Supplemental Information

Cu/Cu_2O/rGO Nanocomposites: Solid-state Self-reduction Synthesis and Catalytic Activity for *p*-Nitrophenol Reduction

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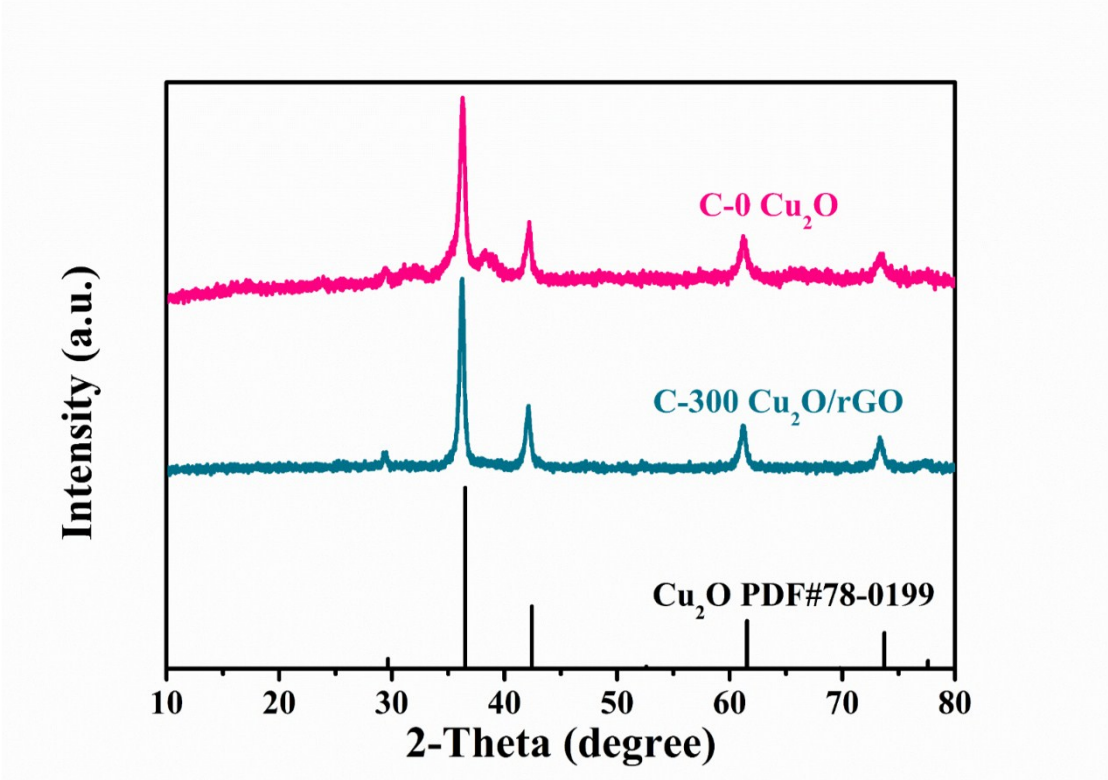

Figure S1 The XRD pattern of the sample C-0 and C-300.

