Electronic Supplementary Material (ESI) for Dalton Transactions.

Supporting information

A reliable amplified fluorescence-enhanced chemosensor (Eu-MIL-61) for directional detection of Ag+ in aqueous solution

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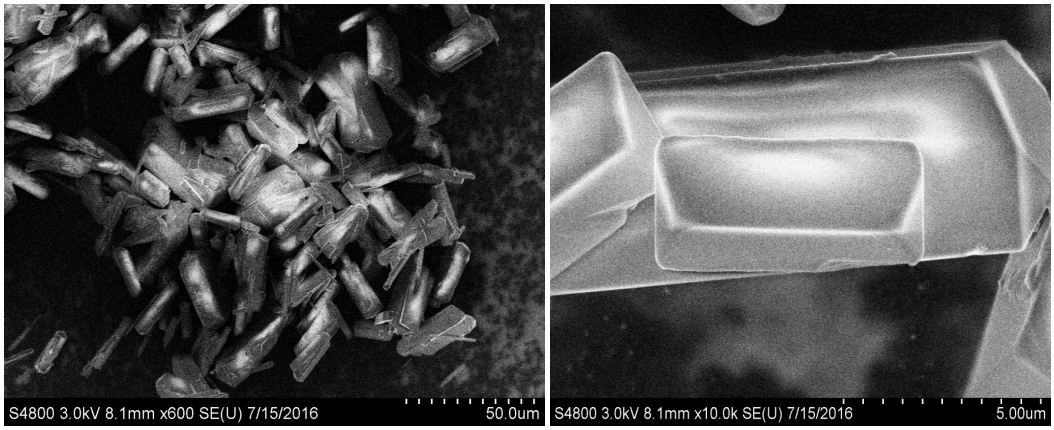

Fig. S1 The SEM image of the as-prepared Eu-MIL-61.

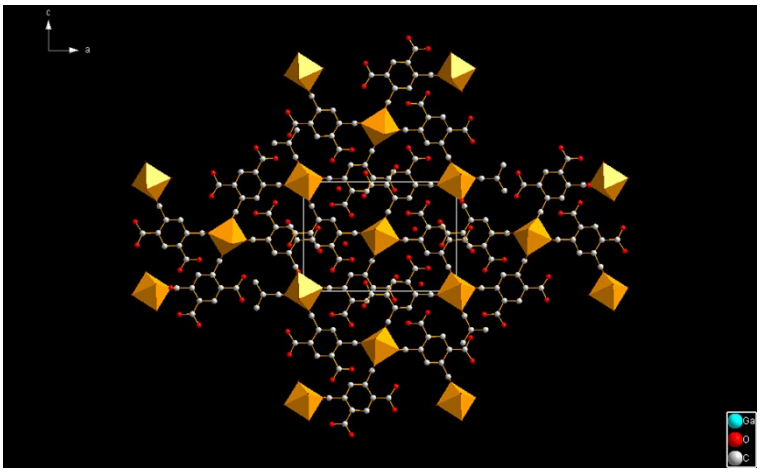

Fig. S2 The 3D-structure of MIL-61.

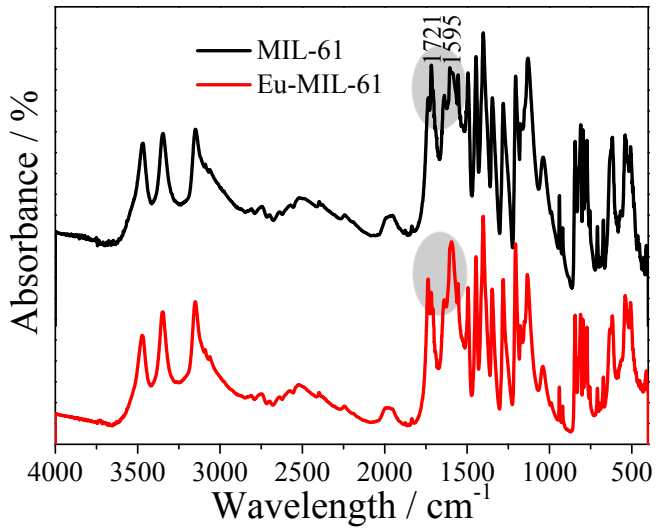

Fig. S3 The FTIR spectra of MIL-61 and Eu-MIL-61.

