Electronic Supplementary Information

Highly Sensitive and Selective Detection of Cu(II) by Periodic Mesoporous Rhodamine-Derivative Organosilicas with Crystal-Like Pore Walls

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1. Structural and textural data of RSPMOs

Table S1 Structural and textural data of RSPMO-*x*

Sample	d_{100}（nm）	a_0 (nm)	D_{BJH}（nm）	S_{BET} ($m^2 \cdot g^{-1}$)	V_t ($cm^3 \cdot g^{-1}$)	b (nm)
RSPMO-0	4.11	4.74	2.25	927	0.58	2.49
RSPMO-1	4.05	4.68	2.11	900	0.67	2.57
RSPMO-5	4.60	5.31	2.17	813	0.76	3.14
RSPMO-10	4.33	5.00	2.20	467	1.38	2.80

Notation: a_0, lattice parameter; D_{BJH}, pore diameter, is calculated from desorption branches by BJH method; S_{BET}, BET surface area; V_t, total pore volume; Wall thickness $b = a_0 - D_{BJH}$.

2. Stuctural properties of RSPMOs

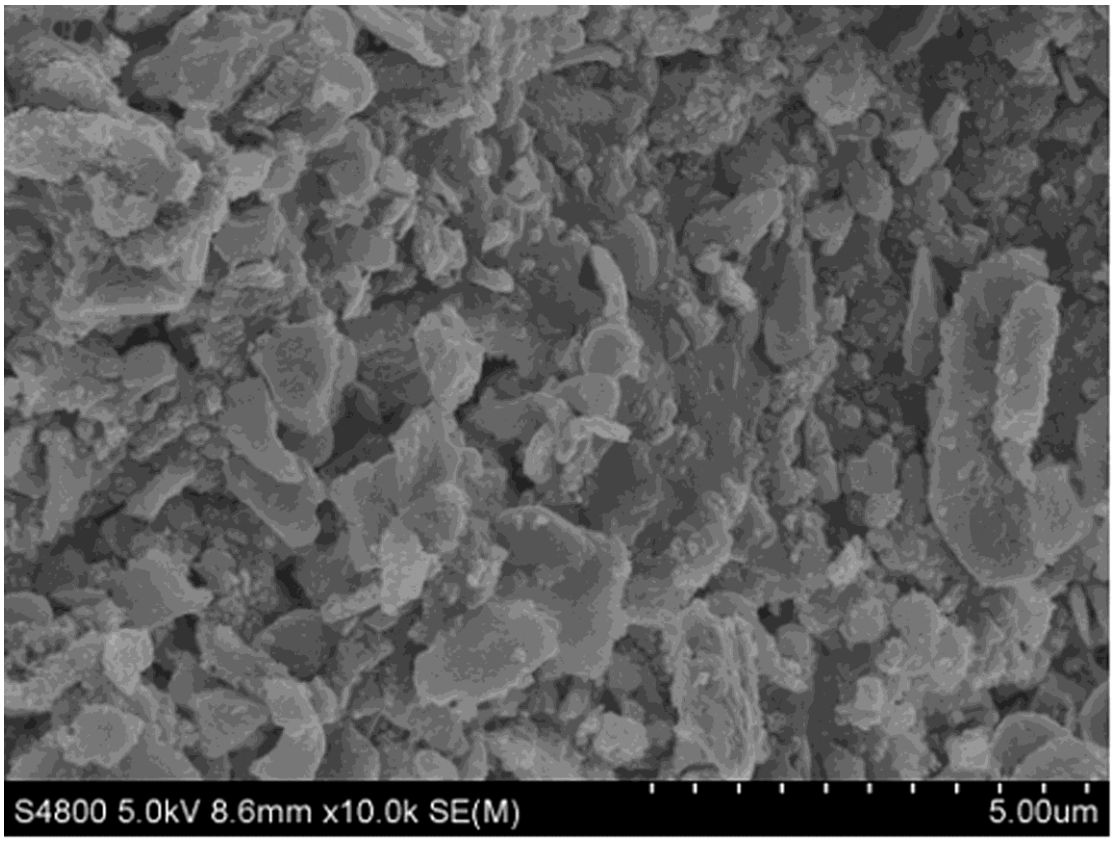

Figure S1. SEM image of extracted RSPMO-10.

