Supplementary Information (SI) for Dalton Transactions.

Hierarchical MOF-74/Cu_2O/Cu composite derived from metal-organic frameworks toward degradation of 4-nitrophenol

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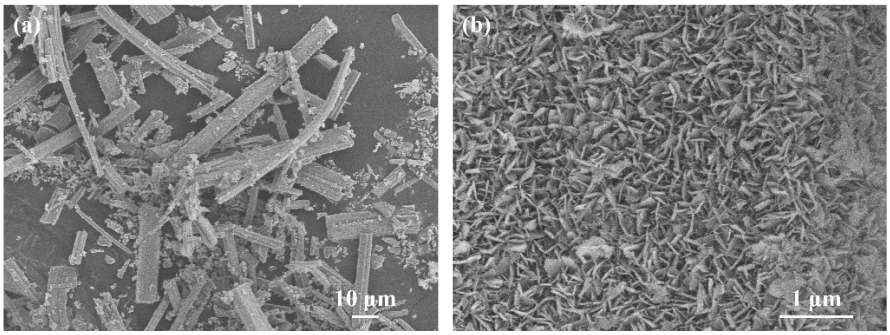

Figure S1 The SEM images of MOF-74 with different magnifications

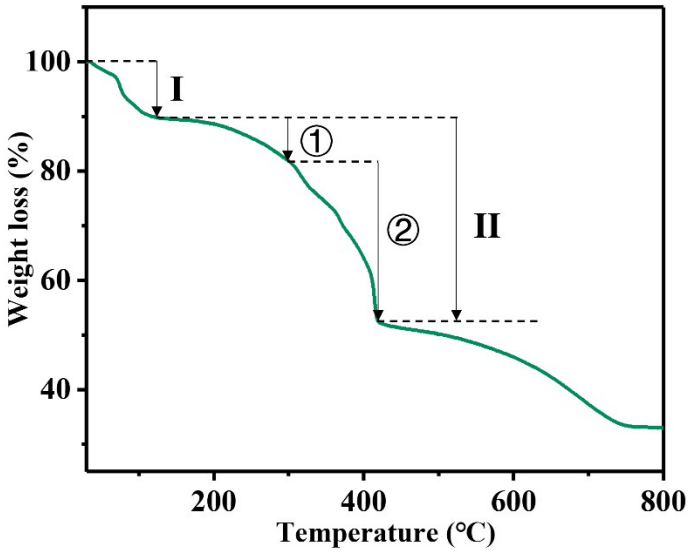

Figure S2 The TG of hierarchical MOF-74, I (25-150 °C): the desorption of solvent; II (200-400 °C): the decomposition of hierarchical MOF-74

