

Supporting information

Lanthanide complexes-functionalized polyhedral oligomeric silsesquioxane with multicolor emission covered from 450 nm to 1700 nm

**Lining Sun,*^a Ying Liu,^a Song Dang,^b Zhuyi Wang,^a Jinliang Liu,^a Jifang Fu^a
and Liyi Shi*^a**

^a Research Center of Nano Science and Technology, and School of Material Science and Engineering, Shanghai University, Shanghai 200444, P. R. China. E-mail: lnsun@shu.edu.cn (L. N. Sun); shiliyi@shu.edu.cn (L. Y. Shi)

^b State Key Laboratory of Rare Earth Resource Utilization, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, Changchun 130022, P. R. China.

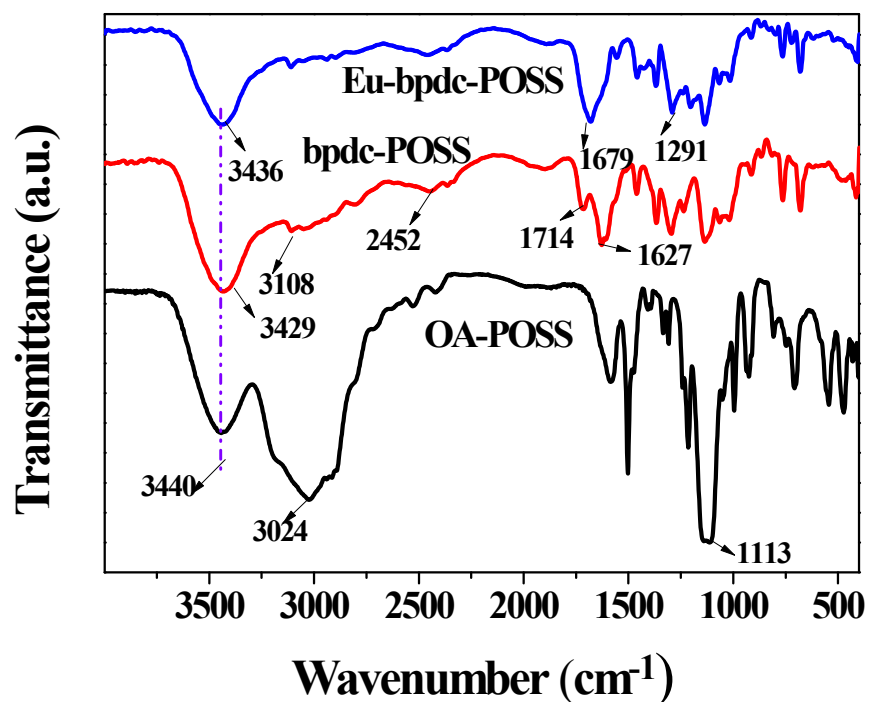
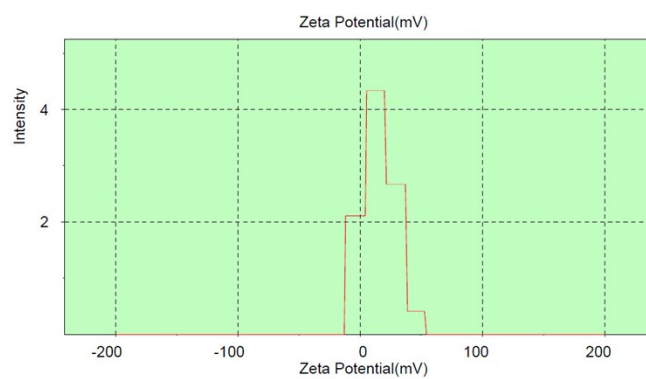
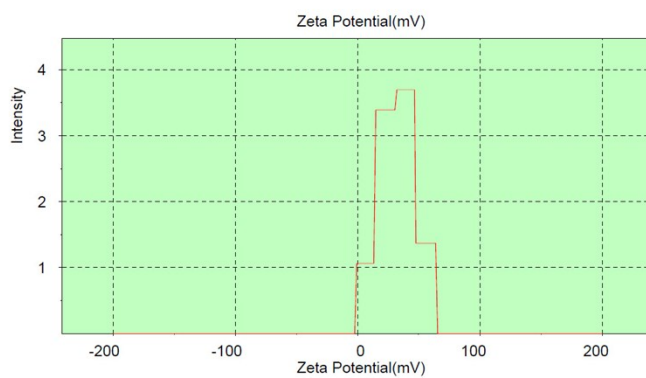


