Supporting Information

Structures and photocatalytic properties of two new Zn(II) coordination polymers based on semi-rigid V-shaped multicarboxylate ligand

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Fig. S1 Topological representation (view along the a axis) of the 4-connected 3D net

Fig. S2 view of the IR.
Fig. S3 SEM image of title CP s. The magnifications of picture were 100 thousand.

Fig. S4 (a) The UV-visible absorption spectrum of 1 and 2 and (b) Solid-state optical diffuse-reflection spectra of 1 and 2 derived from diffuse reflectance data at ambient temperature.

Fig. S5 view of the PXRD patterns of 1 under the different conditions.
Fig. S6 view of the PXRD patterns of 2 under the different conditions.

| Table 1. Crystallographic data and structure refinement details for CPs 1-2 |
|-----------------------------|-------------------|-------------------|
| Parameter                  | 1                 | 2                 |
| Formula weight             | 539.80            | 1263.07           |
| Crystal system             | Triclinic         | Monoclinic        |
| Space group                | P-1               | C2/c              |
| Crystal Color              | Colorless         | Colorless         |
| $a$, Å                     | 9.9215(14)        | 32.621(5)         |
| $b$, Å                     | 11.0863(16)       | 9.236(4)          |
| $c$, Å                     | 12.2729(17)       | 18.455(5)         |
| $\alpha$, °               | 111.943(2)        | 90                |
| $\beta$, °                | 102.760(2)        | 98.21(2)          |
| $\gamma$, °               | 106.552(2)        | 90                |
| $V$, Å$^3$                 | 1116.0(3)         | 5503(3)           |
| $Z$                        | 2                 | 4                 |
| $\rho_{\text{calcd}}$, g/cm$^3$ | 1.606           | 1.525             |
| $\mu$, mm$^{-1}$           | 1.157             | 2.150             |
| $F(000)$                   | 552               | 2568              |
Table 2. Selected bond distances (Å) and angles (deg) for 1-2

|       | Bond 1          | Bond 2          |
|-------|-----------------|-----------------|
| 1     |                 |                 |
| Zn(1)-O(1) | 2.0287(18) | Zn(1)-N(1) | 2.1134(18) |
| Zn(1)-O(3)#1 | 2.0757(18) | Zn(1)-O(8) | 2.0951(16) |
| Zn-O(6)  | 2.229(10)      | Zn-N(1) | 2.015(9) |
| Zn-O(6)#1 | 2.061(11)      | Zn-O(7)#1 | 2.12(7) |
| Zn(01)-O(1) | 1.909(8)   | Zn(01)-N(2) | 2.086(8) |
| Zn(01)-N(2) | 2.086(8)   | Zn(01)-O(4)#2 | 1.955(6) |

|       | Bond 3          | Bond 4          |
|-------|-----------------|-----------------|
| 1     |                 |                 |
| O(1)-Zn(1)-O(8) | 89.83(7) | O(1)-Zn(1)-N(1) | 93.20(7) |
| O(1)-Zn(1)-N(2) | 132.16(7) | O(1)-Zn(1)-O(3)#1 | 127.92(7) |
| O(8)-Zn(1)-N(1) | 165.01(8) | O(8)-Zn(1)-N(2) | 89.53(7) |
| O(3)#1-Zn(1)-O(8) | 94.21(7) | N(1)-Zn(1)-N(2) | 77.57(8) |
| O(3)#1-Zn(1)-N(1) | 95.49(7) | O(3)#1-Zn(1)-N(2) | 99.82(7) |

|       | Bond 5          | Bond 6          |
|-------|-----------------|-----------------|
| 2     |                 |                 |
| O(6)-Zn-N(3) | 123.9(4) | O(6)-Zn-O(6)#1 | 86.8(4) |
| O(1)-Zn-O(7)#1 | 136.6(6) | O(6)#1-Zn-N(3) | 91.3(5) |
| O(7)#1-Zn-N(3) | 88.6(5) | O(6)#1-Zn-O(7)#1 | 62.3(5) |
| O(1)-Zn(01)-N(1) | 139.6(3) | O(1)-Zn(01)-N(2) | 101.7(3) |
| O(1)-Zn(01)-O(4)#2 | 106.0(4) | N(1)-Zn(01)-N(2) | 100.3(3) |
| O(4)#2-Zn(01)-N(1) | 106.3(2) | O(4)#2-Zn(01)-N(2) | 93.0(3) |

Symmetry Cddes: For 1: #1= 1+x, y, z. For 2: #1 = 1-x, y, 3/2 -z; #2 = x, 1-y, -1/2+z.