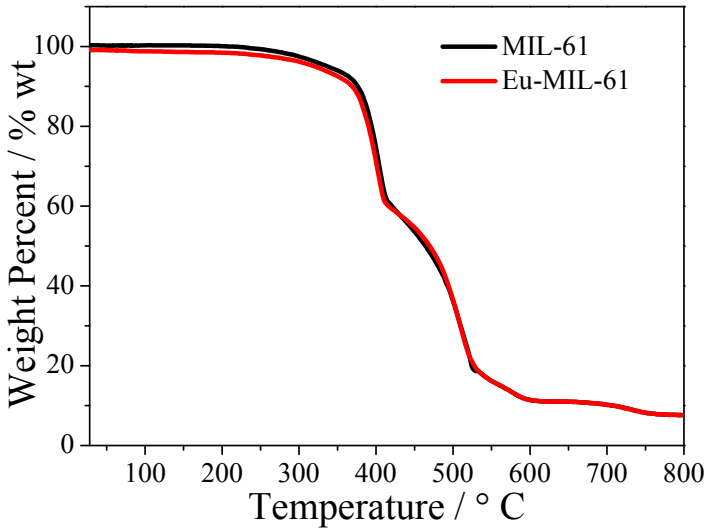

Fig. S4 Thermal gravimetric analysis of MIL-61 and Eu-MIL-61.

Table S1 The ICPMS results of the Eu-MIL-61

Samples	Ga (ppm)	Eu (ppm)
Eu-MIL-61	36.19	0.703

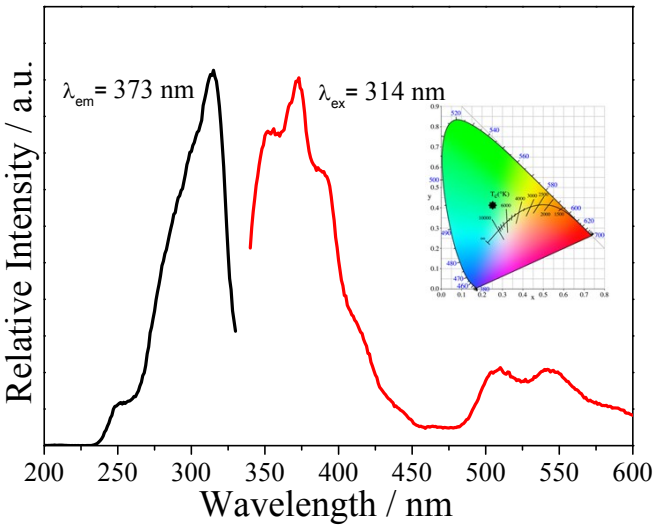

Fig. S5 The excitation and emission spectra of MIL-61. The inset is the corresponding CIE chromaticity diagram (x = 0.2487, y= 0.4074).

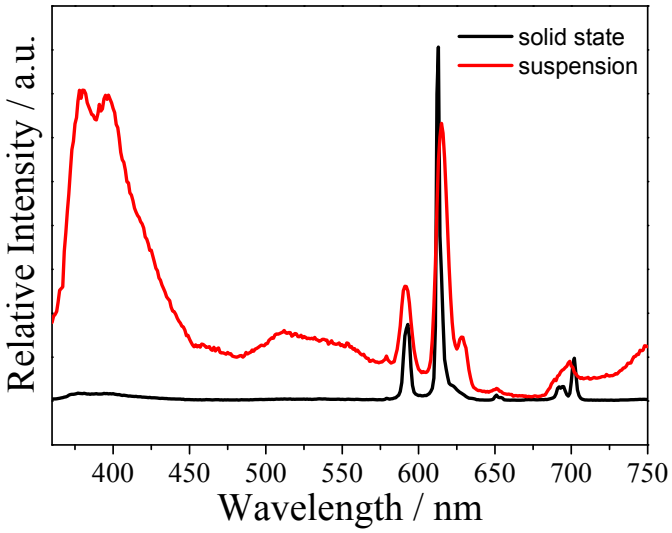

Fig. 6 The fluorescence emission spectra of solid–state Eu-MIL-61 (black line) and suspension-state Eu-MIL-61 (red line).

