

**Supporting Information**

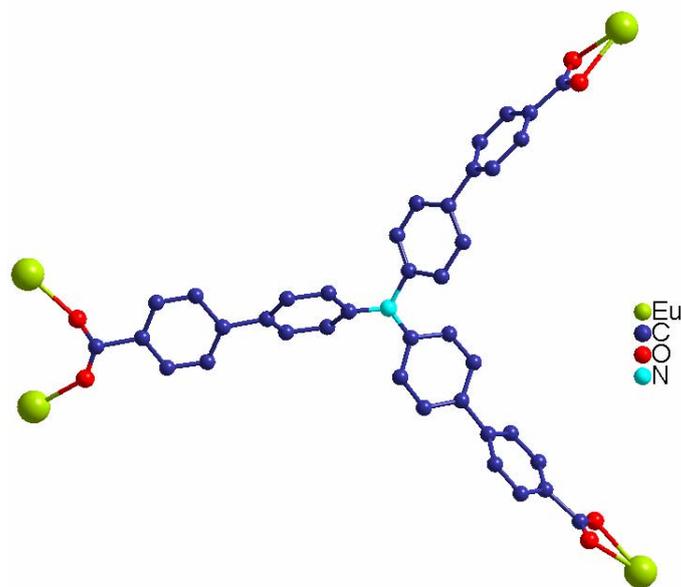
**Guest Inducing Fluorescence Switch in  
Lanthanide–Tris((4-carboxyl)phenylduryl)amine Frameworks  
Integrating Porosity and Flexibility**

Yan-Ping He, Yan-Xi Tan and Jian Zhang\*

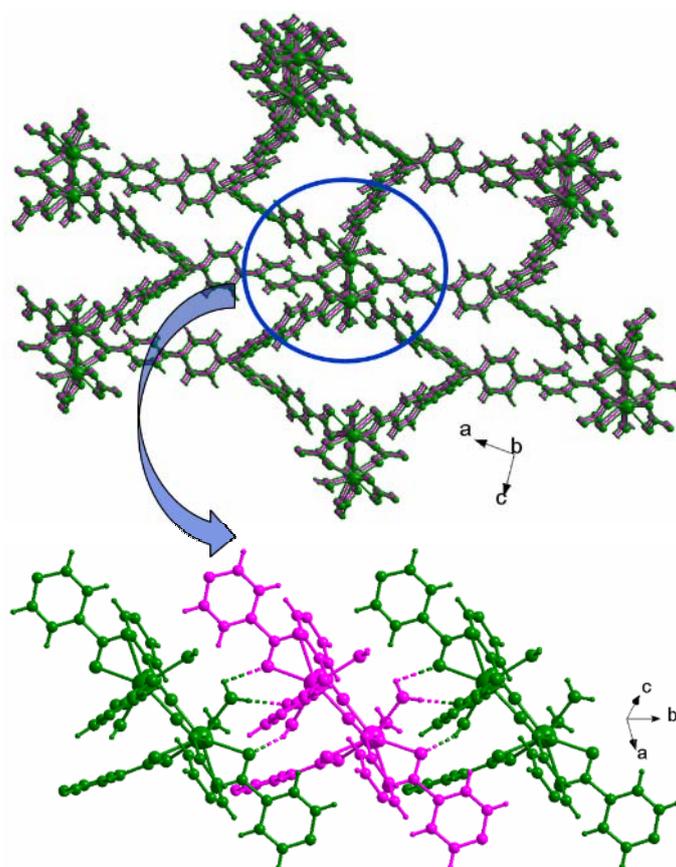
State Key Laboratory of Structural Chemistry, Fujian Institute of Research on the  
Structure of Matter, the Chinese Academy of Sciences, Fuzhou, Fujian 350002, P. R.

China.

E-mail: [zhj@fjirsm.ac.cn](mailto:zhj@fjirsm.ac.cn).



**Figure S1** The coordination environment of  $L^{3+}$  ligand in **FIR-17**.



**Figure S2** The hydrogen bonds interactions between coordinated  $H_2O$  molecules and chelate carboxylate groups from adjacent nets.

