

*Electronic Supplementary Information (ESI) for*

**An Anionic Cd(II) Boron Imidazolate Framework with  
Reversible Structural Transformation and Biomolecular  
Sensing Properties**

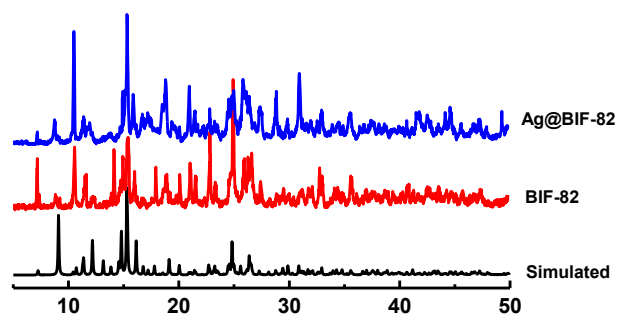
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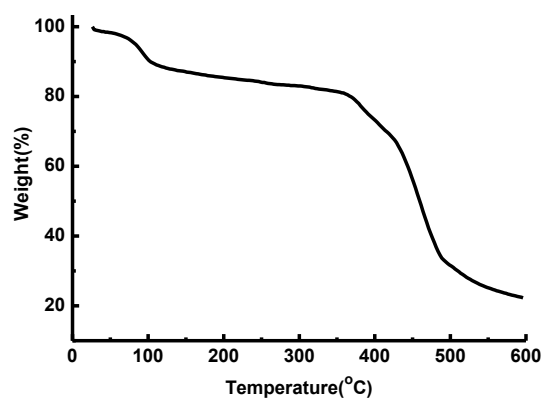
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*<sup>b</sup>State Key Laboratory of Structural Chemistry, Fujian Institute of Research on the Structure  
of Matter, Chinese Academy of Sciences, Fuzhou, Fujian 350002, P. R. China;*

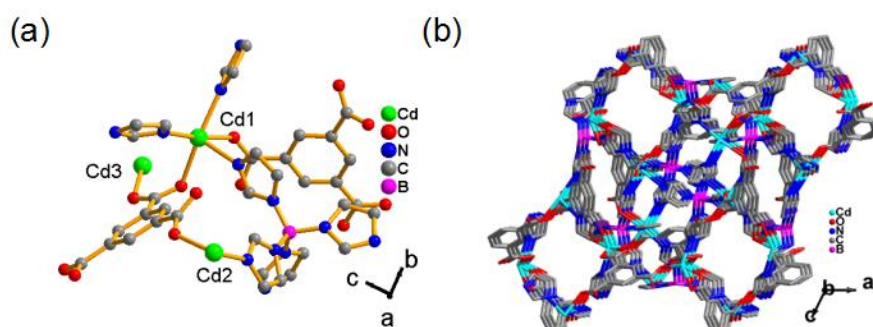
*E-mail: twen@fjirsm.ac.cn*



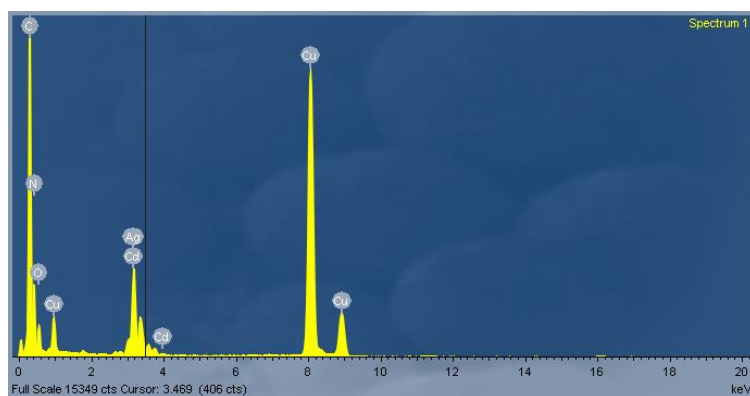
**Figure S1.** The PXRD patterns of **BIF-82** under different conditions.



