Supporting Information

Controllable fluorescence *via* tuning the *m*-substituents of added aromatic molecules in a pyrene derivative-decorated porous skeleton

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Table S1 The details of the reagents used in the synthesis.
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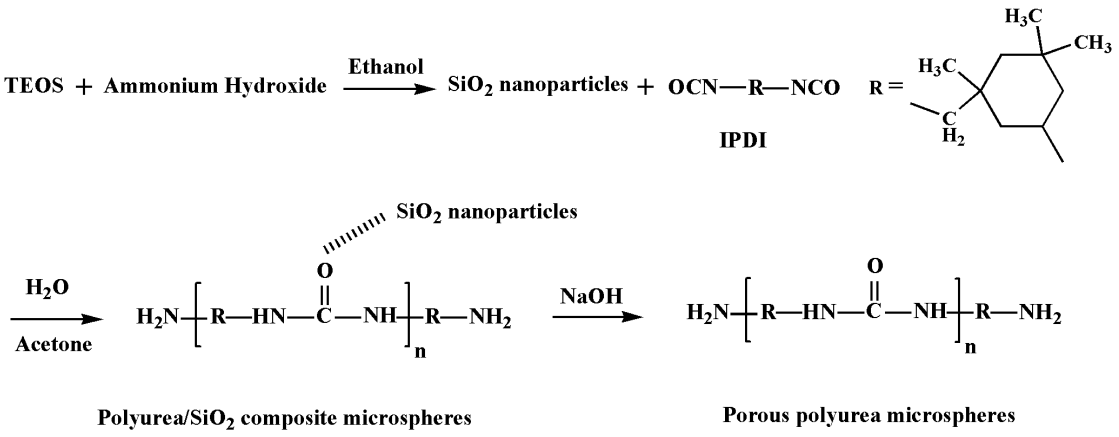
Fig. S7 Fig. S4 Fluorescence spectra of PyCOOH-decorated PPUM upon the addition of toluene (a), phenol (b), *m*-toluic acid (c), and *m*-methylacetophenone (d). The concentration of these aromatic compounds increased from 4.30×10^{-4} mol/L to 5.80×10^{-3} mol/L.
Fig. S8 SEM images of the PyCOOH-decorated PPUM upon the addition of *m*-methylacetophenone (a), *m*-cresol (b), *m*-toluic acid (c), *m*-toluidine (d), phenol (e), and toluene (f). The concentration of these aromatic compounds were 5.80×10^{-3} mol/L.
Fig. S9 IR spectra of PyCOOH-decorated PPUM in the absence and presence of *m*-cresol.
Fig.S10 SEM images of the PyCOOH-decorated PPUM upon the addition of *m*-cresol with the concentration of 4.30×10^{-5} mol/L (a), 4.30×10^{-4} mol/L (b), and 5.80×10^{-3} mol/L (c).
Fig.S11 Fluorescence spectra of PyCOOH-decorated PPUM upon the addition of DMSO excited at 345 nm (from 4.30×10^{-4} mol/L to 5.80×10^{-3} mol/L) (a) and SEM image of PyCOOH-decorated PPUM in the presence of DMSO (5.80×10^{-3} mol/L) (b).

Table S1 The details of the reagents used in the synthesis

Reagent	Purity
Sodium Hydroxide (flake)	96.0%
Ethanol	99.5%
Ammonium Hydroxide	25%-28%
Ethyl Orthosilicate	98.0%
Isophorone Diisocyanate	99.0%
Acetone	99.5%
1-Pyrenecarboxylic Acid	97.0%
Acetic Ether	99.5%
Dichloromethane	99.5%
Dimethyl Sulphoxide	99.0%
Ether	99.5%
Tetrahydrofuran	99.5%
Chloroform	99.0%
m-Methylacetophenone	98.0%
Phenol	99.5%
m-Cresol	99.0%
m-Toluic Acid	99.0%
m-Toluidine	99.0%
Toluene	99.5%



Scheme S1. Synthetic route of PPUM.

