## **Supporting Information**

## Modulation effect of charge transfer on photoluminescence in metalorganic frameworks

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## **Supporting Figures**



Figure S1. TEM image of the synthesized Gd-ETTC MOFs.



Figure S2. UV-vis absorption spectra of H<sub>4</sub>ETTC and Gd-ETTC MOFs in DMF solution.



Figure S3. FT-IR analysis of H<sub>4</sub>ETTC and Gd-ETTC MOFs.



**Figure S4.** (a) Full XPS spectrum, (c) C 1s spectrum, and (d) O 1s spectrum of the synthesized Gd-ETTC MOFs. (b) Detailed deconvolution results for different elements in Gd-ETTC MOFs.



Figure S5. TEM images of the synthesized Cu-ETTC MOFs.



Figure S6. UV-vis absorption spectra of  $H_4ETTC$  and Cu-ETTC MOFs in DMF solution.



Figure S7. FT-IR analysis of the as-prepared Cu-ETTC MOFs.



**Figure S8.** (a) Full XPS spectrum of the synthesized Cu-ETTC MOFs. (b) Detailed deconvolution results for different elements in Cu-ETTC MOFs.



Figure S9. (a)  $N_2$  adsorption-desorption isotherms and (b) corresponding pore size distribution curve of Cu-ETTC MOFs nanosheets.



Figure S10. XRD patterns of Gd-ETTC before and after grinding.



Figure S11. FT-IR spectrum of the milled Gd-ETTC MOFs.



Figure S12. Full XPS, C 1s, O 1s, Gd 3d, Gd 4d spectrum, and element content of the milled Gd-ETTC MOFs.



Figure S13. TEM image of the milled Cu-ETTC MOFs.



Figure S14. XRD patterns of Cu-ETTC before and after grinding.



Figure S15. (a) Cu 2p spectrum and (b) element content of the milled Cu-ETTC MOFs.



Figure S16. After adding 2 mL of 20 µM GSH, the (a) fluorescence intensity of Cu-

ETTC (2 mL, 100  $\mu$ M) showed (b) a parabolic relationship with the time.



Figure S17. Fluorescence intensity of PBS treated with (a) GSH-10  $\mu$ M, (b) GSH-60

μM, and (c) Cu-ETTC+GSH-10 μM.



Figure S18. The structure of H<sub>4</sub>ETTC and H<sub>4</sub>TCPE.



Figure S19. (a) SEM and (b) TEM images of the synthesized Gd-TCPE MOFs.



Figure S20. UV-vis absorption of H<sub>4</sub>TCPE and Gd-TCPE MOFs in DMF solution.



**Figure S21.** Fluorescence spectrum and photograph images of  $H_4TCPE$  and Gd-TCPE MOFs.



Figure S22. FT-IR spectrum of the synthesized Gd-TCPE MOFs.



Figure S23. (a) Gd 3d, (b) Gd 4d spectrum, and (c) element content of the synthesized



Figure S24. (a) Full XPS, (b) Cu 2p spectrum, and (c) element content of the synthesized Cu-TCPE MOFs.