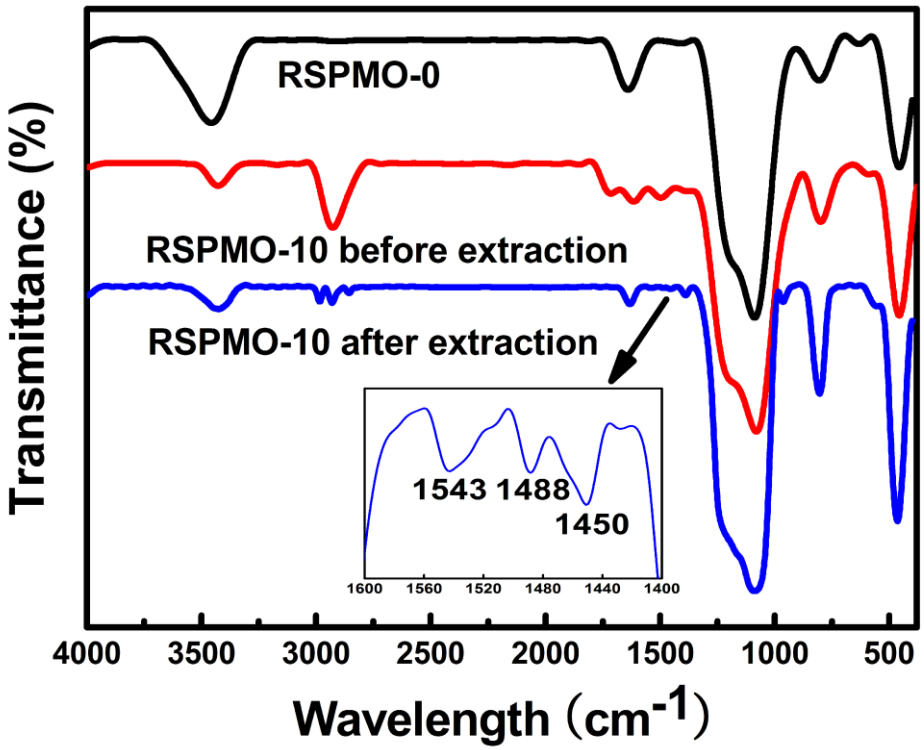

Figure S2. FT-IR spectra of RSPMO-0 after extraction; RSPMO-10: before and after extraction.

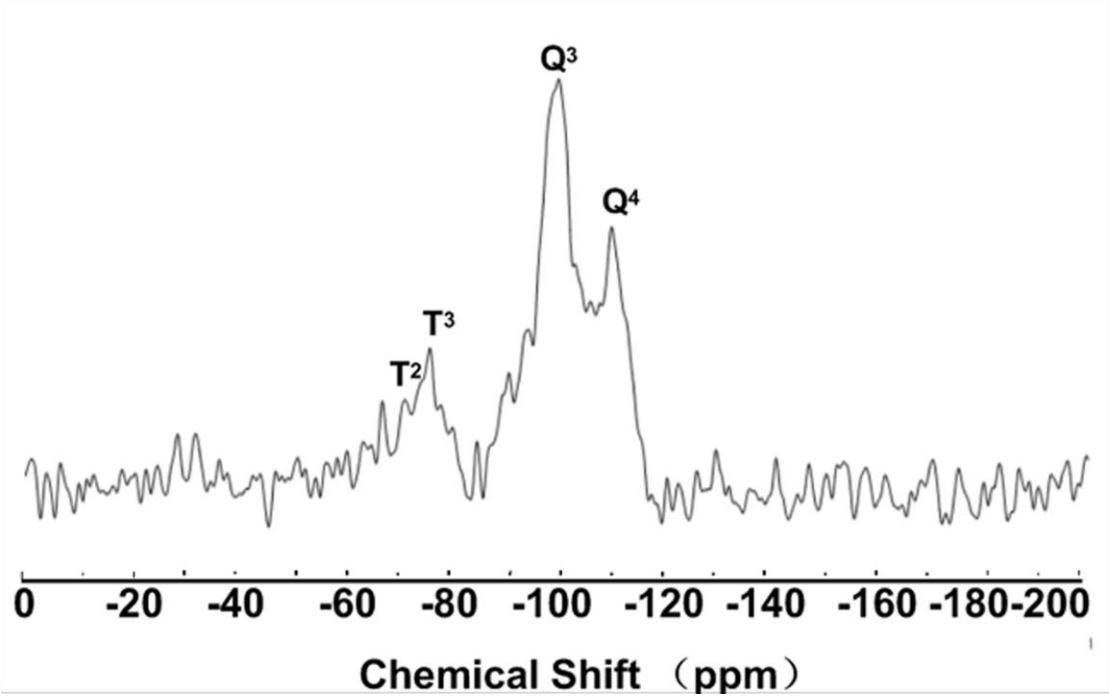

Figure S3. Solid-state ^{29}Si MAS NMR spectrum of extracted RSPMO-10.

