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MDPI

Supplementary Materials

Screening the Specific Surface Area for Metal-Organic Frame-works by Cataluminescence

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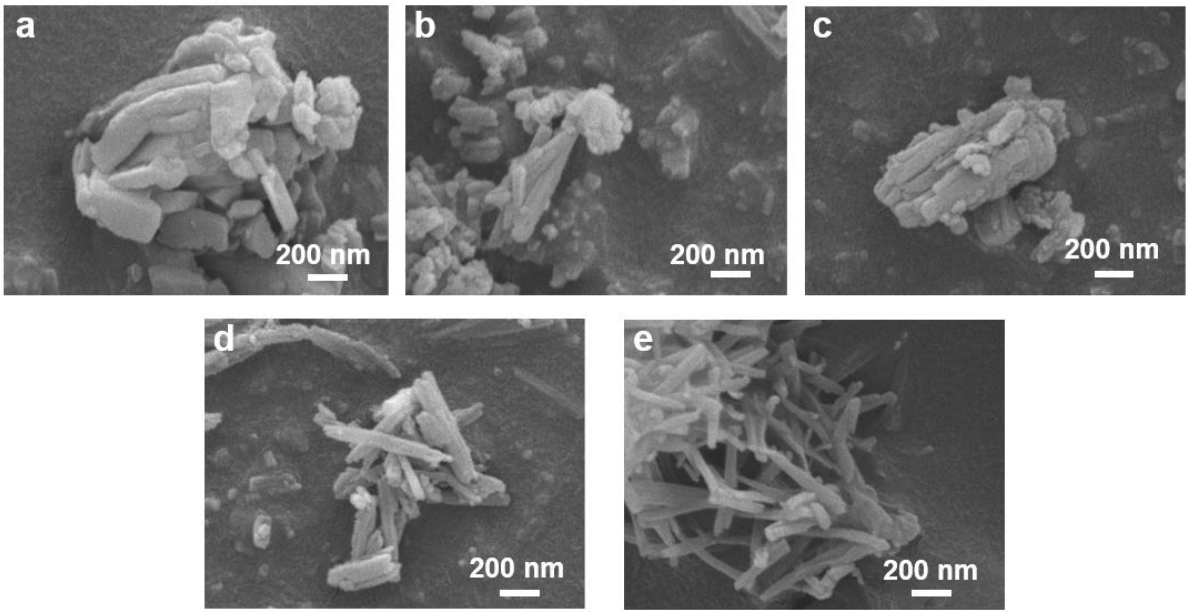


Figure S1. SEM images of (**a**) *np*, (**b**) *mp*-140, (**c**) *mp*-130, (**d**) *mp*-150 and (**e**) *lp* phases of MOFs.