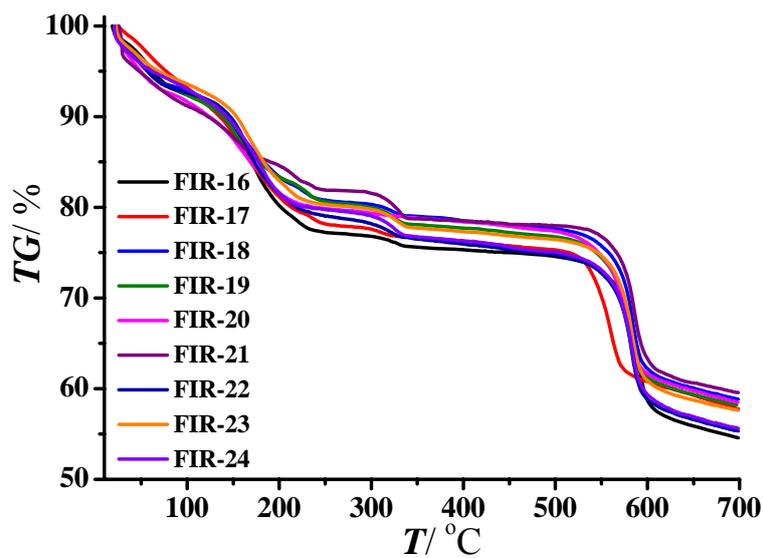


Figure S3 TGA curves of FIR-16 to FIR-24.

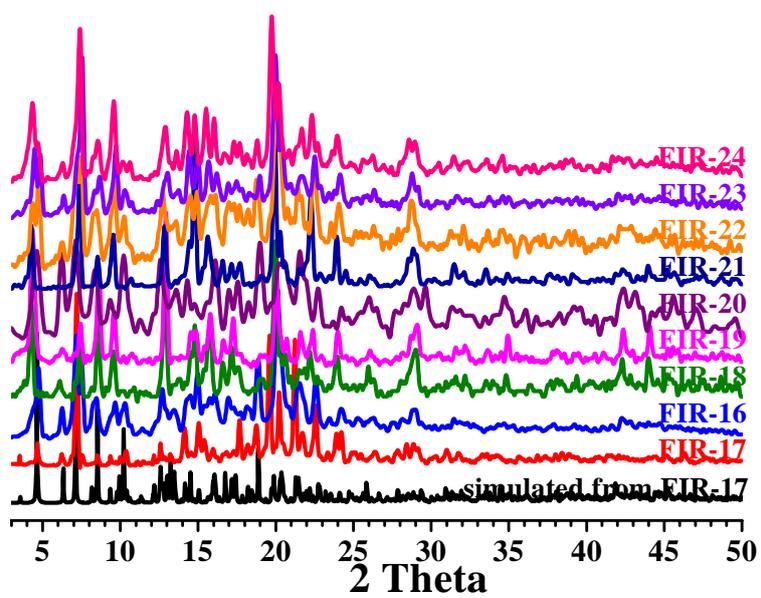
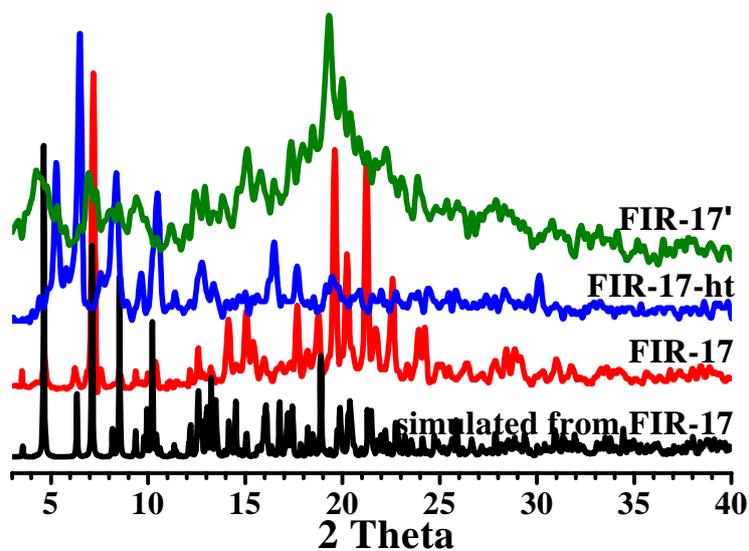
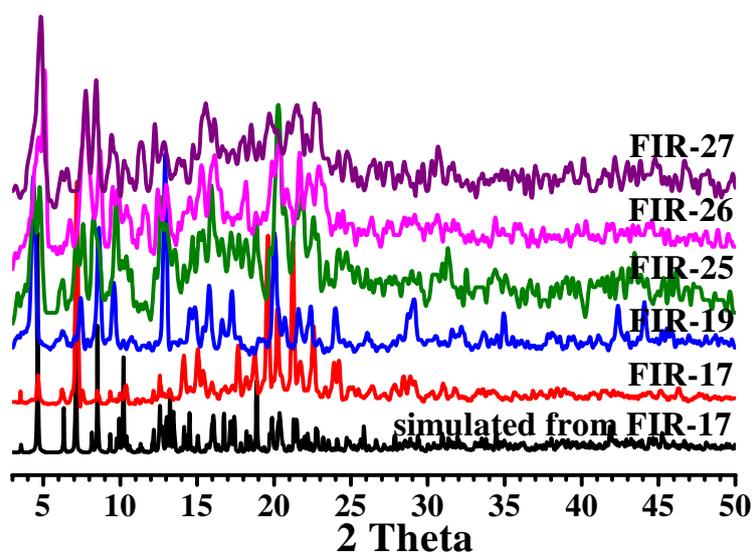