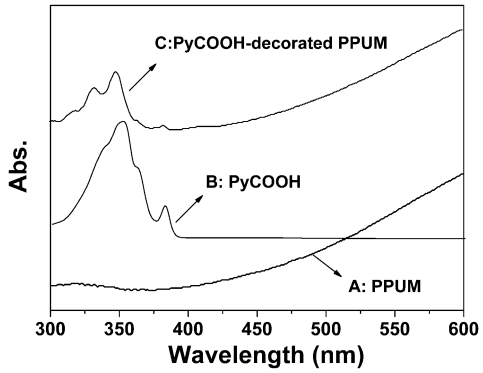


Fig. S1 UV-Vis absorption spectra of PPUM, PyCOOH and PyCOOH-decorated PPUM dissolved in THF.

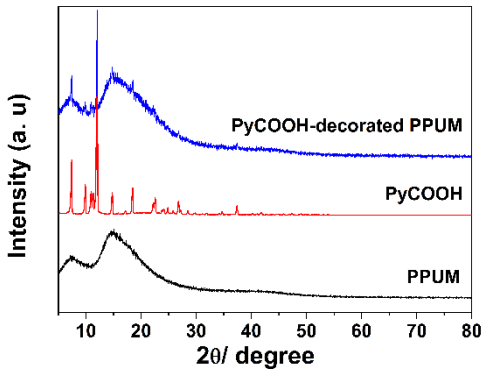


Fig. S2 Powder XRD patterns of PPUM, PyCOOH and PyCOOH-decorated PPUM.

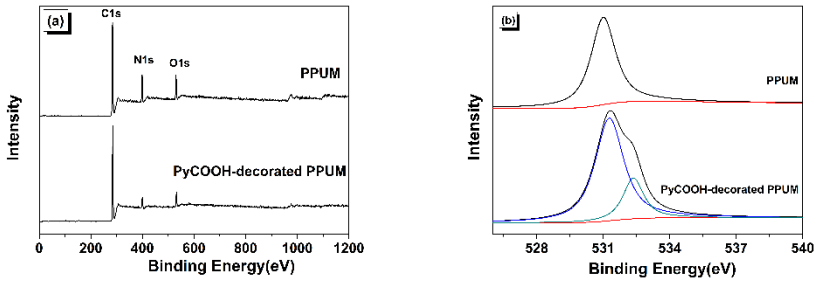


Fig. S3 XPS survey (a) and O1s XPS (b) spectra of PPUM and PyCOOH-decorated PPUM.

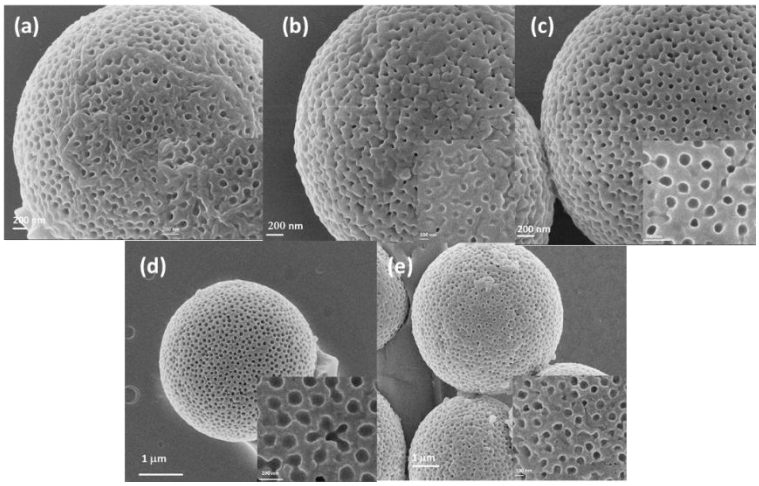


Fig. S4 SEM images of the PyCOOH-decorated PPUM in the presence of the solution with different pH 1.6 (a), 4.0 (b), 6.8 (c), 8.7 (d), and 12.2 (e).

