Electronic Supplementary Information

Construction of a new binding manner in carboxylic acid functionalized phosphomolybdates

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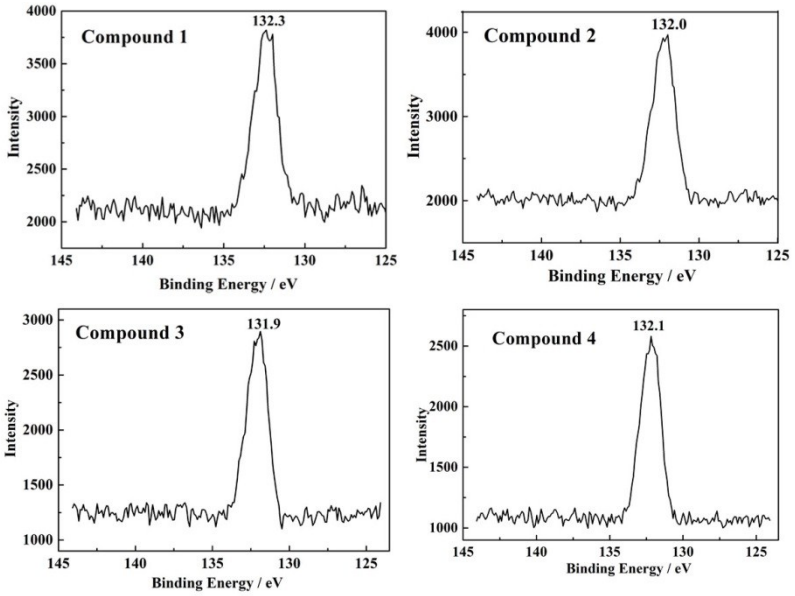

Fig. S1 XPS spectra of compounds **1–4**.

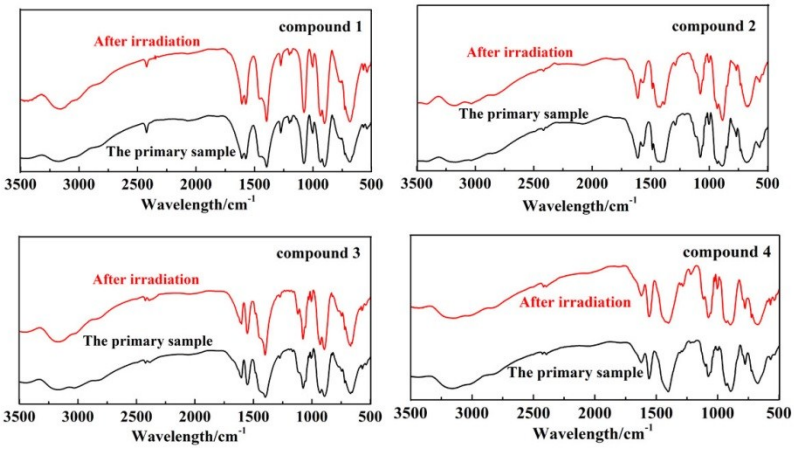

Fig. S2 IR spectra of **1–4** before and after irradiation.

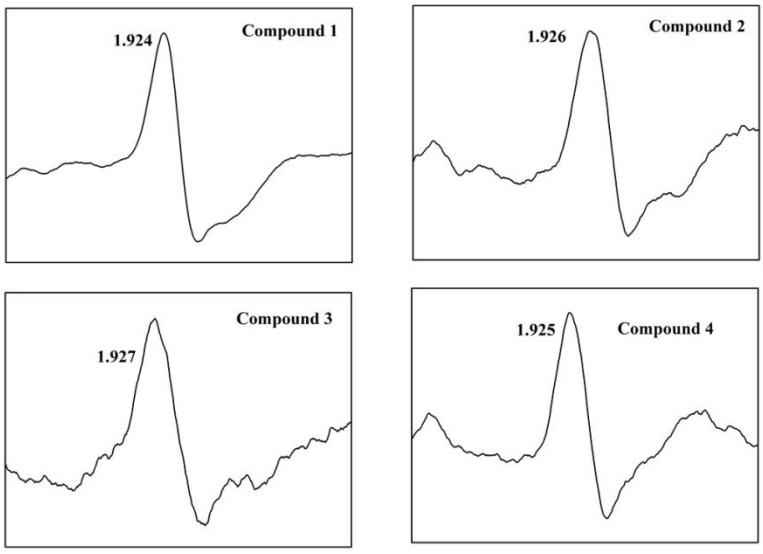

Fig. S3 EPR spectra of compounds **1–4** after irradiation.