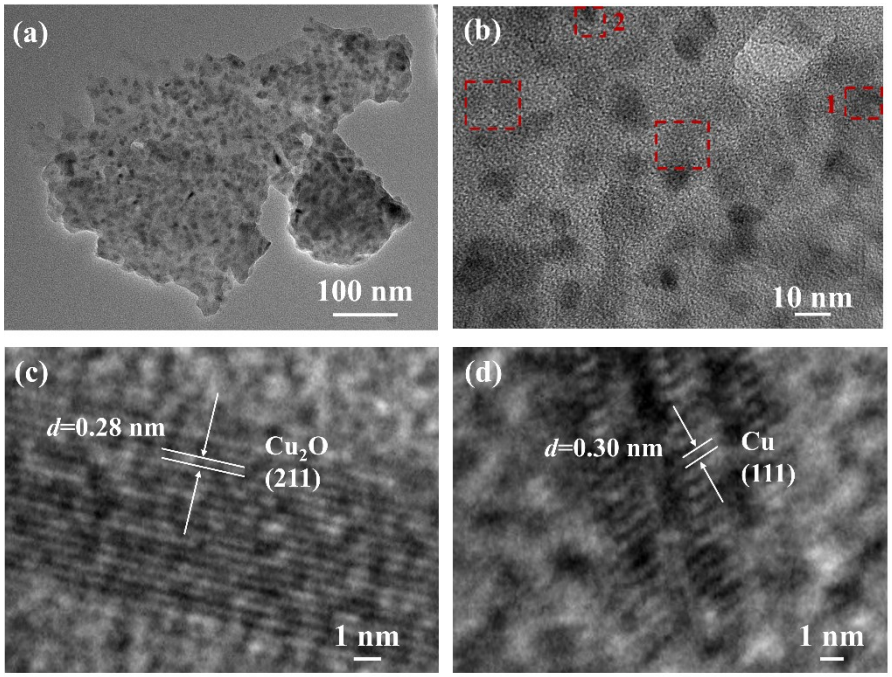

Figure S3 (a-b) The HR-TEM images of MOF-74/Cu_2O/Cu; (c) the lattice spacing of selected area 1; (d) the lattice spacing of selected area 2

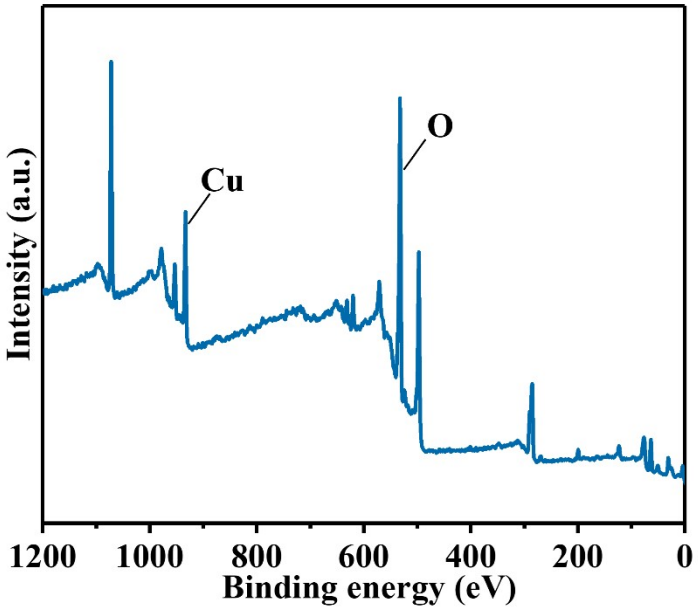

Figure S4. The XPS full spectrum of MOF-74/Cu_2O/Cu

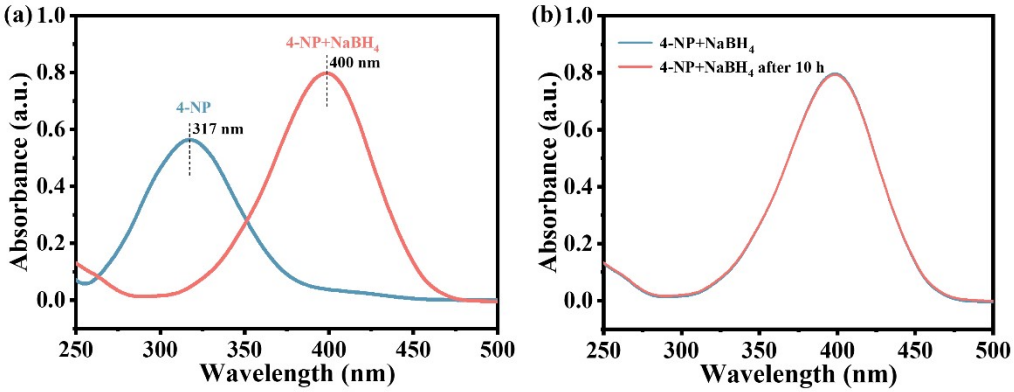

Figure S5 (a) The absorbance of 4-NP solution (blue line) and 4-NP solution with $NaBH_4$ (red line); (b) the absorbance of 4-NP solution with $NaBH_4$ (bule line) and standing for 10 h (red line)

