

Supporting Information for:

A bis(1H-pyridin-2-one)salen Eu(III) complex for vapoluminescent sensing

Yu-Bo Shu^{a,b} and Wei-Sheng Liu^{a*}

^a College of Chemistry and Chemical Engineering, Lanzhou University, Lanzhou 730000, China.

^b School of Chemical and Biological Engineering, Hechi University, Yizhou 546300, China.

E-mail: liuws@lzu.edu.cn; ybshu@foxmail.com

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Materials and instruments

All reagents were commercially available and were used without further purification. The H₂L ligand was synthesized by reaction of ethylenediamine (1.202 g, 0.02 mol) with 2-hydroxynicotinaldehyde (4.924 g, 0.04 mol) in ethanol (100 mL) under reflux for 1 day. The 2-hydroxynicotinaldehyde was synthesized according to the literature^{S1,S2}. Infrared spectra were recorded on a Nicolet FT-170SX instrument using KBr discs in the 400–4000 cm⁻¹ region. Powder X-Ray diffraction (PXRD) patterns were collected with a PANalytical X'Pert Pro Diffractometer operated at 40 kV and 40 mA with Cu K α radiation (step size: 0.0167113°, step time: 10.16 s). Elemental analyses were performed using an Elementar Analysensysteme GmbH varioEL cube instrument. Reflectance spectra were recorded on a Shimadzu UV-2550 UV-Visible Spectrophotometer at room temperature. Steady-state excitation and emission spectra were recorded on FLS920 of Edinburgh Instrument at room temperature. The spectral changes during HCl–Et₃N vapour exposure cycles were collected on a Hitachi F-7000 spectrofluorimeter.

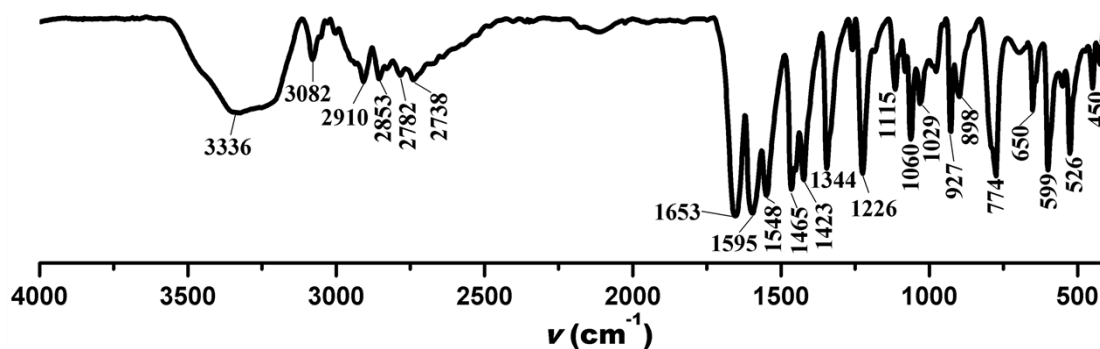


Fig. S1 IR spectrum of 1.

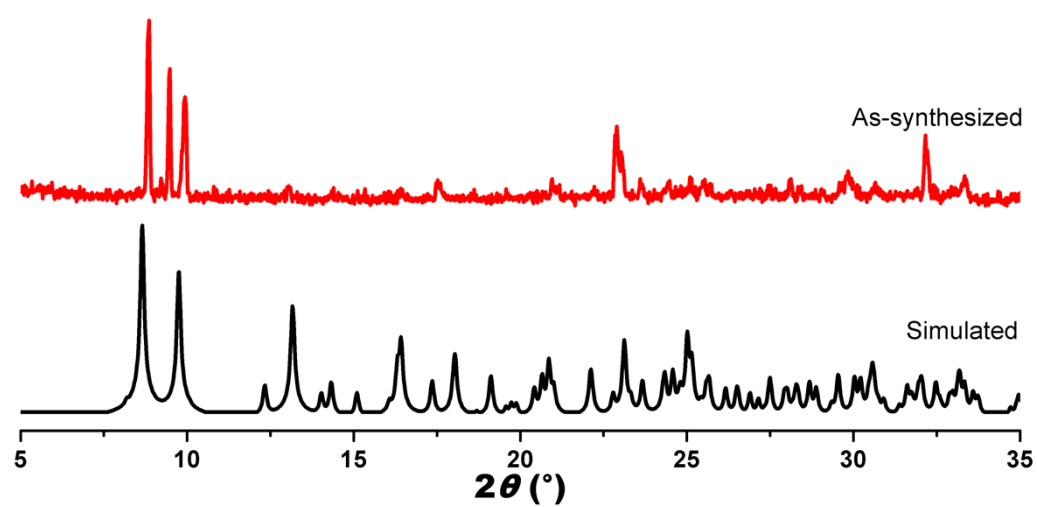


Fig. S2 Powder X-ray diffraction pattern of **1**.