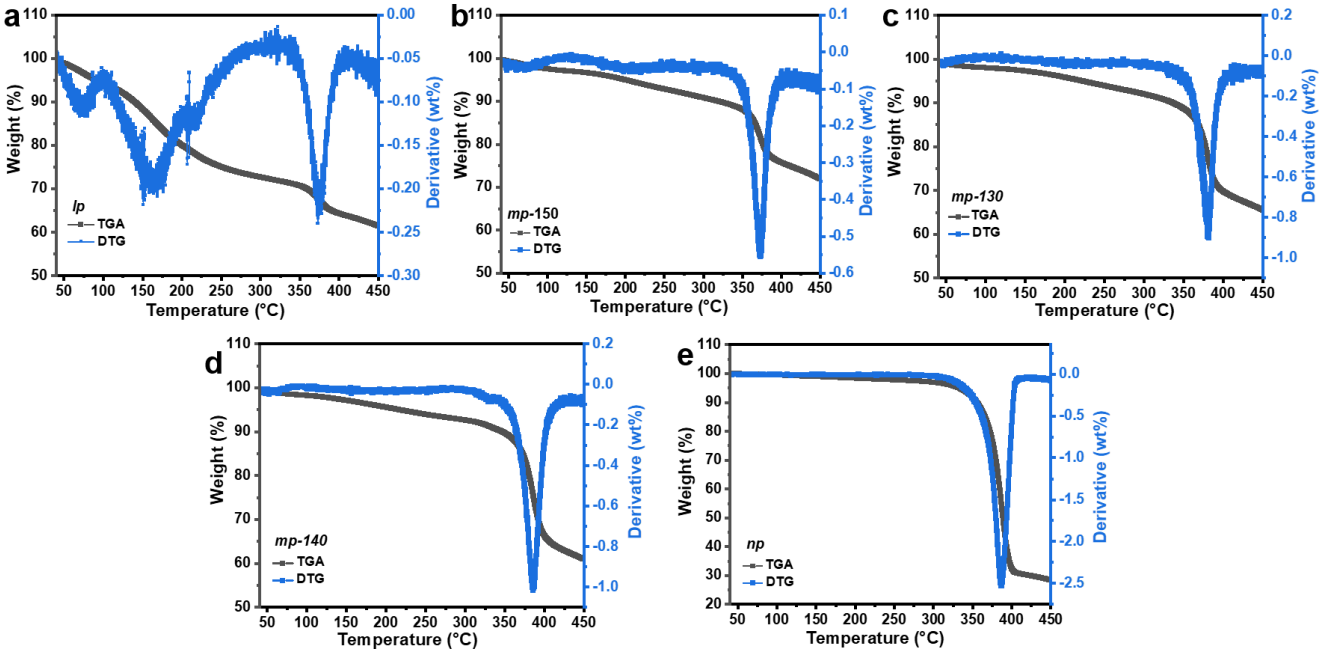


Figure S2. TGA analysis for (**a**) *lp*, (**b**) *mp*-150, (**c**) *mp*-130, (**d**) *mp*-140 and (**e**) *np* phases of MOFs.

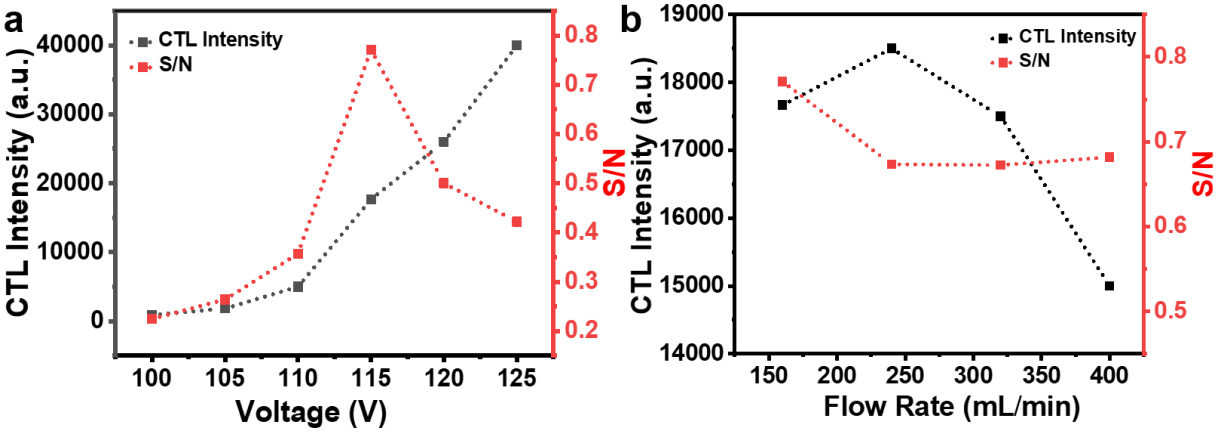


Figure S3. Comparisons of the cataluminescence (CTL) intensities and the signal-to-noise (S/N) values of ethanol in the presence of *lp* phase at (**a**) different temperatures (air flow rate of 240 mL·min^{-1} and integration time of 1 s) and (**b**) different flow rates (working voltage of 115 V and integration time of 1 s).