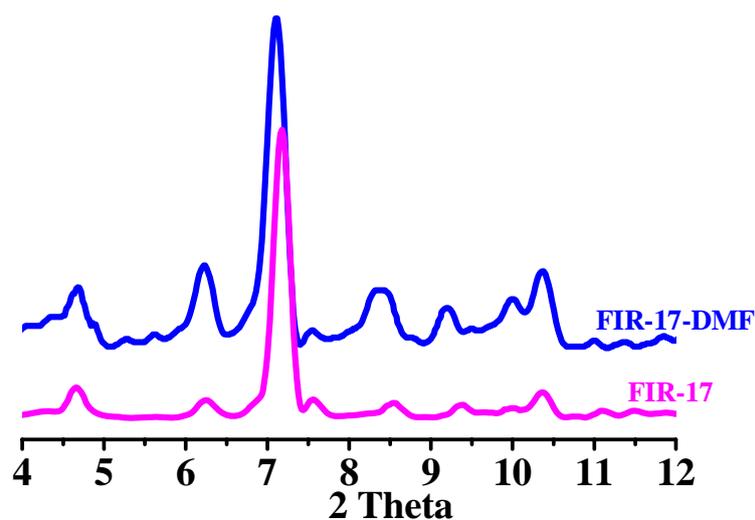
Figure S4 Powder XRD patterns of the as-synthesized FIR-16 to FIR-24.



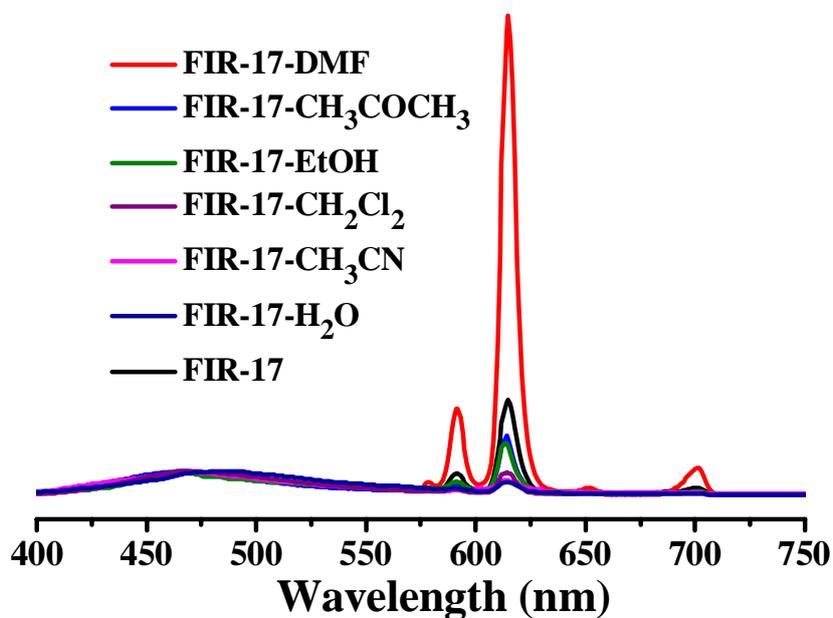
*Figure S5* PXRD patterns of **FIR-17**, **FIR-17-ht** and **FIR-17'**.



