

Supporting information

Synthesis of poly-pendant 1-D chain based on ‘trans-vanadium’ bicapped Keggin-type vanadtungstate and its photocatalytic properties

Qing Lan,^a Zhi-Ming Zhang,^{*a} Yang-Guang Li,^a Ying Lu,^a En-Bo Wang^{*a}

^aKey laboratory of Polyoxometalate Science of Ministry of Education, Department of Chemistry,

Northeast Normal University, Renmin Street No.5268, Changchun, Jilin, 130024, P. R. China. E-mail:

zhangzm178@nenu.edu.cn (Z. M. Zhang), wangeb889@nenu.edu.cn (E. B. Wang)

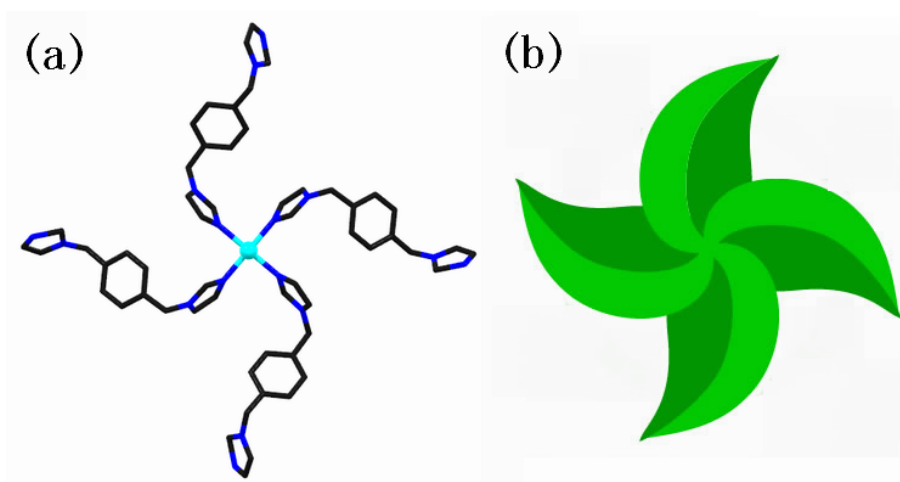


Fig. S1. (a) Polyhedral and ball-and-stick representation of the propeller-shaped structures of the $[\text{NiL}_4]^{2+}$ complex fragments in compound **1**. (b) windmill.

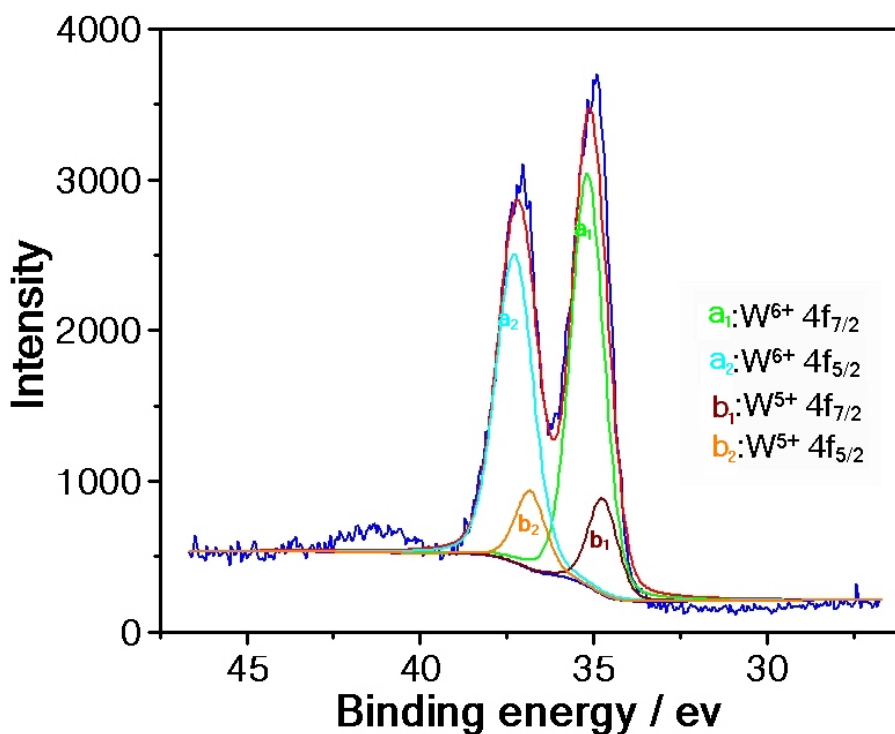


Fig. S2. XPS spectra of W4f level of compound **1**. The XPS of **1** show four partially overlapped peaks, and the fit of curve provides with positions of these four peaks at 34.7, 35.2, 36.8 and 37.3 eV attributing to $\text{W}^{\text{V}} 4f_{7/2}$, $\text{W}^{\text{VI}} 4f_{7/2}$, $\text{W}^{\text{V}} 4f_{5/2}$ and $\text{W}^{\text{VI}} 4f_{5/2}$, respectively. The ratios of the peak are for W^{V} to W^{VI} is ca. 2 : 10.

