Electronic Supplementary Information (ESI) for
A new Cd$_2$-2,4-pyridinedicarboxylate layered coordination polymer consisting of intralayer cavities and reversible network self-adaptation upon dehydration/moisture-absorption

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A. the seventeen metal-pyda coordination modes published in literatures:

B. Two new metal-pyda coordination modes found in FJU-3:

Fig. S1 The metal-pyda coordination modes published in literatures and found in FJU-3.
Fig. S2 The infrared spectrum (ATR-IR) of FJU-3.
Fig. S3 The coordination environments of hepta- and hexa-coordinated cadmium centers in FJU-3: (a) hepta-coordinated Cd1; (b) hexa-coordinated Cd2. Both types of cadmium centers are coordinated by one water molecule and four pyda ligands: three pyda ligands coordinated to the cadmium center in cis-positions with respect to the coordinated water molecule, and one pyda ligand coordinated to cadmium center in trans-position with respect to the coordinated water molecule. (Key: Cd1, yellow sphere; Cd2, green sphere).
**Fig. S4** The thermogravimetric analysis diagram of FJU-3. The weight loss of 2.83% (calcd. 2.94%) observed between 30 and 98 °C corresponds to the loss of one water molecule, and the weight loss of 6.18% (calcd. 5.88%) observed between 98 and 190 °C corresponds to the loss of two water molecules on the basis of formula \([\text{Cd}_2(\text{H}_2\text{O})_2(\text{C}_7\text{H}_3\text{O}_4\text{N})_2\cdot \text{H}_2\text{O}]_n\).
Fig. S5 Solid-state emission spectra of FJU-3 and 2,4-pyda free ligand (inset) at room temperature ($\lambda_{ex} = 320$ nm).