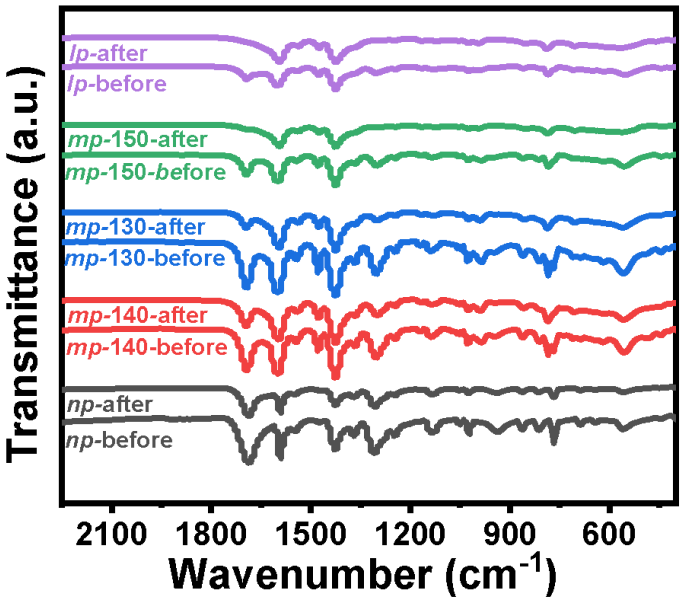


Figure S4. FT-IR spectra for different MOF materials before and after CTL measurements.

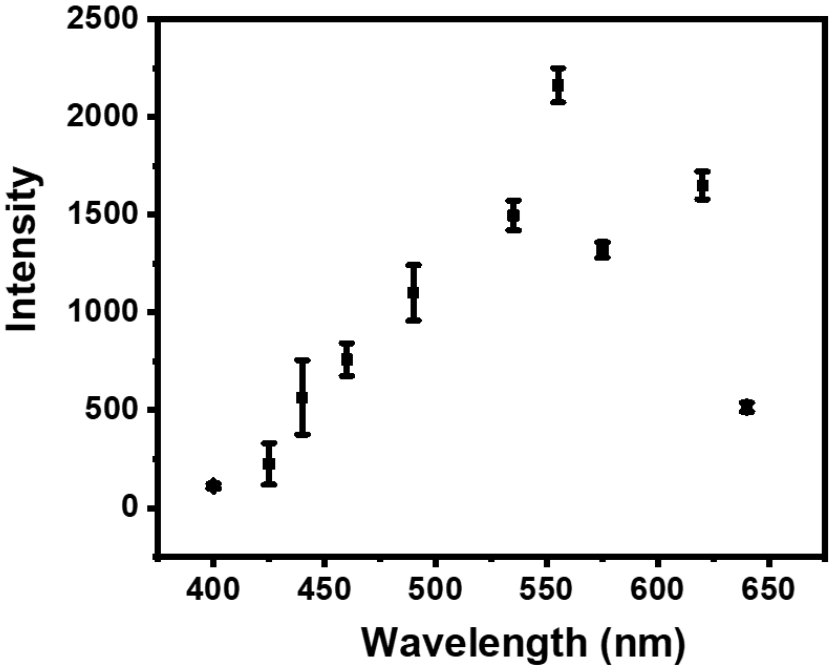


Figure S5. CTL spectrum for the oxidation of ethanol in the presence of *mp*-150 phase.

