Supporting Information

Organic templates promoted photocatalytic and photoluminescent properties between two coordination polymers

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**X-ray diffraction analysis.** Suitable single crystals of 1-2 were carefully selected under an optical microscope and glued to thin glass fibers. Whereafter, single-crystal X-ray diffraction analyses were performed on a computer-controlled XCalibur E CCD diffractometer with graphite monochromated Mo Kα radiation ($\lambda_{\text{Mo-K} \alpha} = 0.71073 \, \text{Å}$) at $T = 293 \, \text{K}$. The structures were solved using the direct method and refined by full-matrix least-squares methods on $F^2$ by using the SHELX-97 program package. The SQUEEZE option of PLATON was used to eliminate the contribution of disordered guest molecules to the reflection intensities. Due to the bad crystal quality of compound 2, several atoms in the structure have large ADPs including O21 atom and the final R-factors are large.

*Figure S1.* (a) Powder XRD patterns for 1: Black line: simulated, Red line: sample, Blue line: after degradation of methyl blue; (b) Powder XRD patterns for 2: Black line: simulated, Red line: sample.

*Figure S2.* The TGA diagram of compound 1 and 2.

*Figure S3.* Excitation spectra of 1 (maximum 386 nm), 2 or H2obb (maximum 307 nm) and TPP·Br (maximum 319 nm) in the solid state at room temperature.
Figure S4. The dark catalytic degradation curve of MB concentration corresponding to 1.

Figure S5. The IR of compound 1.

Figure S6. The IR of compound 2.