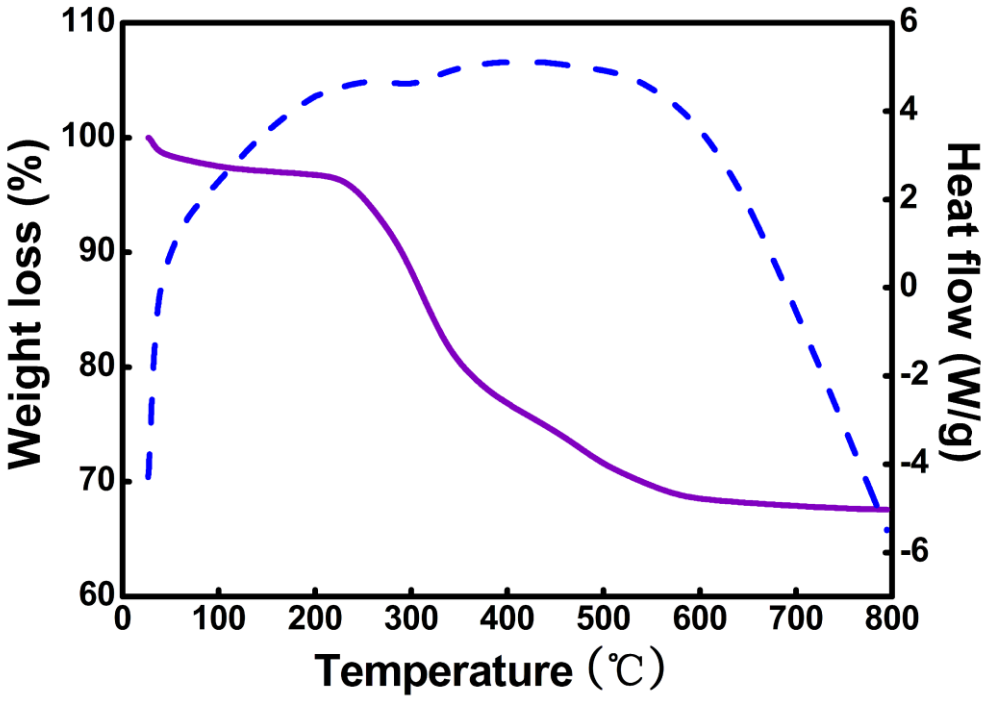

Figure S4. Thermogravimetric analysis (TGA) curve (solid line) and differential scanning calorimetry (DSC) curve (dash line) of surfactant-extracted RSPMO-10 under nitrogen.