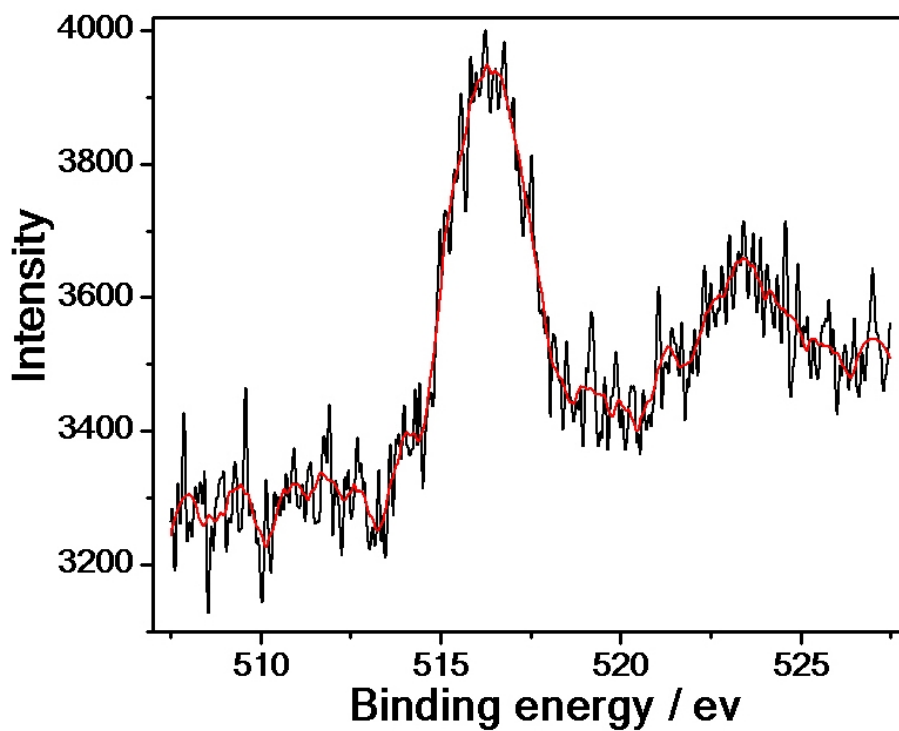


Fig. S3. The XPS spectra for V in compound **1**.

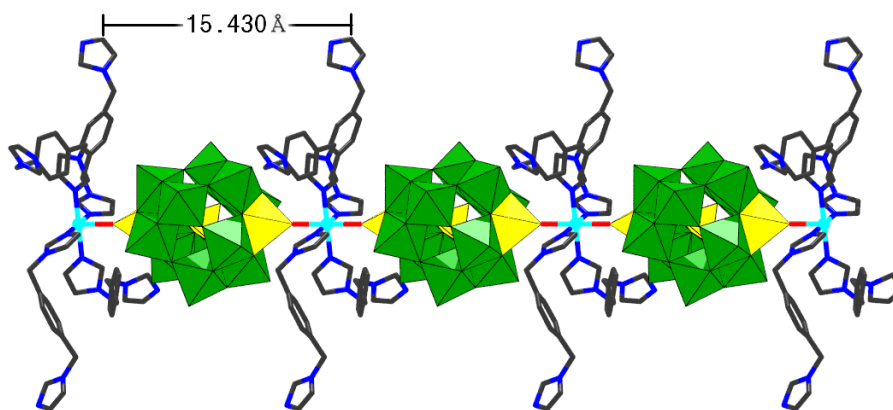


Fig. S4. View of the distance between the adjacent L pendants from two $[\text{NiL}_4]^{2+}$ complexes in compound **1**.

