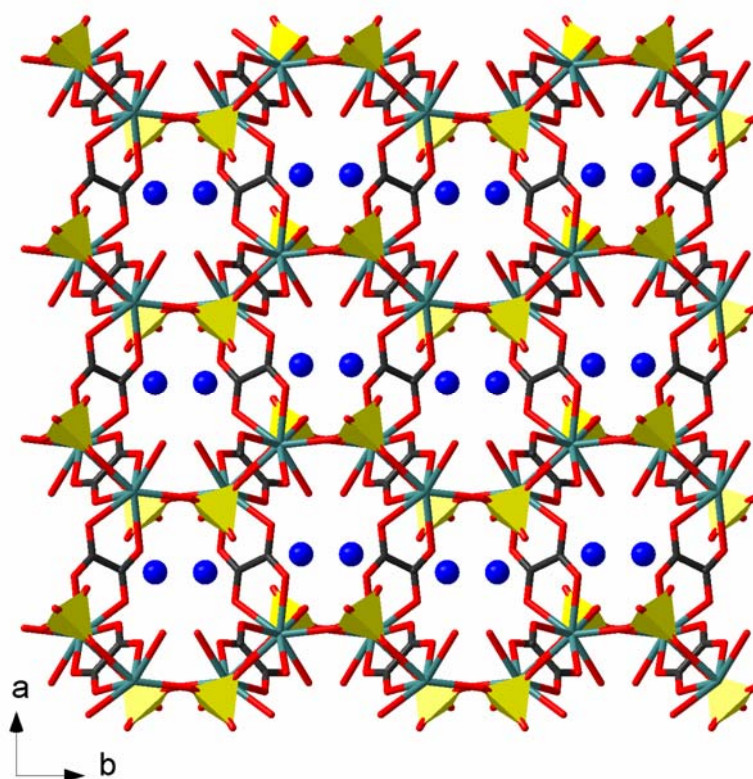


## Supplementary Information

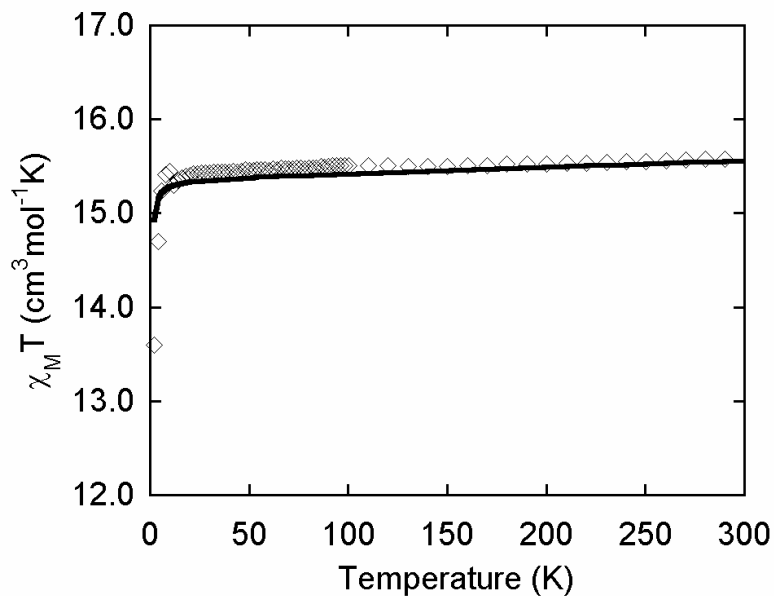
### Five Related Metal-Organic Frameworks Constructed From $[\text{Ln}_2(\text{SO}_4)_2(\text{H}_2\text{O})_n]^{2+}$

#### Units and Oxalate or Acetate Ligands

**Fig S1.** Perspective view of the framework along the [001] direction in CKMOF-5b for **Gd•4**. Yellow polyhedra denote sulfate anions; blue circles denote N atoms.



**Fig S2.** Fitting of the  $\chi_M T$  data for **Gd•4** by using the Hamiltonian equation,  $H = -JS_{Gd}S_{Gd'}$ , with quantum numbers  $S_{Gd}$  and  $S_{Gd'}$  of 7/2.



$$\chi_M = \frac{2N\beta^2 g^2}{kT} \times \left( \frac{e^x + 5e^{3x} + 14e^{6x} + 30e^{10x} + 55e^{15x} + 91e^{21x} + 140e^{28x}}{1 + 3e^x + 5e^{3x} + 7e^{6x} + 9e^{10x} + 11e^{15x} + 13e^{21x} + 15e^{28x}} \right)$$

with  $x = J/kT$

**Fig. S3.** Emission spectra, recorded at room temperature, of (a) **Eu•3** and (b) **Tb•6**.