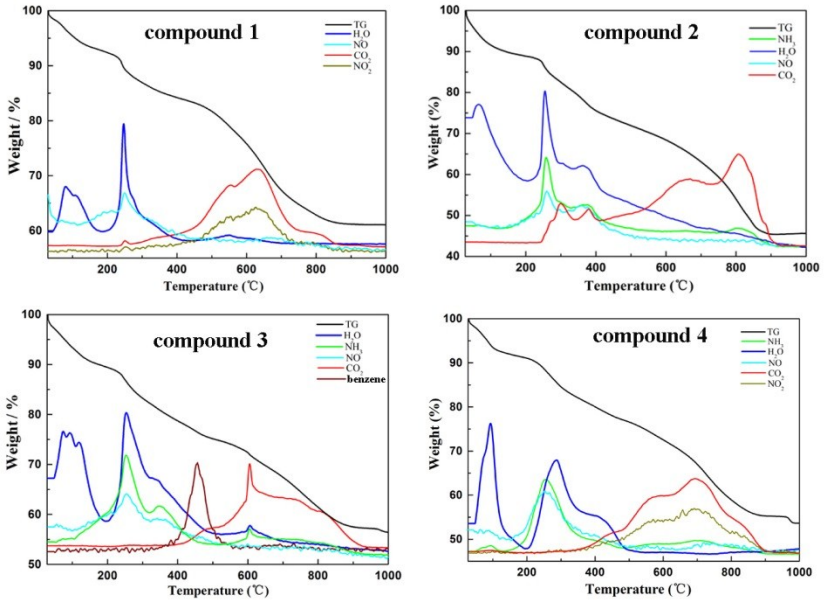

Fig. S4 TG-MS curves of **1–4**.

Thermogravimetric analyses

The thermal decomposition processes of compounds **1**, **2**, **3**, and **4** are quite alike. The processes can be divided into two steps. The first weight losses of 7.41% from 30 to 185 °C for **1**, 10.3% from 30 to 150 °C for **2**, 9.66% from 30 to 160 °C for **3** and 8.72% from 30 to 180 °C for **4** are assigned to the evaporation of 19, 48, 14 and 14 lattice water molecules, respectively. The second weight losses between 185–1000 °C for **1**, 150–900 °C for **2,** 160–1000 °C for **3** and 4 are attributed to the losing of ammonium ion, constitution water, carboxylic acid ligands and P_2O_5,[1] also the sublimation of part of MoO_3.

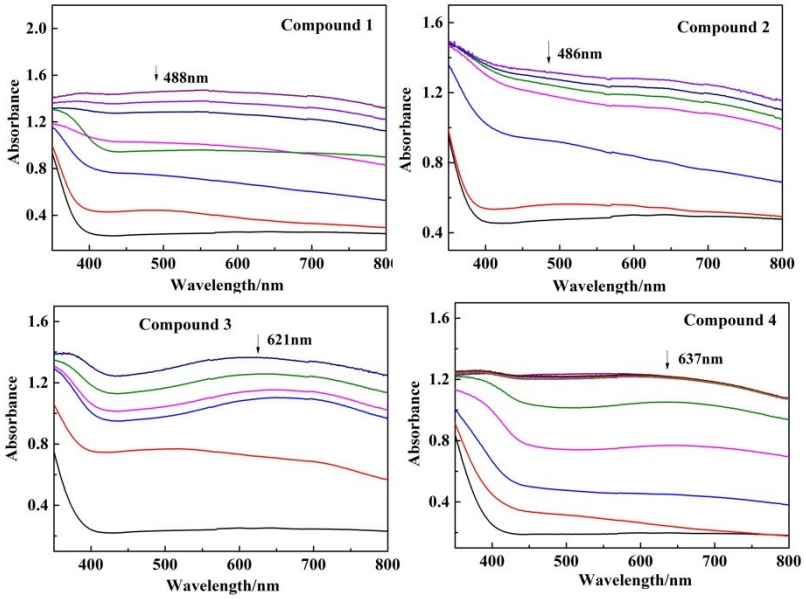

Fig. S5 The UV-vis diffuse absorbance spectra of compounds **1–4** after being irradiated for different duration of time. The maximum absorbance wavelengths are indicated.

S1 P. Ma, R. Wan, Y. Wang, F. Hu, D. Zhang, J. Niu, J. Wang, *Inorg. Chem*., 2016, **55**, 918.