

Electronic Supplementary Information (ESI)

**Rare-earth Organic Frameworks Involving Three Types Architectures
Tuned by Lanthanide Contraction Effect: Hydrothermal Syntheses,
Structures and Luminescence**

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Figure S1. The 3D framework of complex **4** stabilized by hydrogen bonding interactions between different layers.

Figure S2. PXRD patterns for complexes **1-10**.

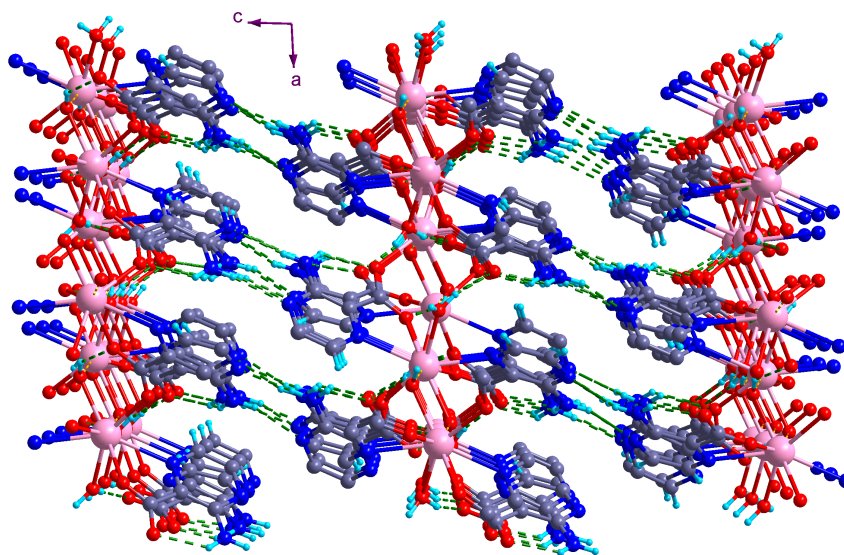


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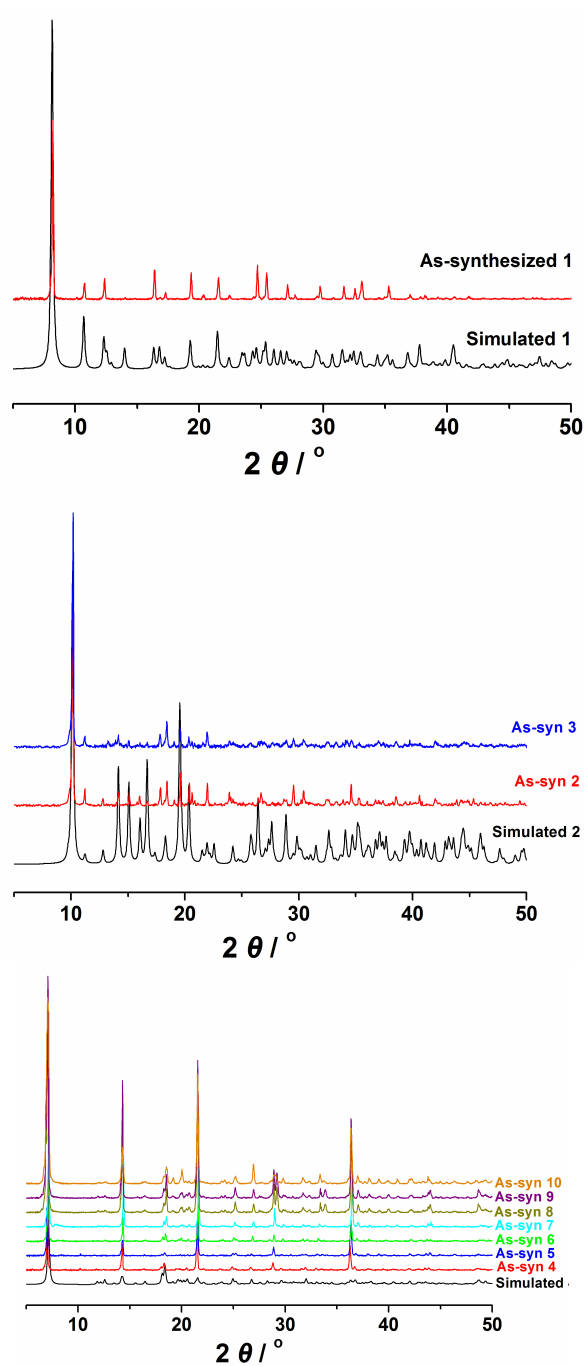


Figure S2. PXRD patterns for complexes 1-10.