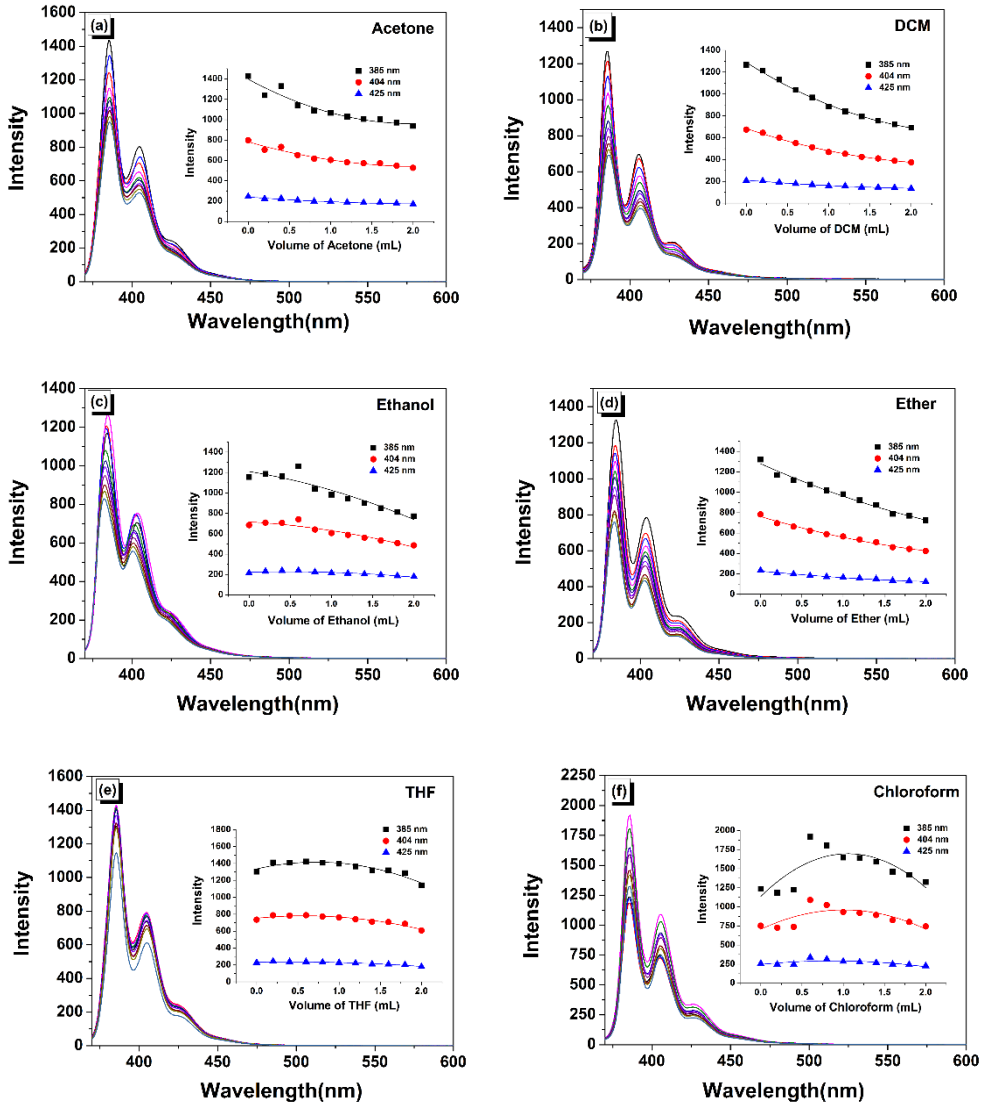
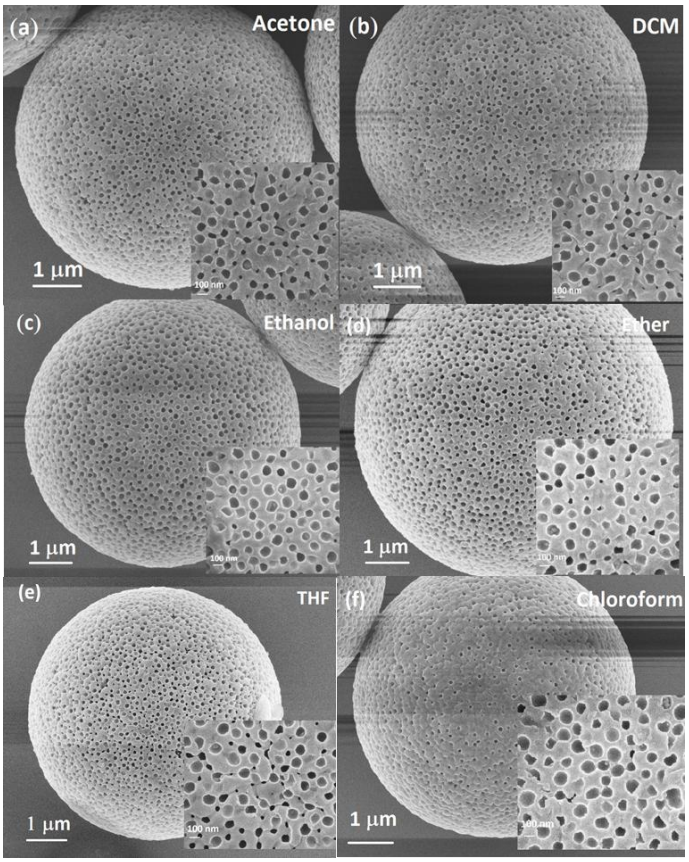