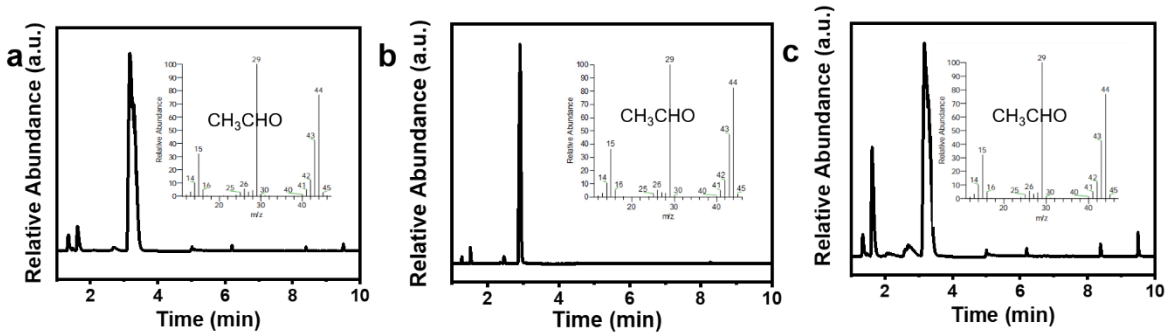


Figure S6. Gas chromatography-mass spectrometry (GC-MS) measurements for the reaction of ethanol by the (**a**) *np*, (**b**) *mp*-150 and (**c**) *lp* phases.

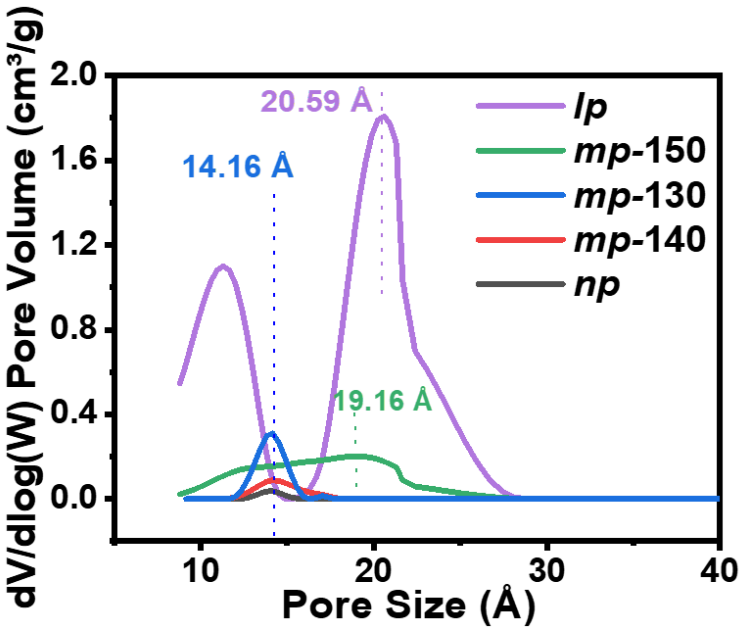


Figure S7. Pore size distribution analysis for different MOF materials.

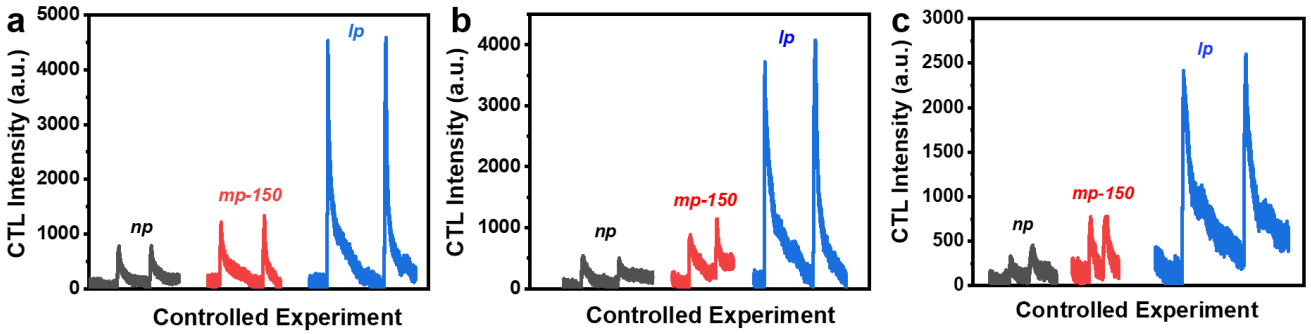


Figure S8. CTL intensities for (a) methanol, (b) ethanol and (c) isopropanol in the presence of MOFs with the different phases (the integration time of 0.1 s).