3. Optical properties of RSPMOs

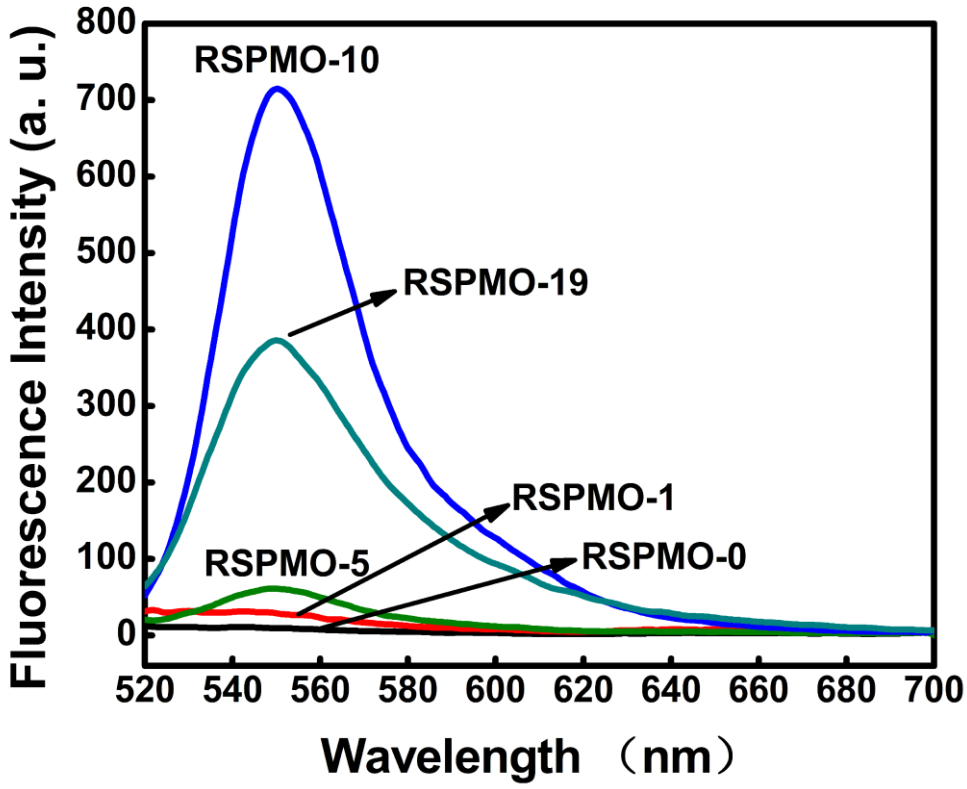

Figure S5. Fluorescence spectra of RSPMO-*x*, where *x* = 0, 1, 5, 10, 19 upon addition of Cu^{2+} (10^{-4} mol/L) in C_2H_5OH/HEPES (9:1 v/v, pH 6.8).

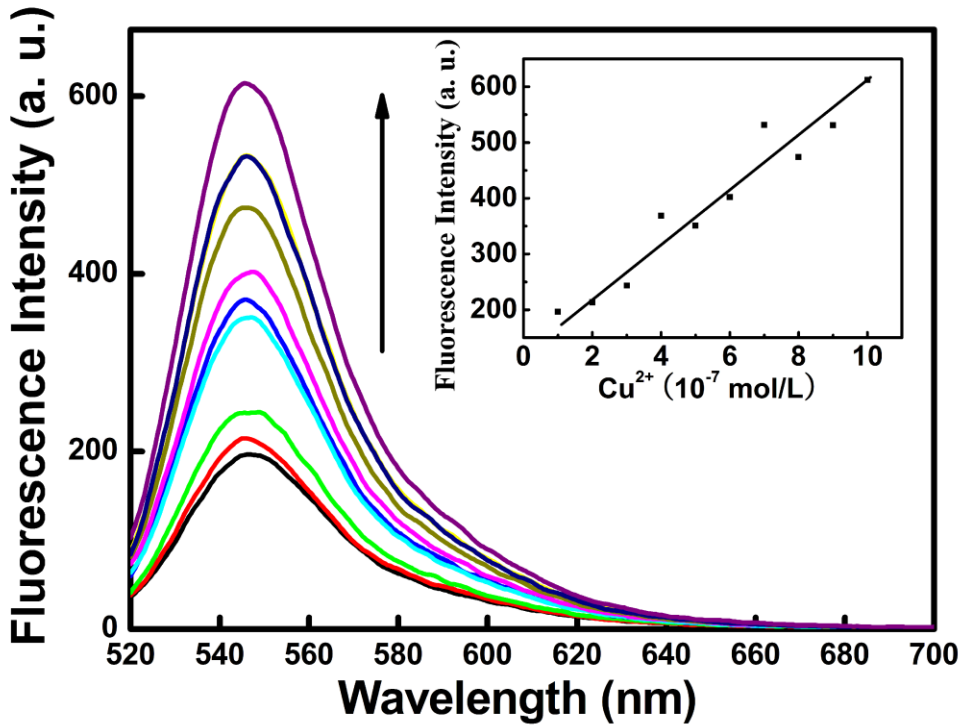

Figure S6. Fluorescence spectra of RSPMO-10 (0.1 mg/mL) upon addition of Cu^{2+} in C_2H_5OH/HEPES (9:1 v/v, pH 6.8). Inset: emission intensities at 547 nm of RSPMO-10 (0.1 mg/mL) as a function of Cu^{2+} concentration in 10^{-7} M range (1.0×10^{-7} to 1.0×10^{-6} M). Excitation at 500 nm. (Excitation slit width, 10 nm; emission slit width, 8.0 nm.).