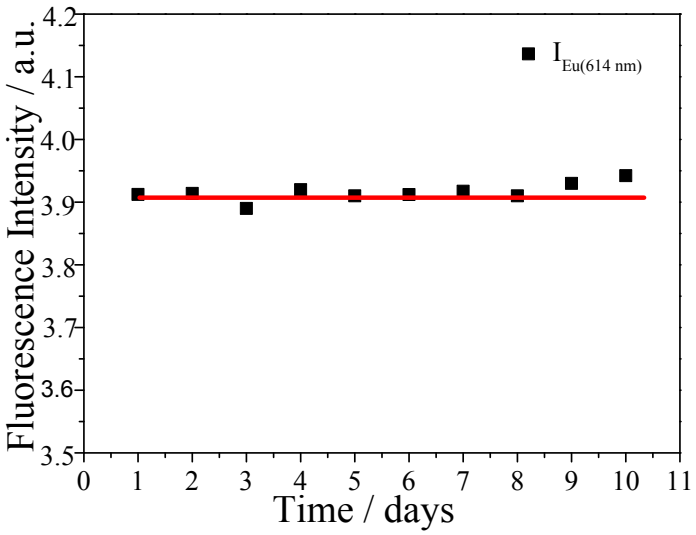

Fig. S7 Day to day fluorescence stability of Eu-MIL-61.

Table S2 Response of luminescence lifetime of Eu-MIL-61 towards aqueous solutions of various metal ions

Compounds	Luminescence lifetimes (μs)
Eu-MIL-61(1)	232
Ag^{+}@1	1031
Na^{+}@1	216
Cd^{2+}@1	215
Mg^{2+}@1	203
Al^{3+}@1	252
Hg^{2+}@1	217
Zn^{2+}@1	221
Pb^{2+}@1	290
Co^{2+}@1	216
Cu^{2+}@1	124
Fe^{3+}@1	undetectable

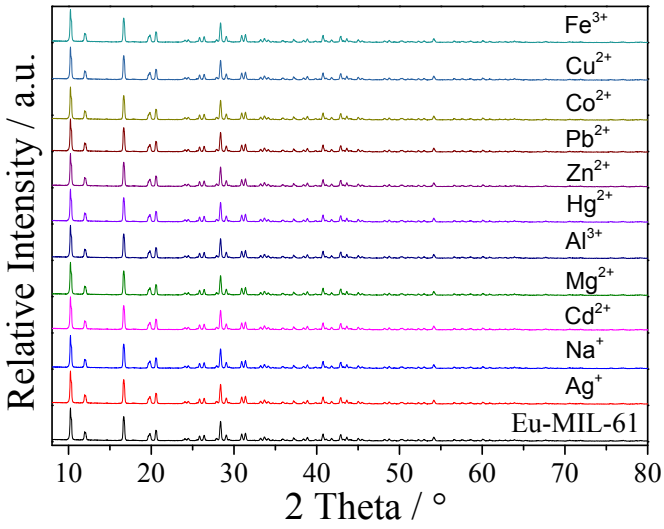

Fig. S8 PXRD patterns of Eu/Pt-MOF treated by different anionic aqueous solutions, demonstrating the well-retained framework of Eu/Pt-MOF during the experiment.

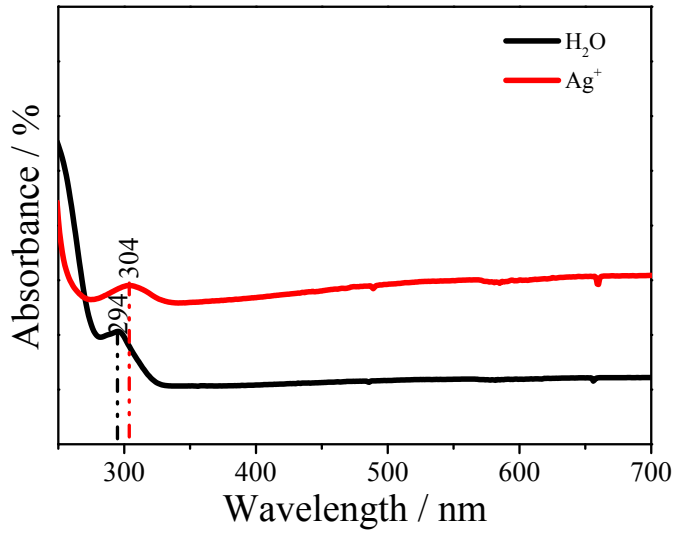

Fig. S9 The UV-vis spectra of the Eu-MIL-61 in aqueous solutions (black line) and upon addition of Ag+ in aqueous solution (red line).

Reference

1 T. Loiseau, H. Muguerra, M. Haouas, F. Taulelle, G. Férey, *Solid State Sciences*, 2005, **7**, 603.
2 K. Barthelet, D. Riou, M. Nogues, G. Ferey, Inorg. Chem. 2003, 42, 1739.