Electronic Supplementary Information for

Syntheses and Luminescence of Complete Solid Solutions

Gd$_{1-x}$Eu$_x$[B$_6$O$_9$(OH)$_3$] and α-Gd$_{1-x}$Eu$_x$B$_5$O$_9$

Xuefang Yi, Rihong Cong,* Zhengyang Zhou, Pengfei Jiang, Wenliang Gao, Tao Yang*

College of Chemistry and Chemical Engineering, Chongqing University, Chongqing 400044, P. R. China

*Correspondence authors, Email: congrihong@cqu.edu.cn and taoyang@cqu.edu.cn; Tel: (8623)65105065, Fax: (8623)65105065.
Figure S1. Since the powder XRD for all complete solid solutions are generally the same. We performed the Le Bail fitting for samples of Gd\([B_6O_9(OH)_3]_3\), \(\alpha\)-GdB\(_9\)O\(_9\) to show the purity. The circles \(\circ\) represents the observed data and the red solid line is the calculated pattern; the marks below the diffraction patterns are the expected reflection positions and, the difference curve (in black) is also shown below the diffraction curves. Cell parameters are shown in Figure, which were obtained by Le Bail fitting in TOPAS.
Figure S2. A crystal structure view of Gd[B$_6$O$_9$(OH)$_3$]. The red spheres are Gd$^{3+}$, which are surrounded by 9 oxygen atoms in a close-to-centrosymmetric environment: Gd-O2, 2.387Å; Gd-O3, 2.392Å; Gd-O4, 2.470Å.