SUPPORTING INFORMATION

Structure Control and Crystal-to-Crystal Transformation for Two Series of Lanthanide-Organic Coordination Polymers

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S1. Detail experiment for certificating the role of 2,2’-bipyridine

A mixture of H$_2$CPOB (0.0775g, 0.2mmol), 0.2mmol of Ln(NO$_3$)$_3$·6H$_2$O [Ln=Eu (0.0892 d); Gd (0.0902 g); Tb (0.0906 g); Dy (0.0913 g); Ho (0.916 g); Er (0.0887 g)], and 8 mL of distilled water were sealed in a Teflon-lined stainless vessel (25 mL) then added 5-10 drops of ammonia (0.1M) and heated at 130 °C or 180 °C for 72 h under autogenous pressure. The vessel was then cooled slowly down to room temperature at 2 °C/h. Block crystals were obtained and the PXRD patterns indicate that these crystals have same structure as they were synthesized using 2,2’-bipyridine.

Figure S1 Morphology of crystal-to-crystal transformation
Figure S2. IR spectra of Series a and Series b

Figure S3. Solid-state excitation spectrum of H$_2$CPOB (left) and Samples (right)

Table S1. Average bond length of Ln-O for a$_2$-a$_6$ and b$_1$-b$_6$

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Table S2 Selected bond lengths(Å) and angles(°) for compounds in Series \textit{a} and Series \textit{b}

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