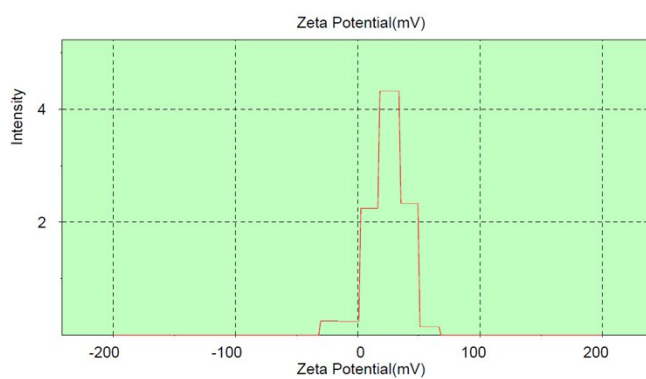
Fig. S1 FT-IR spectra of OA-POSS, bpdc-POSS, and Eu-bpdc-POSS.



(a) OA-POSS



(b) bpdC-POSS



(c) Eu-bpdC-POSS

Fig. S2 The ZETA potential charge of OA-POSS (a), bpdC-POSS (b) and Eu-bpdC-POSS (c).

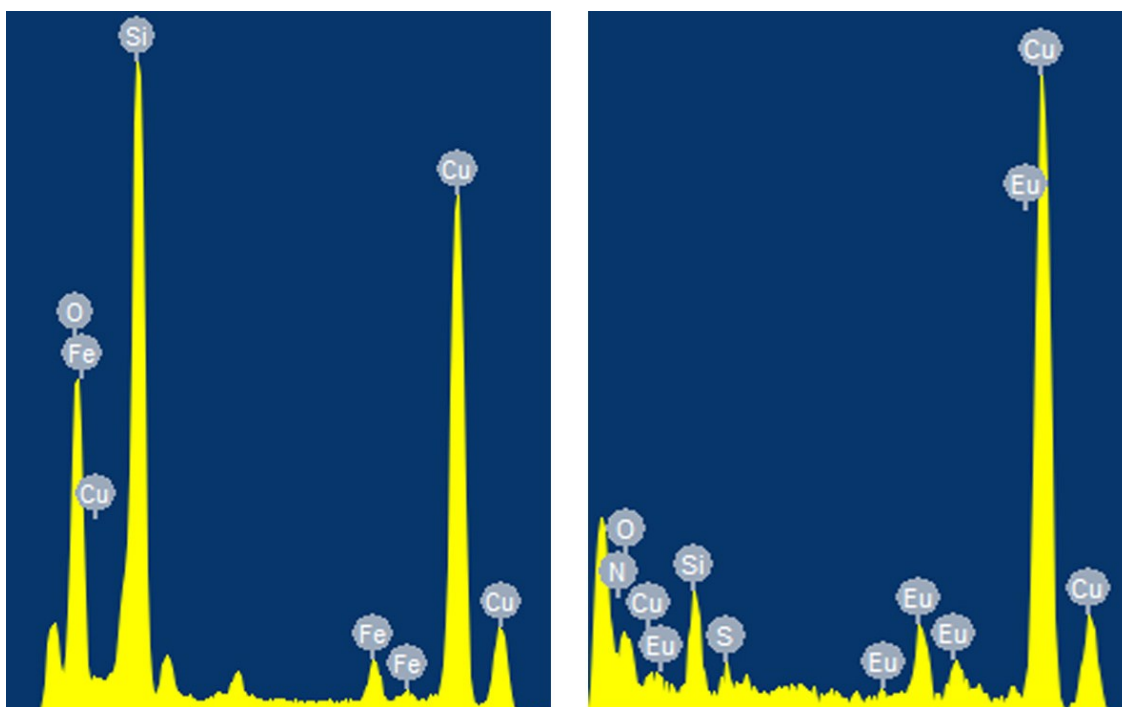


Fig. S3 EDX spectra of OA-POSS (left) and Eu-bpdc-POSS (right).