Table S1. Selected Bond Lengths (Å) for Complexes **3** and **5-10^a**

Complex 3			
Nd(1)-O(1)	2.442(2)	Nd(1)-O(6) ⁱⁱ	2.511(2)
Nd(1)-O(2W)	2.483(2)	Nd(1)-O(3)	2.512(2)
Nd(1)-O(2) ⁱ	2.495(2)	Nd(1)-O(1W)	2.573(2)
Nd(1)-O(5)	2.503(2)	Nd(1)-N(1)	2.731(2)
Nd(1)-O(4) ⁱⁱ	2.5086(19)		
Complex 5			
Eu(1)-O(10)	2.265(3)	Eu(2)-O(9)	2.249(3)
Eu(1)-O(9)	2.331(3)	Eu(2)-O(10)	2.337(3)
Eu(1)-O(5)	2.403(3)	Eu(2)-O(1)	2.405(3)
Eu(1)-O(2) ⁱ	2.420(3)	Eu(2)-O(3)	2.408(3)
Eu(1)-O(7)	2.424(3)	Eu(2)-O(1W)	2.434(3)
Eu(1)-O(2W)	2.427(3)	Eu(2)-O(6) ⁱⁱ	2.442(3)
Eu(1)-N(10)	2.623(3)	Eu(2)-N(4)	2.651(4)
Eu(1)-N(7)	2.679(3)	Eu(2)-N(1)	2.657(3)
Complex 6			
Gd(1)-O(9)	2.256(2)	Gd(2)-O(10)	2.248(2)
Gd(1)-O(10)	2.318(3)	Gd(2)-O(9)	2.331(3)
Gd(1)-O(1)	2.391(3)	Gd(2)-O(5)	2.394(3)
Gd(1)-O(6) ⁱ	2.405(2)	Gd(2)-O(7)	2.402(2)
Gd(1)-O(1W)	2.410(3)	Gd(2)-O(2W)	2.421(3)
Gd(1)-O(3)	2.418(2)	Gd(2)-O(2) ⁱⁱ	2.428(3)
Gd(1)-N(4)	2.612(3)	Gd(2)-N(10)	2.639(3)
Gd(1)-N(1)	2.663(3)	Gd(2)-N(7)	2.642(3)
Complex 7			
Tb(1)-O(9)	2.243(3)	Tb(2)-O(10)	2.253(3)
Tb(1)-O(10)	2.320(3)	Tb(2)-O(9)	2.306(3)

Tb(1)-O(1)	2.384(3)	Tb(2)-O(5)	2.382(3)
Tb(1)-O(3)	2.398(3)	Tb(2)-O(2W)	2.408(3)
Tb(1)-O(1W)	2.419(3)	Tb(2)-O(2) ⁱⁱ	2.409(3)
Tb(1)-O(6) ⁱ	2.433(3)	Tb(2)-O(7)	2.414(3)
Tb(1)-N(1)	2.636(3)	Tb(2)-N(10)	2.617(3)
Tb(1)-N(4)	2.643(3)	Tb(2)-N(7)	2.658(3)

Complex 8

Dy(1)-O(10)	2.224(4)	Dy(2)-O(9)	2.217(4)
Dy(1)-O(9)	2.294(4)	Dy(2)-O(10)	2.305(4)
Dy(1)-O(1)	2.363(4)	Dy(2)-O(5)	2.361(4)
Dy(1)-O(1W)	2.378(4)	Dy(2)-O(7)	2.374(4)
Dy(1)-O(6) ⁱ	2.387(4)	Dy(2)-O(2W)	2.391(4)
Dy(1)-O(3)	2.391(4)	Dy(2)-O(2) ⁱⁱ	2.403(4)
Dy(1)-N(4)	2.585(5)	Dy(2)-N(7)	2.607(5)
Dy(1)-N(1)	2.635(5)	Dy(2)-N(10)	2.614(5)

Complex 9

Er(1)-O(9)	2.214(6)	Er(2)-O(10)	2.204(6)
Er(1)-O(10)	2.271(6)	Er(2)-O(9)	2.283(6)
Er(1)-O(5)	2.333(6)	Er(2)-O(1)	2.345(6)
Er(1)-O(2) ⁱ	2.357(6)	Er(2)-O(3)	2.366(6)
Er(1)-O(2W)	2.366(7)	Er(2)-O(6) ⁱⁱ	2.367(6)
Er(1)-O(7)	2.373(6)	Er(2)-O(1W)	2.368(7)
Er(1)-N(10)	2.556(8)	Er(2)-N(1)	2.588(7)
Er(1)-N(7)	2.614(7)	Er(2)-N(4)	2.592(7)

Complex 10

Y(1)-O(9)	2.214(4)	Y(2)-O(10)	2.204(4)
Y(1)-O(10)	2.268(4)	Y(2)-O(9)	2.283(4)
Y(1)-O(5)	2.346(4)	Y(2)-O(1)	2.345(4)
Y(1)-O(2) ⁱ	2.358(4)	Y(2)-O(3)	2.357(4)
Y(1)-O(2W)	2.360(4)	Y(2)-O(6) ⁱⁱ	2.372(4)
Y(1)-O(7)	2.367(4)	Y(2)-O(1W)	2.373(4)

Y(1)-N(10)	2.572(4)	Y(2)-N(1)	2.585(5)
Y(1)-N(7)	2.622(4)	Y(2)-N(4)	2.605(4)

^aSymmetry codes for **3**: i, $-x+3/2, y+1/2, -z+3/2$; ii, $x, -y+1, z+1/2$. Symmetry codes for **5**: i, $-x+1/2, y-1/2, -z+1/2$; ii, $-x+3/2, y+1/2, -z+1/2$. Symmetry codes for **6**: i, $-x+1/2, y+1/2, -z+1/2$; ii, $-x+3/2, y-1/2, -z+1/2$. Symmetry codes for **7**: i, $-x+1/2, y-1/2, -z+1/2$; ii, $-x+3/2, y+1/2, -z+1/2$. Symmetry codes for **8**: i, $-x+1/2, y+1/2, -z+1/2$; ii, $-x+3/2, y-1/2, -z+1/2$. Symmetry codes for **9**: i, $-x+1/2, y+1/2, -z+1/2$; ii, $-x+3/2, y-1/2, -z+1/2$. Symmetry codes for **10**: i, $-x+1/2, y+1/2, -z+1/2$; ii, $-x+3/2, y-1/2, -z+1/2$.