Fig. S5 Fluorescence spectra of PyCOOH-decorated PPUM upon the addition of acetone (a), DCM (b), ethanol (c), ether (d), THF (e), and chloroform (f). Inset: Fluorescent intensity of 385 nm, 404 nm and 425 nm under different volume of the solvents respectively.



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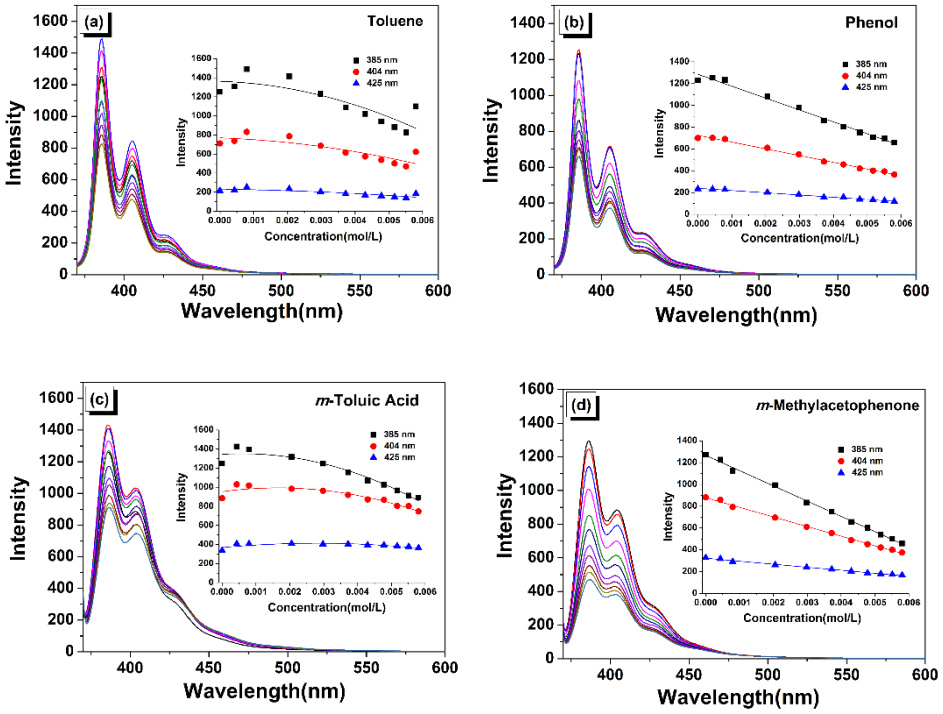

Fig. S7 Fluorescence spectra of PyCOOH-decorated PPUM upon the addition of toluene (a), phenol (b), *m*-toluic acid (c), and *m*-methylacetophenone (d). The concentration of these aromatic compounds increased from 4.30×10^{-4} mol/L to 5.80×10^{-3} mol/L.