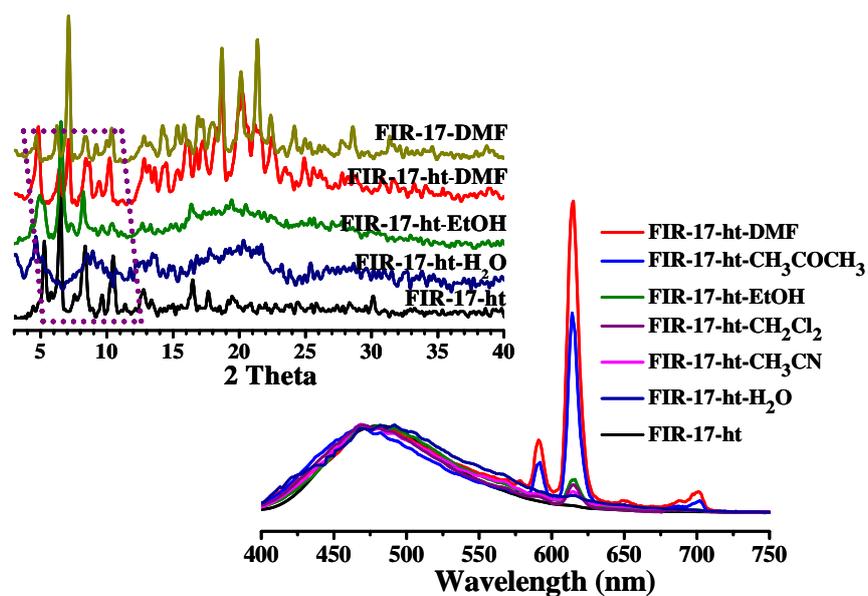
*Figure S6* PXRD patterns of compounds **FIR-17**, **FIR-19**, **FIR-25**, **FIR-26** and **FIR-27**.



**Figure S7** PXRD patterns of **FIR-17** and **FIR-17-DMF** in low  $2\theta$  value.



**Figure S8** Solid-state emission spectra ( $\lambda_{\text{ex}} = 360$  nm) of compounds **FIR-17**, DMF-exchanged sample (**FIR-17-DMF**),  $\text{CH}_3\text{COCH}_3$ -exchanged sample (**FIR-17- $\text{CH}_3\text{COCH}_3$** ), EtOH-exchanged sample (**FIR-17-EtOH**),  $\text{CH}_2\text{Cl}_2$ -exchanged sample (**FIR-17- $\text{CH}_2\text{Cl}_2$** ),  $\text{CH}_3\text{CN}$ -exchanged sample (**FIR-17- $\text{CH}_3\text{CN}$** ) and  $\text{H}_2\text{O}$ -exchanged sample (**FIR-17- $\text{H}_2\text{O}$** ) measured in air at room temperature.



**Figure S9** Solid-state emission spectra ( $\lambda_{\text{ex}} = 360 \text{ nm}$ ) of compounds **FIR-17-ht**, re-immersed DMF sample (**FIR-17-ht-DMF**), re-immersed  $\text{CH}_3\text{COCH}_3$  sample (**FIR-17-ht- $\text{CH}_3\text{COCH}_3$** ), re-immersed EtOH sample (**FIR-17-ht-EtOH**), re-immersed  $\text{CH}_2\text{Cl}_2$  sample (**FIR-17-ht- $\text{CH}_2\text{Cl}_2$** ), re-immersed  $\text{CH}_3\text{CN}$  sample (**FIR-17-ht- $\text{CH}_3\text{CN}$** ) and re-immersed  $\text{H}_2\text{O}$  sample (**FIR-17-ht- $\text{H}_2\text{O}$** ) measured in air at room temperature and the PXRD patterns.