Synthesis and Near Infrared Luminescence Properties of a Series of Lanthanide Complexes with POSS Modified Ligands

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The 1H NMR spectrum and MS spectrum of polyhedral oligomeric silsesquioxanes (POSS) modified 8-hydroxyquinoline derivative (Q-POSS) are shown in Figures S1 and S2, respectively. The UV–vis absorption spectra of HQ, ErQ3, NdQ3, and YbQ3 in dichloromethane solutions (1 × 10−5 M) at room temperature are depicted in Figure S3. The excitation spectra of the Ln(Q-POSS)3 and LnQ3 (Ln = Yb, Nd, and Er) complexes are depicted in Figures S4, S5, S6, respectively. The phosphorescence emission spectrum of the Gd(Q-POSS)3 at 77K is shown in Figure S7.

Figure S1. 1H NMR spectrum of the polyhedral oligomeric silsesquioxanes modified 8-hydroxyquinoline derivative (Q-POSS) ligand.
Figure S2. MALDI-TOF mass spectrum of the Q-POSS ligand.

Figure S3. UV–vis absorption spectra of HQ, ErQ₃, NdQ₃, and YbQ₃ in dichloromethane solutions (1 × 10⁻⁵ M) at room temperature.
Figure S4. Excitation spectra of NdQ₃ and Nd(Q-POSS)₃ (monitored at 1068 nm).

Figure S5. Excitation spectra of YbQ₃ and Yb(Q-POSS)₃ (monitored at 980 nm).
Figure S6. Excitation spectra of ErQ₃ and Er(Q-POSS)₃ (monitored at 1536 nm).

Figure S7. Emission spectrum of the Gd(Q-POSS)₃ complex (λₑₓ = 302 nm) complex at 77 K.