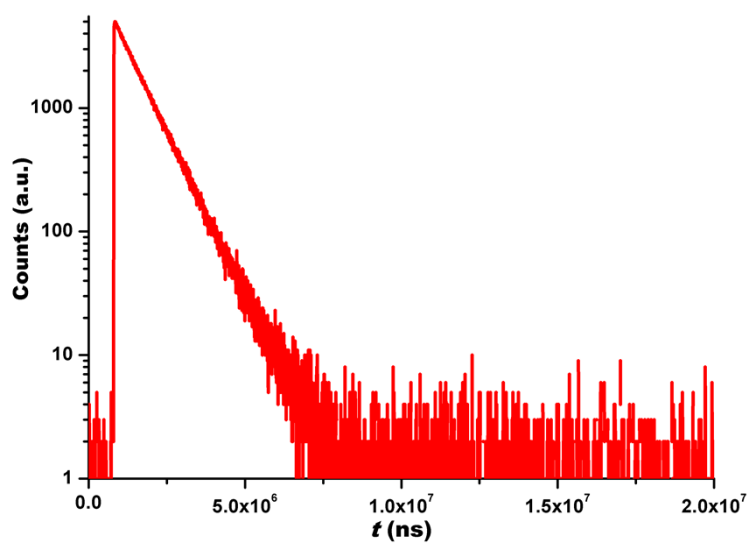


Fig. S3 Luminescence decay profile of **1**.

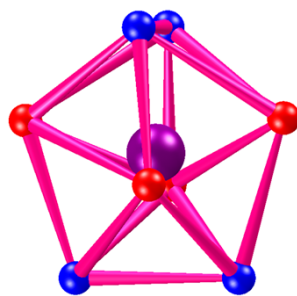


Fig. S4 Coordination geometry of Eu(III) in **1**.

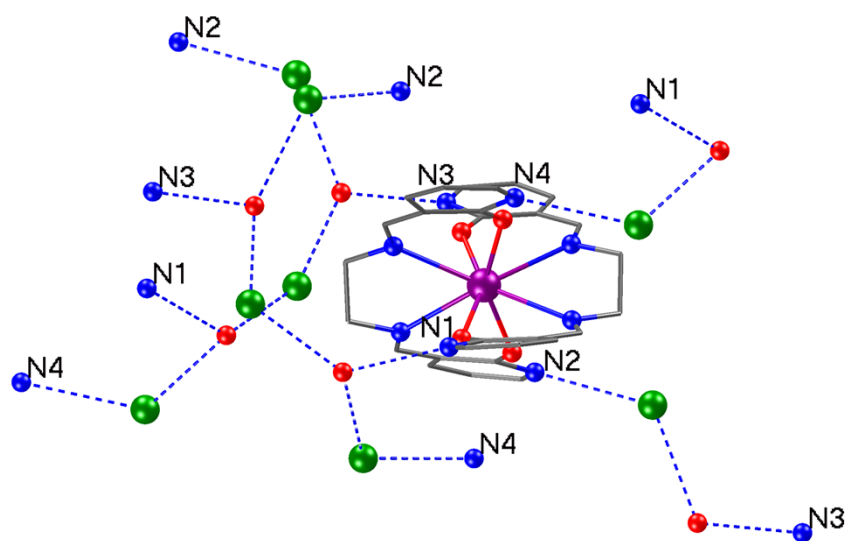


Fig. S5 Hydrogen bonding environments in **1**.

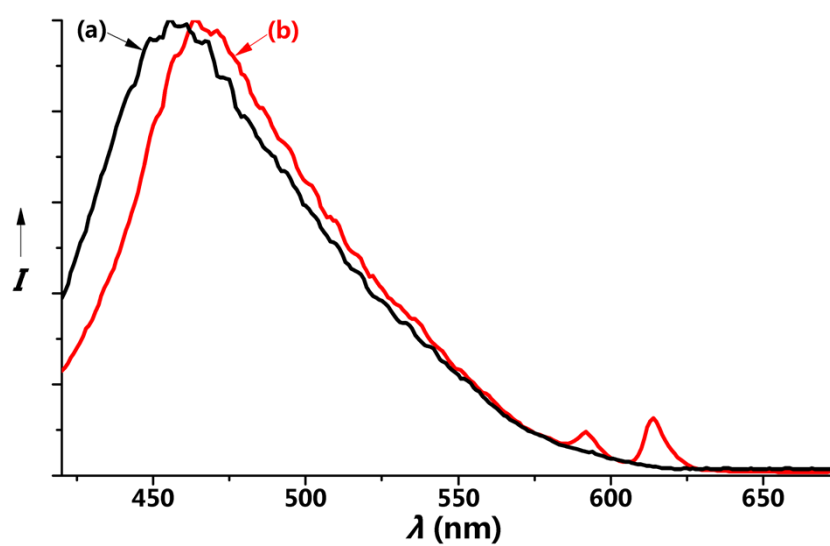


Fig. S6 Emission spectra of (a) ligand powder after exposure to HCl vapor for five minutes and (b) Eu(III) complex film after exposure to HCl vapor.

REFERENCES

S1 E. Metay, E. Léonel, J. Y. Nédélec, *Syn. Commun.*, 2008, **38**, 889.

S2 F. Trecourt, F. Marsais, T. Gungor, G. Queguiner, *J. Chem. Soc. Perkin Trans. I*, **1990**, 2409.