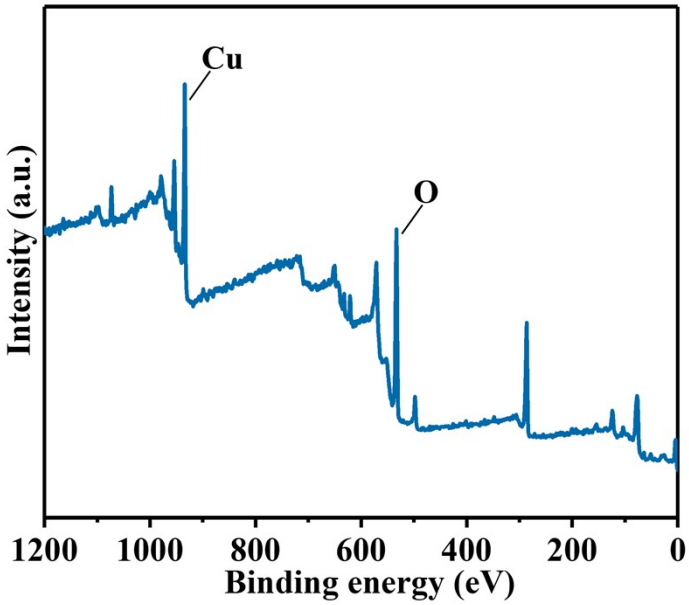

Figure S6. The XPS full spectrum of Cu_2O/Cu

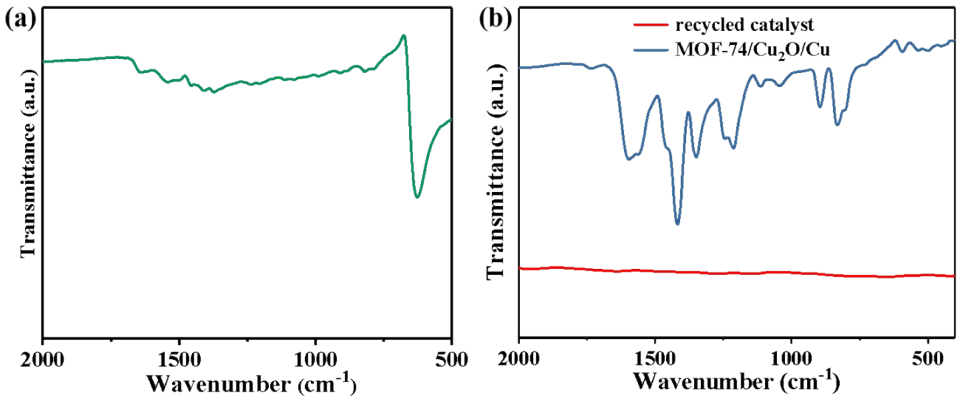

Figure S7. (a) The FT-IR spectrum of the recycled catalyst; (b) The FT-IR spectra of the recycled catalyst and MOF-74/Cu_2O/Cu

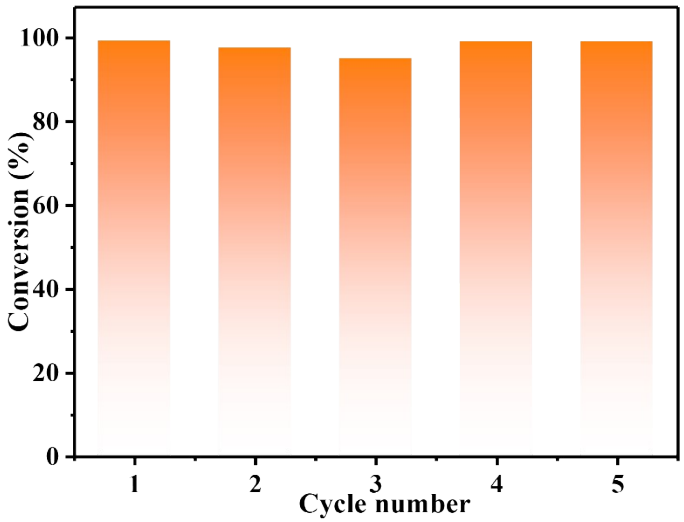

Figure S8 The reusability of the MOF-74/Cu_2O/Cu for the reduction of 4-NP by $NaBH_4$ for five runs

