Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics

One- and two-photon induced emission in heterobimetallic Zn^{II}-Sm^{III} and Zn^{II}-Tb^{III} complexes with a side-off compartmental ligand

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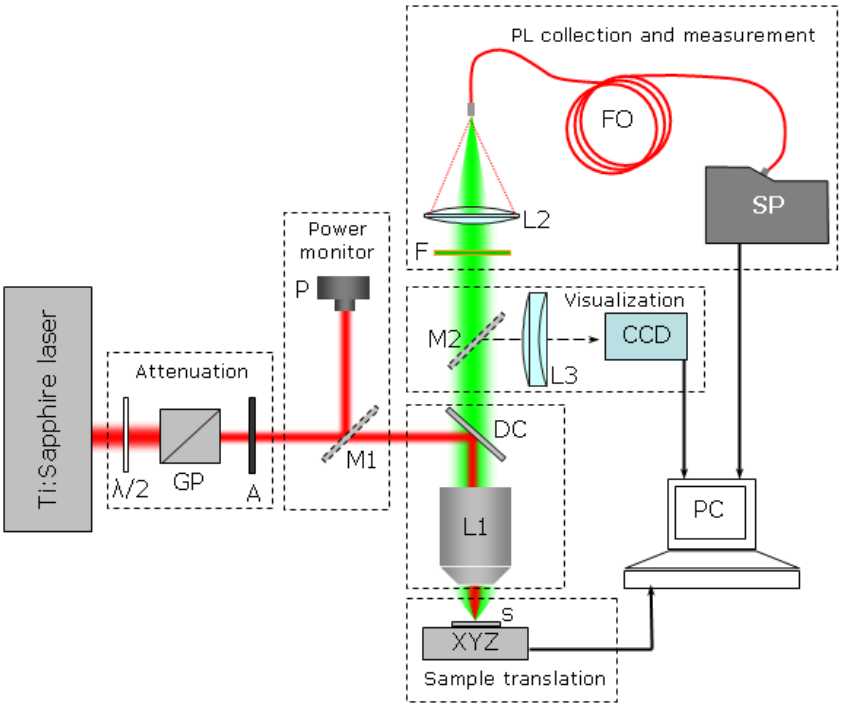
Supplementary Information

I. Experimental



Scheme S1. Experimental set-up for two-photon excited photoluminescence. GP - Glan polarizer; A – neutral density filters; P – Powermeters; DC – Dichroic mirror; L1- 20x focusing lens; S – Sample; XYZ – translation stage; L2 – coupling lens; FO – optical fiber; SP - spectrometer; L3 – imaging lens; CCD – video camera.

II.

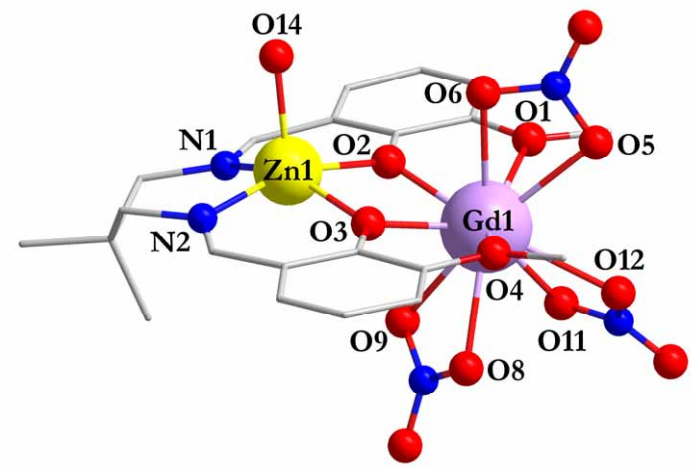


Figure S1. View of the molecular structures for $[Zn(H_2O)(valdmpn)Gd(O_2NO)_3]\cdot H_2O$ **3** .

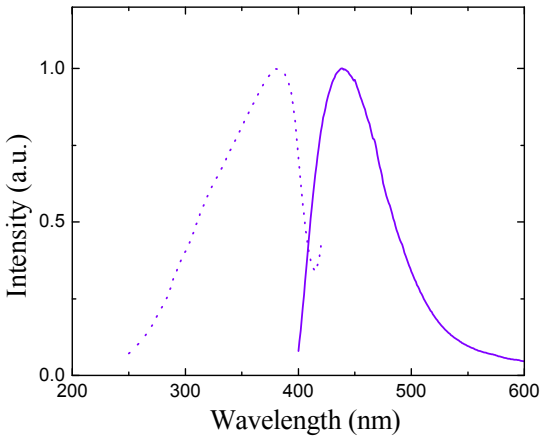


Figure S2. Emission (fluorescence) and excitation spectra of complex **3** (λ_{ex}= 350 nm and λ_{em}= 440 nm).