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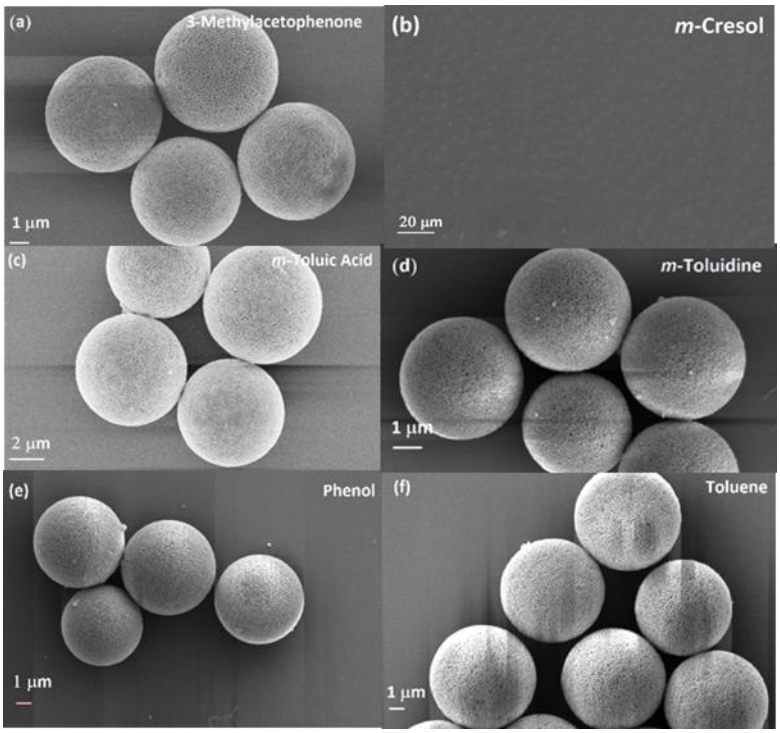


Fig. S8 SEM images of the PyCOOH-decorated PPUM upon the addition of *m*-methylacetophenone (a), *m*-cresol (b), *m*-toluic acid (c), *m*-toluidine (d), phenol (e), and toluene (f). The concentration of these aromatic compounds were 5.80×10^{-3} mol/L.

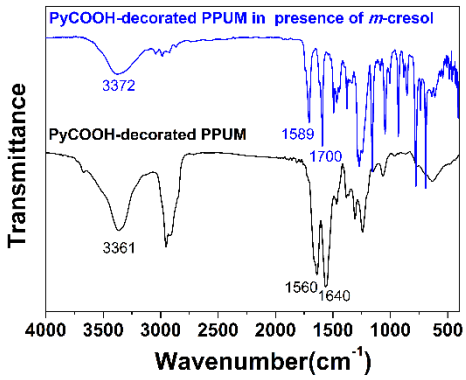


Fig. S9 IR spectra of PyCOOH-decorated PPUM in the absence and presence of *m*-cresol.

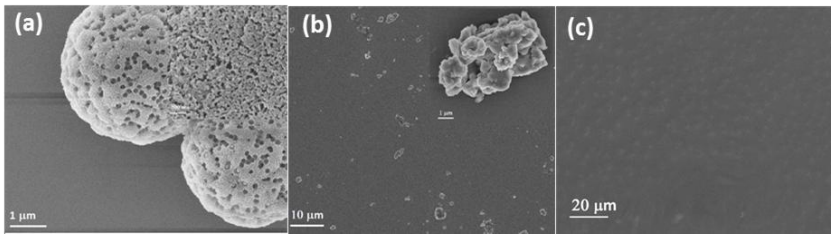
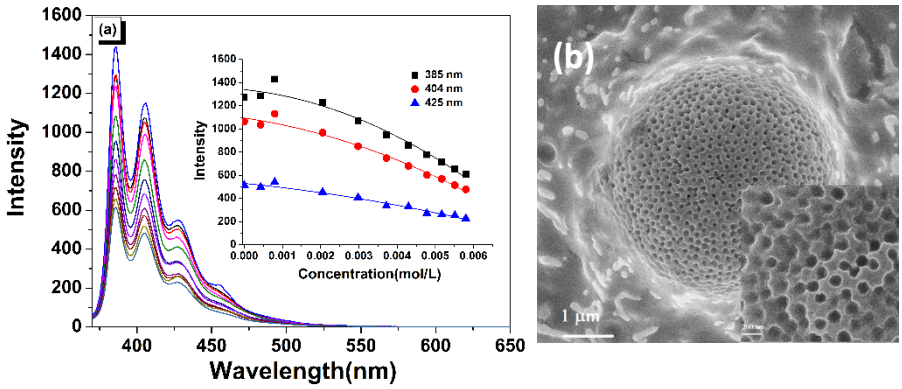


Fig.S10 SEM images of the PyCOOH-decorated PPUM upon the addition of *m*-cresol with the concentration of 4.30×10^{-5} mol/L (a), 4.30×10^{-4} mol/L (b), and 5.80×10^{-3} mol/L (c).



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