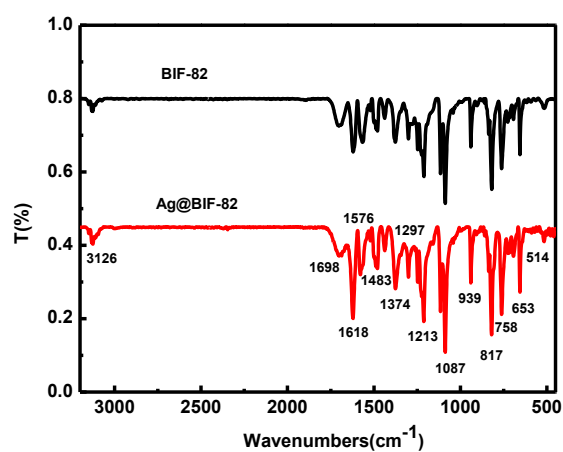
**Figure S2.** Thermogravimetric analysis of **BIF-82** sample.



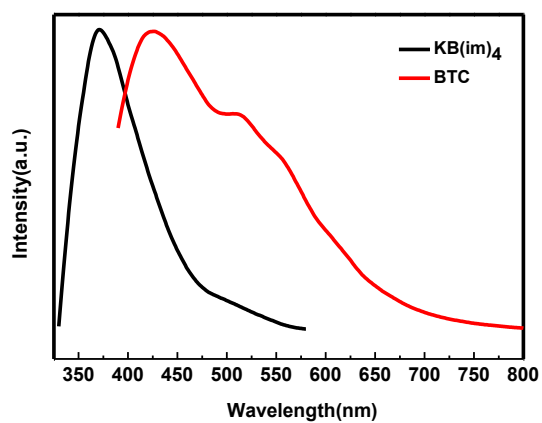
**Figure S3.** (a) The asymmetric unit of **BIF-81**. (b) View of the 3D structure of **BIF-81**.



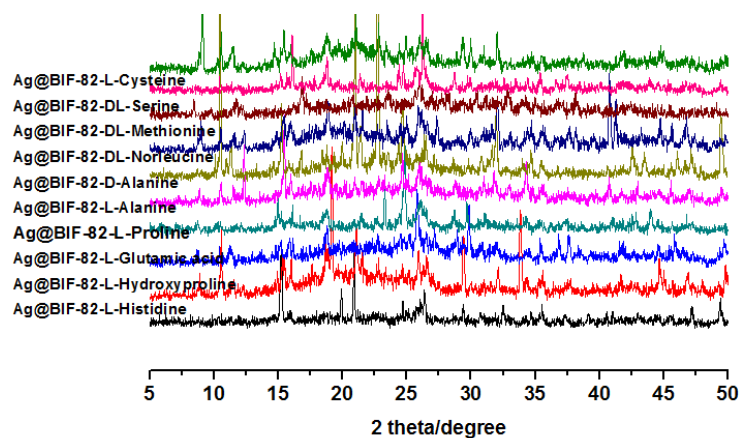
**Figure S4.** EDX of Ag@BIF-82.



**Figure S5.** FTIR spectrum of the sample of BIF-82.



**Figure S6.** The solid-state emission spectra ( $\lambda_{\text{ex}} = 335 \text{ nm}$ ) for BTC and KB(im)<sub>4</sub>.



**Figure S7.** The PXRD patterns of **Ag@BIF-82** sensing experiments under different conditions.

| Sample Name         | $\tau_1$           | $\tau_2$          | $\tau_3$          |
|---------------------|--------------------|-------------------|-------------------|
| <b>BIF-82</b>       | 2.82E-10<br>44.31  | 2.207E-9<br>45.32 | 2.303E-8<br>10.37 |
| BTC                 | 7.437E-10<br>55.48 | 9.202E-9<br>20.09 | 5.725E-8<br>24.43 |
| KB(im) <sub>4</sub> | 2.240E-9<br>28.85  | 1.144E-9<br>47.20 | 4.265E-8<br>23.95 |

Table S1. The solid-state photoluminescent lifetimes ( $\tau$ ) of BTC、KB(im)<sub>4</sub> and **BIF-82** under room temperature.