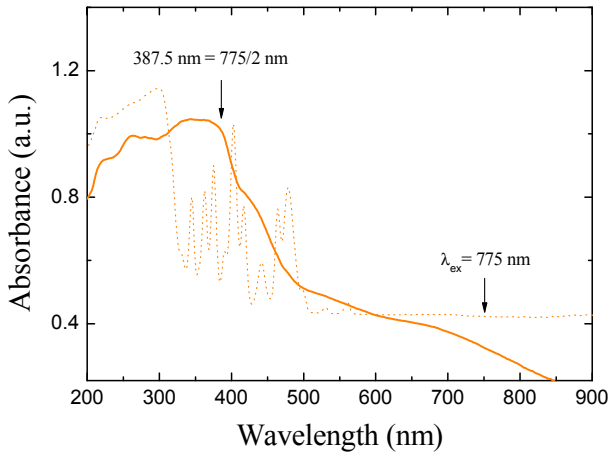


Figure S3. DR-UV/VIS spectra of complex **1** and $Sm(NO_3)_3 \cdot 6H_2O$ (dotted line). The Sm^{III} ions have an energy window, free from linear absorption, between ~ 900 to 550 nm.

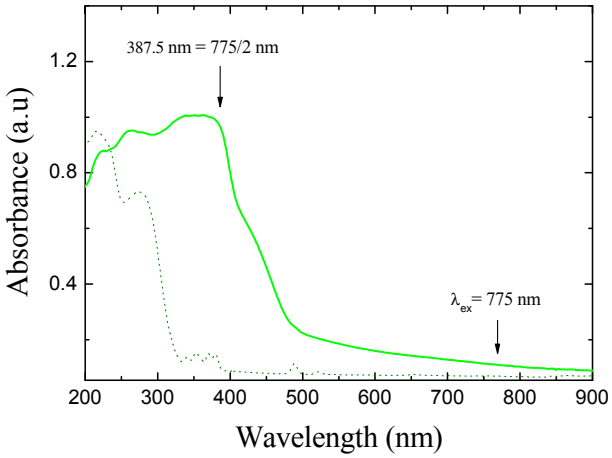


Figure S4. DR-UV/VIS spectra of the mixture of the **2a** + **2b** mixture and $Tb(NO_3)_3 \cdot 6H_2O$ (dotted line). The Tb^{III} ions have an energy window, free from linear absorption, between ~ 1600 to 490 nm. UV-VIS-NIR spectra illustrated in Figures S2 - S4 were recorded on a JASCO V-670 Spectrophotometer using crushed crystals.

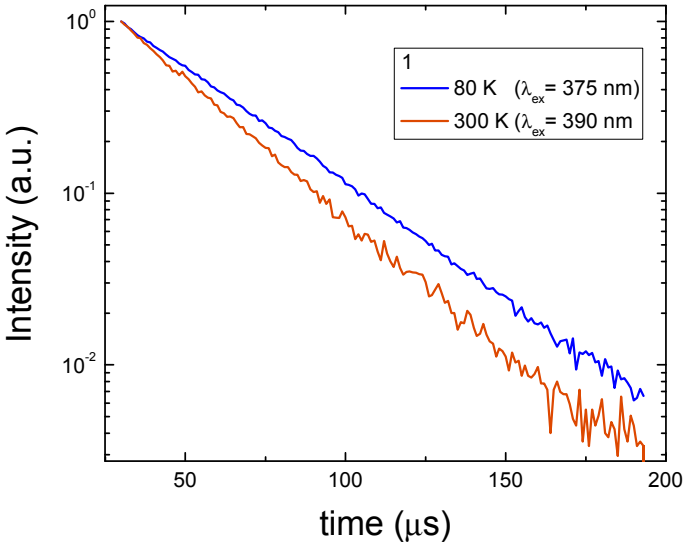


Figure S5. PL decays of **1** measured at 300 and 80 K.

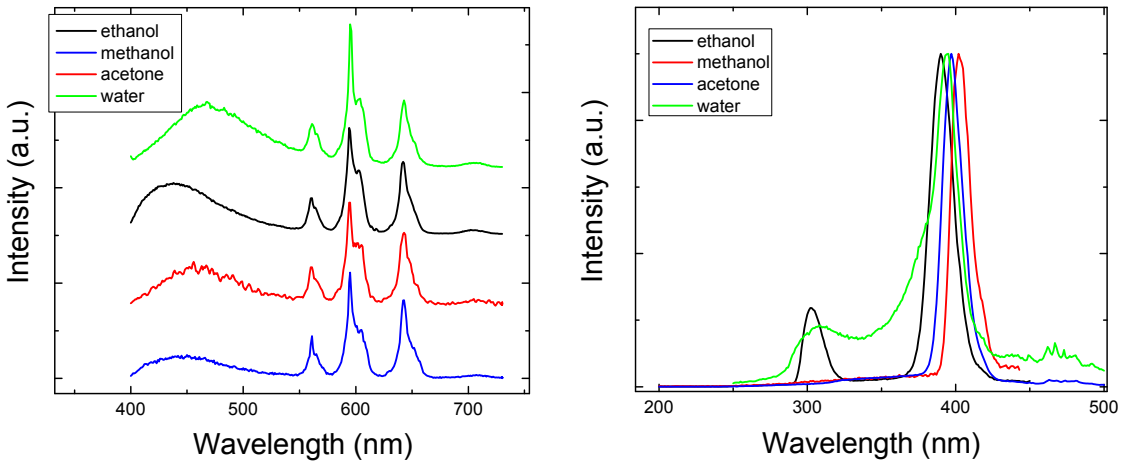


Figure S6. PL and excitation spectra of complex **1** in various solvents. (λ_{ex}= 390 - 400 nm and λ_{em}= 593 nm) The concentration of the solutions was 5 mmol/L. PL decays were non-exponential regardless of the solvent with average PL lifetimes of few μs (water, ethanol and methanol) and 15- 20 μs (acetone).