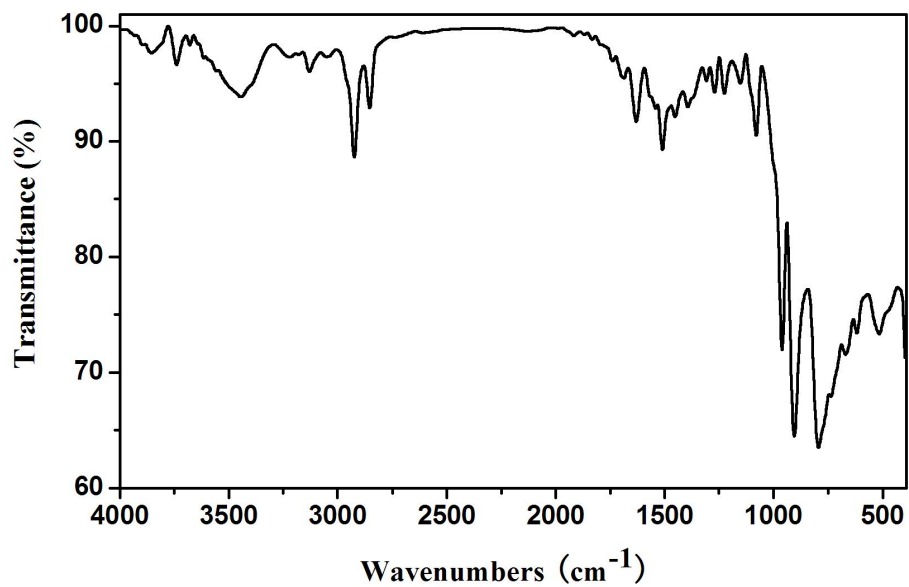


Fig. S5. IR spectrum of compound 1.

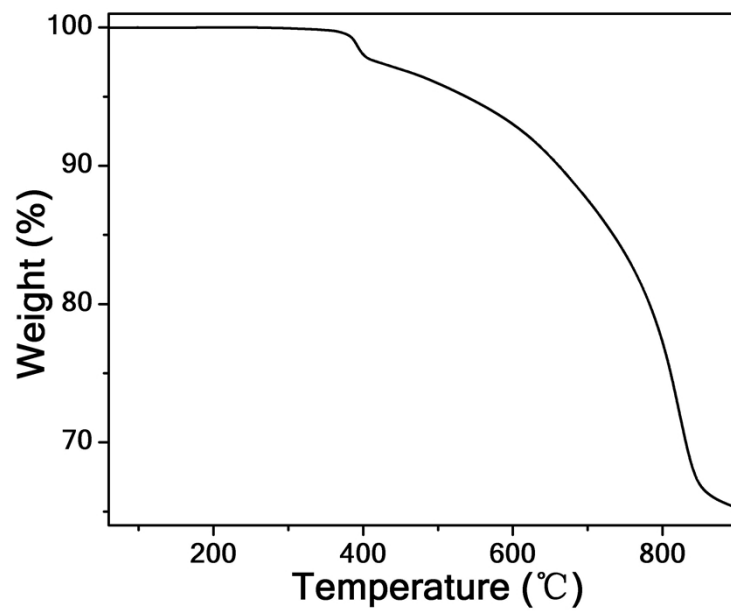


Fig. S6. TG curve for compound 1.

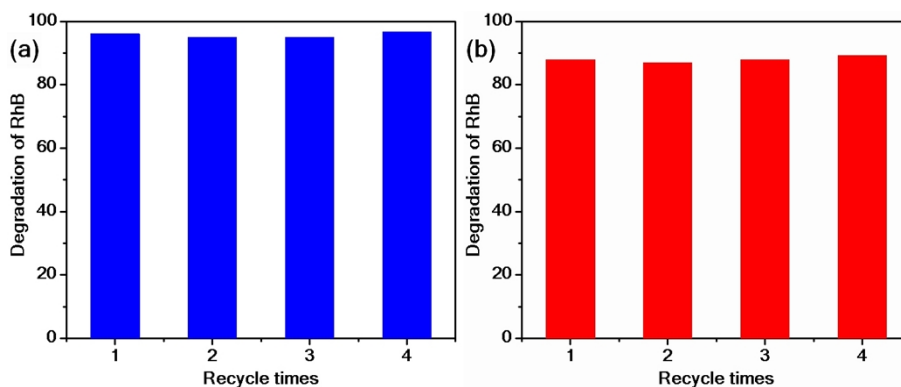


Fig. S7. Four cycles of photocatalytic degradation of MB (a) RhB (b) with compound 1.