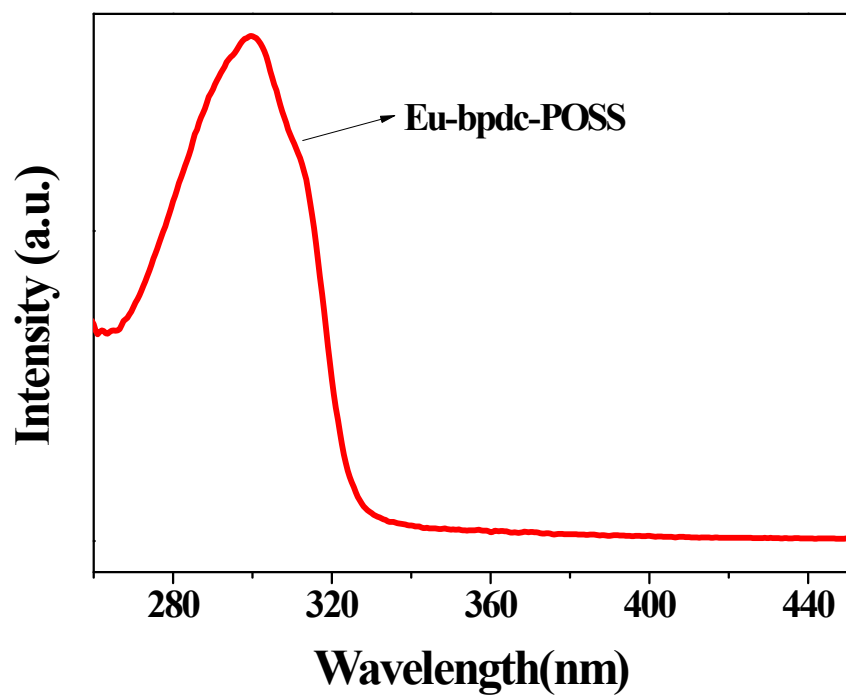


Fig. S4 The UV-Vis absorption spectrum of Eu-bpdc-POSS (in DMSO).

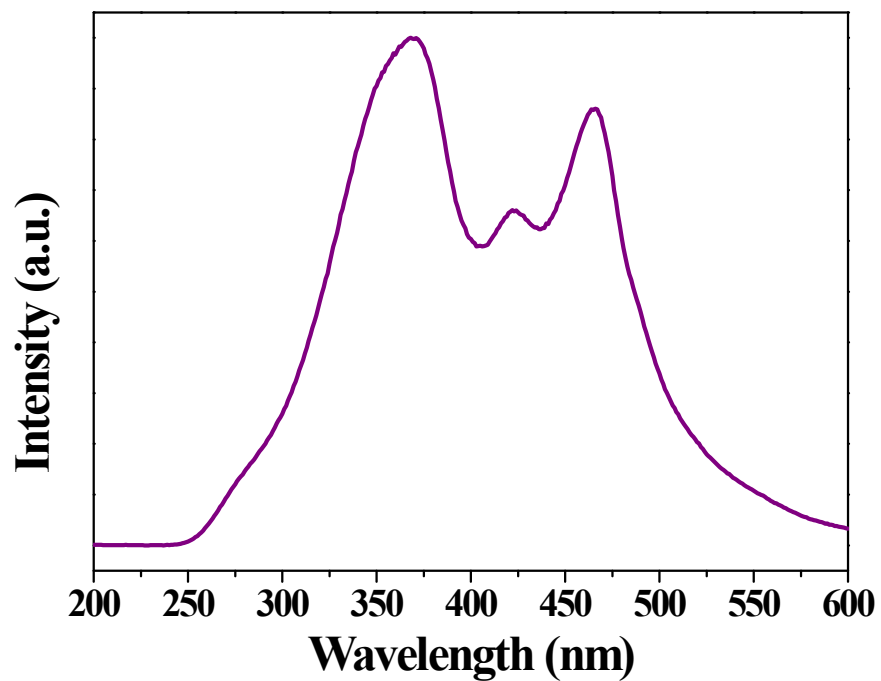


Fig. S5 The excitation spectrum of Yb-bpdc-POSS material ($\lambda_{\text{ex}} = 976$ nm).

