), PS-1 (48 h) (d) and **PS-1** (72 h) (e) at different magnifications. The samples were sputter-coated with gold before analysis.

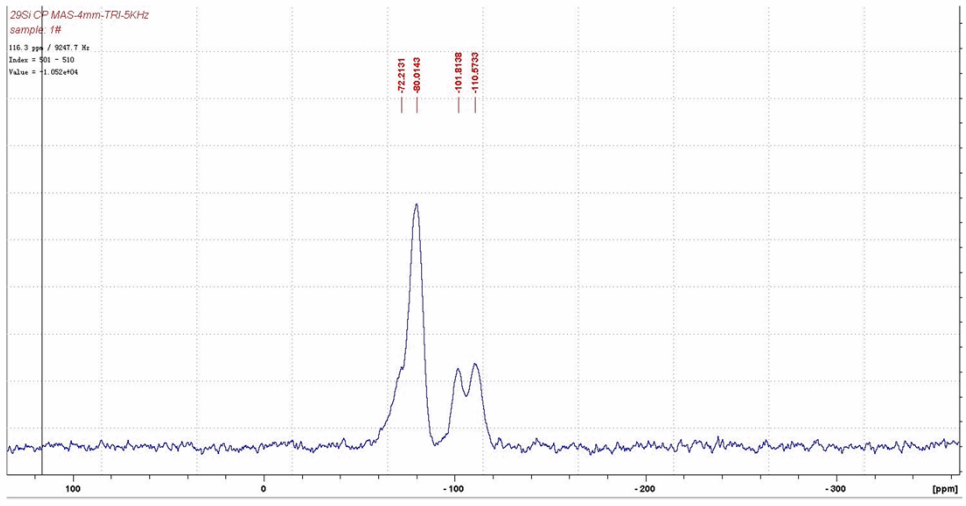

Fig. S15 The ^{29}Si NMR of **PS-1**.

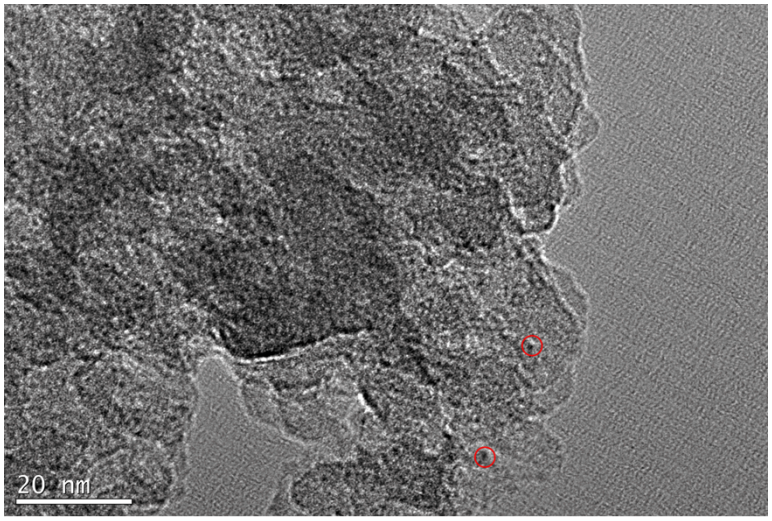

Fig. S16 The TEM image of **PS-1**. The red round cycles show the SiO_2 particles.

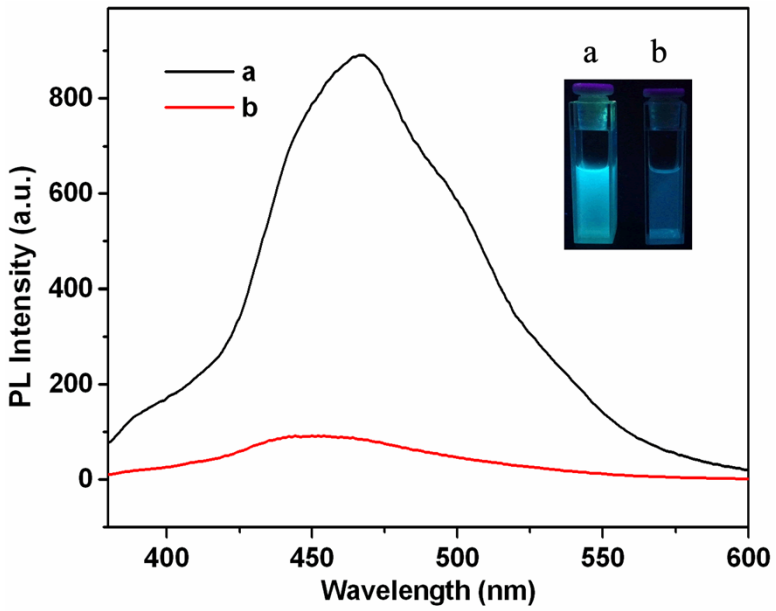

Fig. S17 Comparison emissions of **PS-1** (in ethanol solution) synthesized using our condition (a) and Feng's condition (b)**.**

Table S1 EDX analyses of **PS-n** (1-4).

	wt. %				at. %			
PS-n	C	Si	Br	Pd	C	Si	Br	Pd
PS-1	40.65	11.11	0.19	0.48	66.54	6.21	0.10	0.05
PS-2	44.20	5.22	13.68	0.14	71.58	3.62	3.33	0.03
PS-3	46.03	10.58	1.72	0.45	65.44	6.43	0.37	0.07
PS-4	39.65	14.28	3.8	0.18	62.78	9.67	0.90	0.06

Table S2 Porous properties of **PS-n** (1-4).

PS-n	S_{BET}/m^2 g^{-1}	$S_{Langmuir}$/ m^2 g^{-1}	S_{micro}/ m^2 g^{-1}	V_{total}[a]/ cm^3 g^{-1}	V_{micro}[b]/ cm^3 g^{-1}
PS-1	550.61	752.32	212.28	0.543	0.093
PS-2	372.79	502.98	185.23	0.319	0.084
PS-3	685.63	938.08	182.85	0.760	0.077
PS-4	393.95	544.34	57.85	0.608	0.021

[a] Total volume at $P/P_o = 0.97$.

[b] The micropore volume calculated from *t*-plot method.