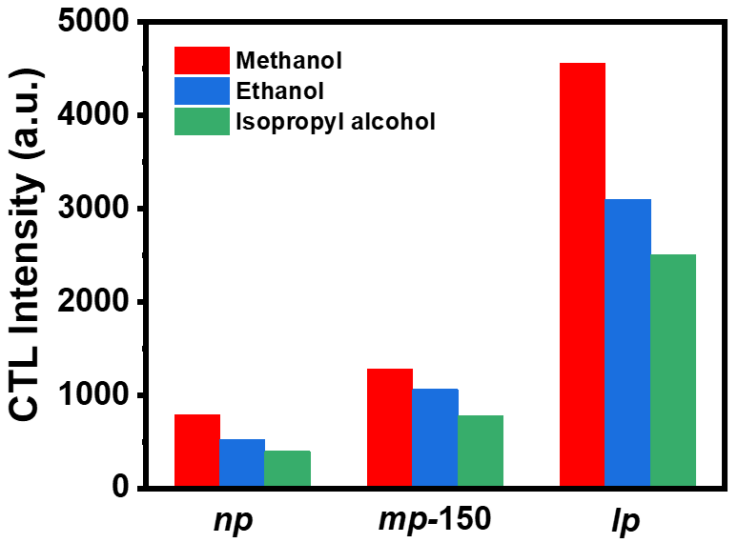
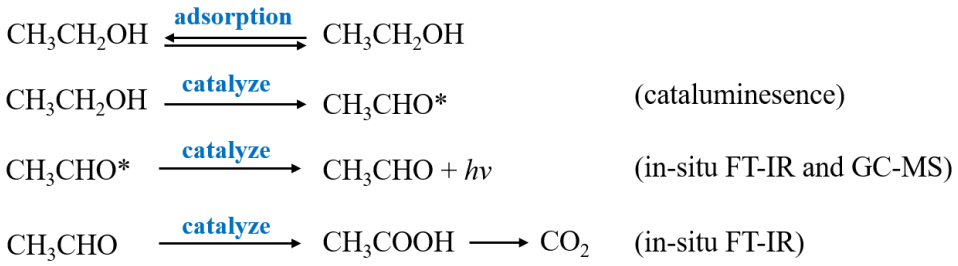


Figure S9. CTL intensity variations for methanol, ethanol and isopropanol in the presence of MOFs with the different phases (the integration time of 0.1 s).



Scheme S1. Reaction mechanism and corresponding measurements for the CTL emissions from oxi-dation of ethanol in the presence of MOFs.

Table S1. Peak position analysis for the MOFs with different phases from XRD patterns.

	2 Theta (degree)
np	7.2
***mp*-140**	6.4/7.5
***mp*-130**	6.4/7.4
***mp*-150**	6.4/7.5
lp	6.3

Table S2. Weight loss analysis for different MOF materials from TGA measurements.

Samples	Peak for the weight loss/°C
lp	72
	160
	373
mp-150	373
mp-130	380
mp-140	385
np	386

Table S3. CTL intensities and specific surface areas acquired by the Brunauer-Emmett-Teller (BET) measurements for different MOF materials.

Samples	BET specific surface area (m^2/g)	CTL intensity
lp	1024.8792	67560
***mp*-150**	212.9573	52936
***mp*-130**	69.0713	29483
***mp*-140**	50.0968	25455
np	2.6557	23715