4. FT-IR and ^{1}H NMR spectra of Compound 3

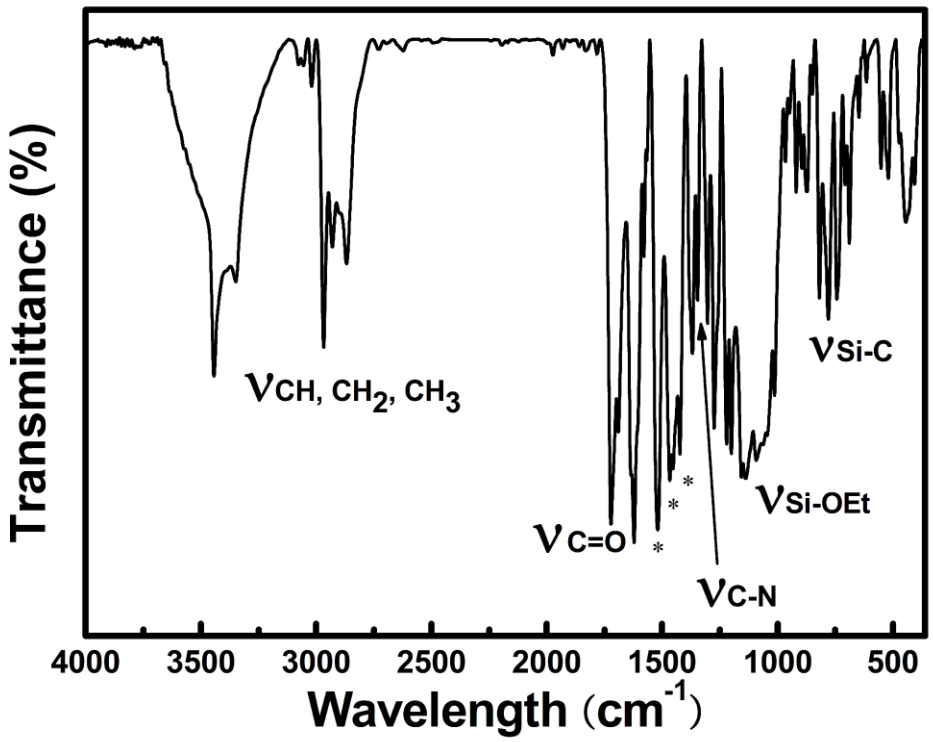

Figure S7. FT-IR spectrum and the main vibrational bands of Compound 3. Notation: *, the in-plane vibration bands of the xanthene ring.

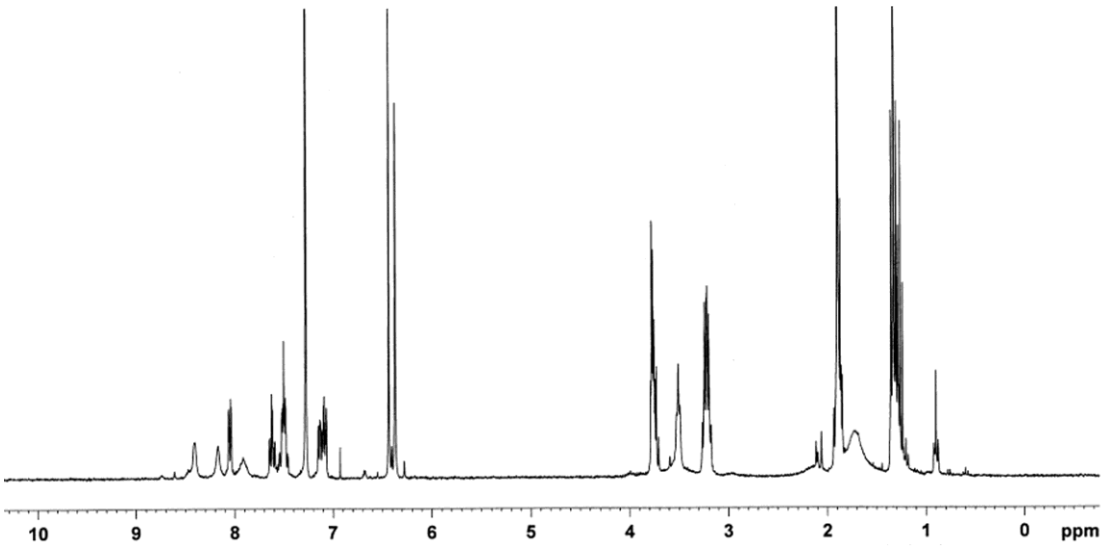

Figure S8. ^{1}H NMR spectrum of Compound 3.