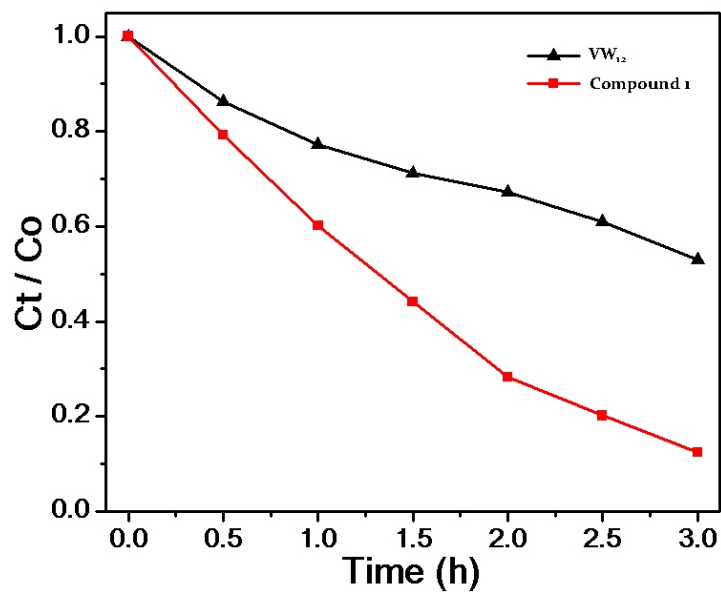


Fig. S8. Absorption spectra of the RhB solution during the decomposition reaction under UV light irradiation with the use of VW_{12} and compound 1.

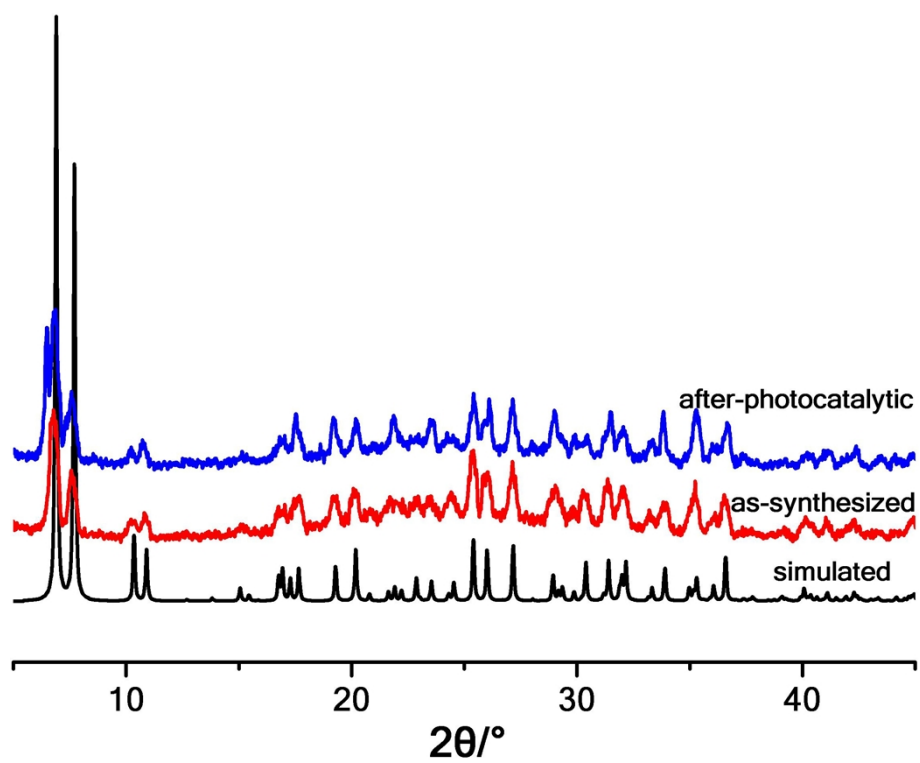


Fig. S9. The PXR D patterns of compound 1.

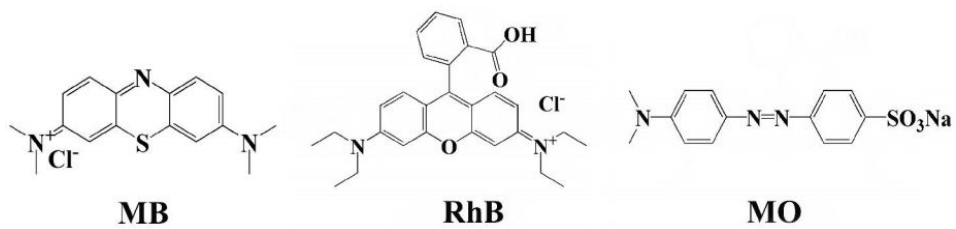


Fig. S10. The structures of methylene blue (MB), Rhodamine B (RhB) and methyl orange (MO).