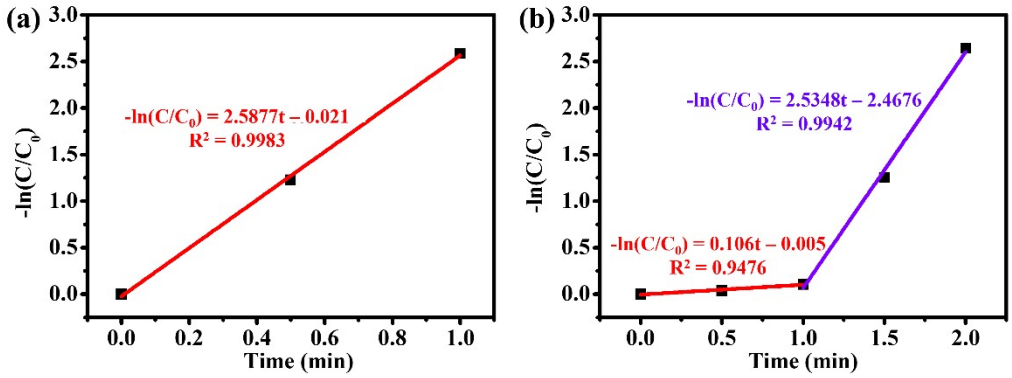

Figure S9 (a) Plot of -ln(C/C_0) versus time for MOF-74/Cu_2O/Cu; (b) Plot of -ln(C/C_0) versus time for MOF-74

Table S1 Comparison of catalytic results for the reduction of 4-NP by MOF-74/Cu_2O/Cu and MOF-74 in the presence of $NaBH_4$

Catalysts	4-NP (mM)	$NaBH_4$ (M)	K_{app} (min^{-1})	TOF (min^{-1})	Induction period
MOF-74/Cu_2O/Cu	5	0.1	2.5877	10.4792	No
MOF-74	5	0.1	0.106, 2.5348	3.3074	Yes

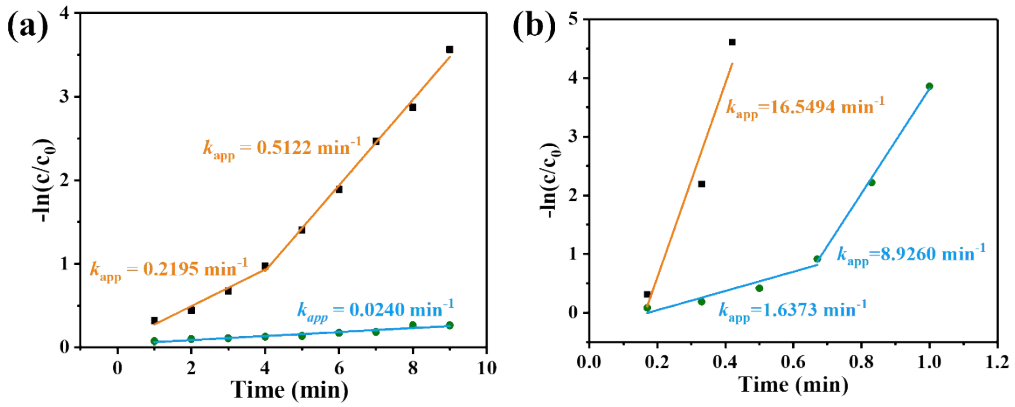

Figure S10 (a) Plot of -ln(C/C_0) versus time for MOF-74/Cu_2O/Cu (orange line) and MOF-74 (blue line) towards the reduction of MB; (b) Plot of -ln(C/C_0) versus time for MOF-74/Cu_2O/Cu (orange line) and MOF-74 (blue line) towards the reduction of MO