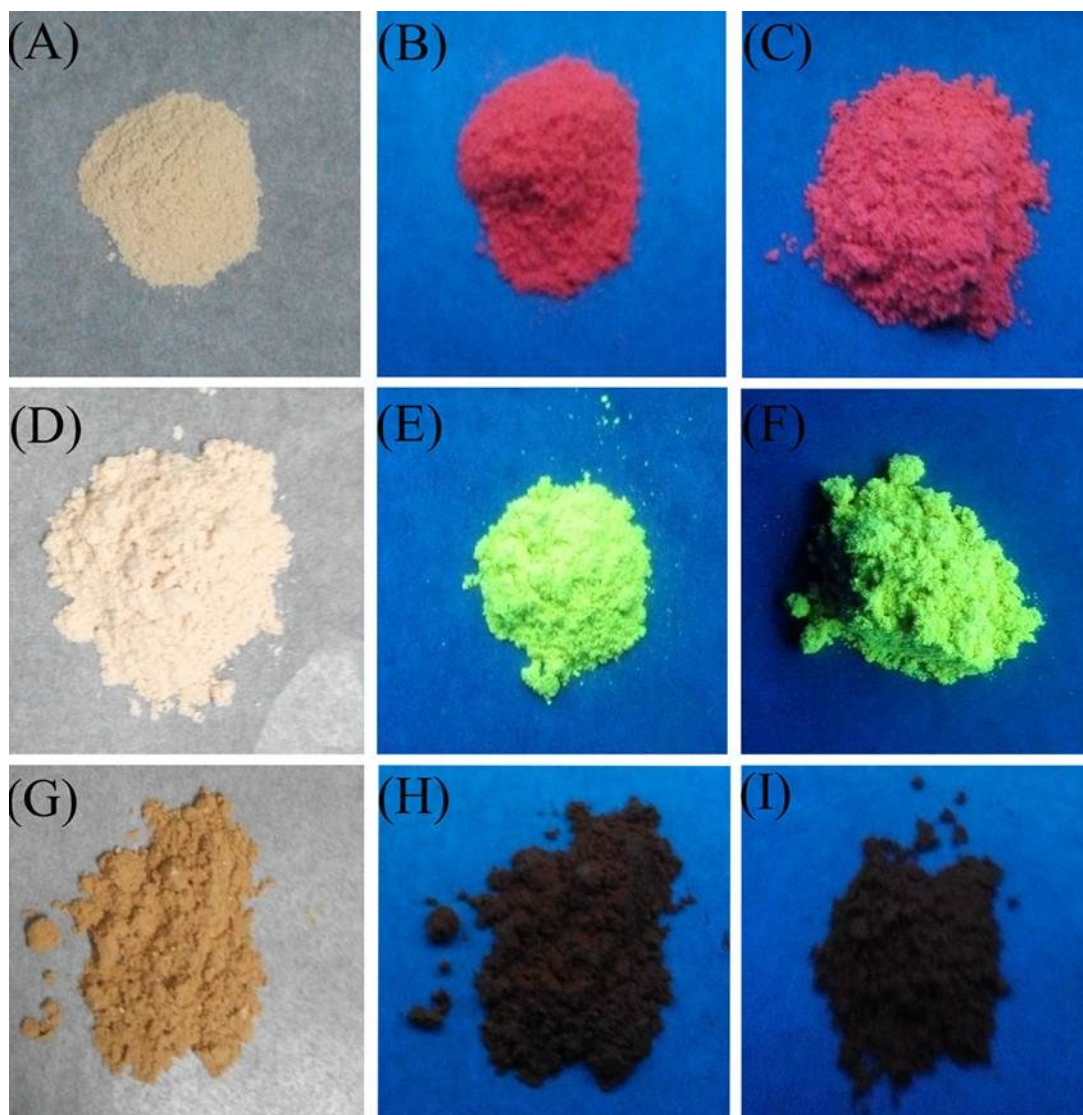


Fig. S6 The digital photographs of Eu-bpdc-POSS (A, B, and C), Tb-bpdc-POSS (D, E, and F) and Sm-bpdc-POSS (G, H, and I), taken under the natural light (A, D, G) and UV light ($\lambda_{\max} = 254$ nm) after one week (B, E, H) and three months (C, F, I), respectively.