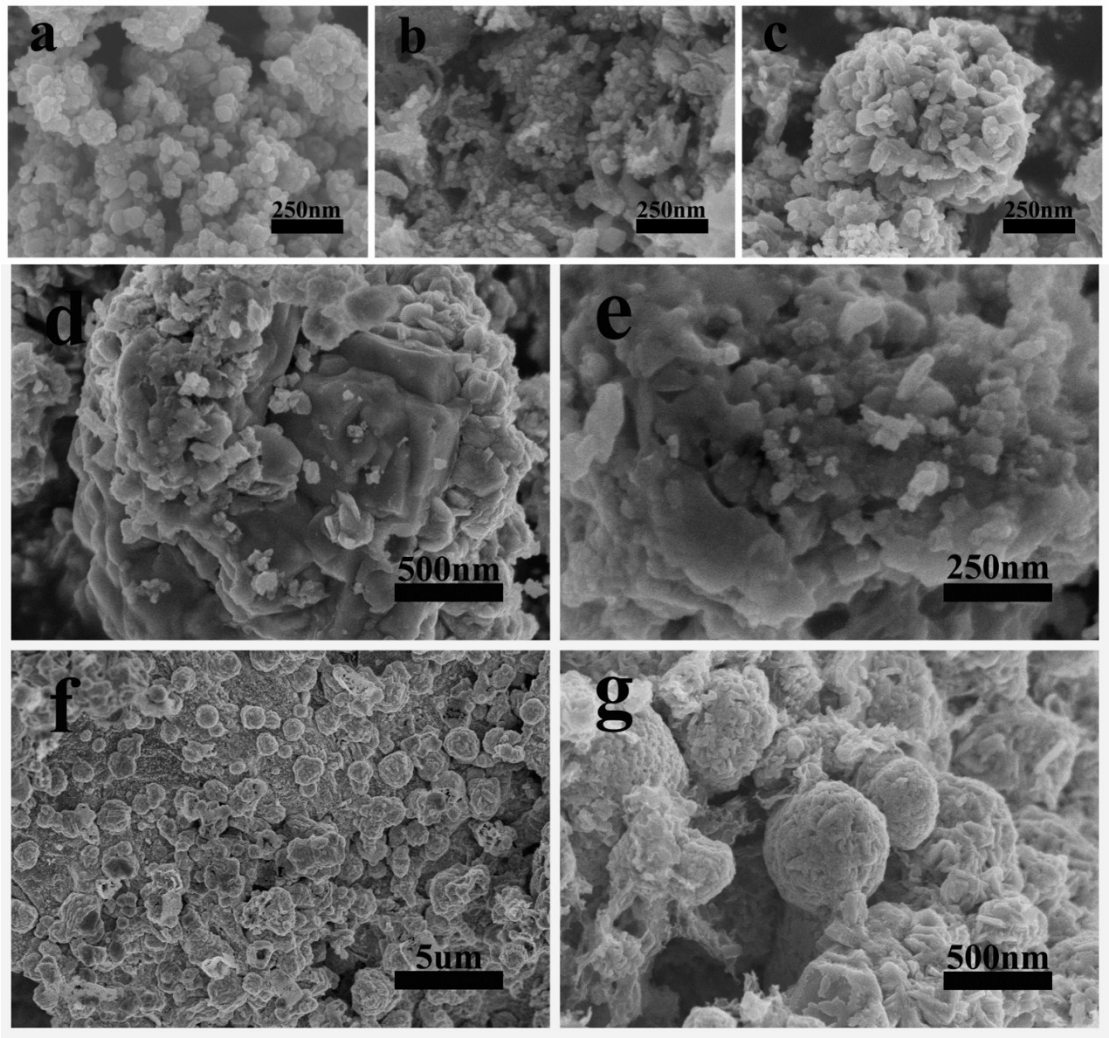

Figure S2 SEM images of the samples: (a) C-0 Cu_2O; (b) C-25 Cu_2O/CuO/rGO; (c) C-300 Cu_2O/rGO; (d, e) C-400 Cu/Cu_2O/rGO with different magnification; (f, g) C-500 Cu/Cu_2O/rGO with different magnification.

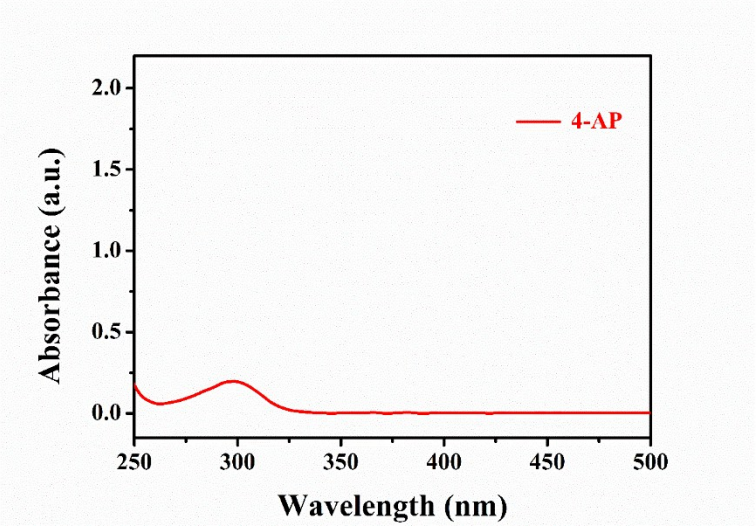

Figure S3 UV-vis spectra of the pure 4-AP solution (0.1 mM).

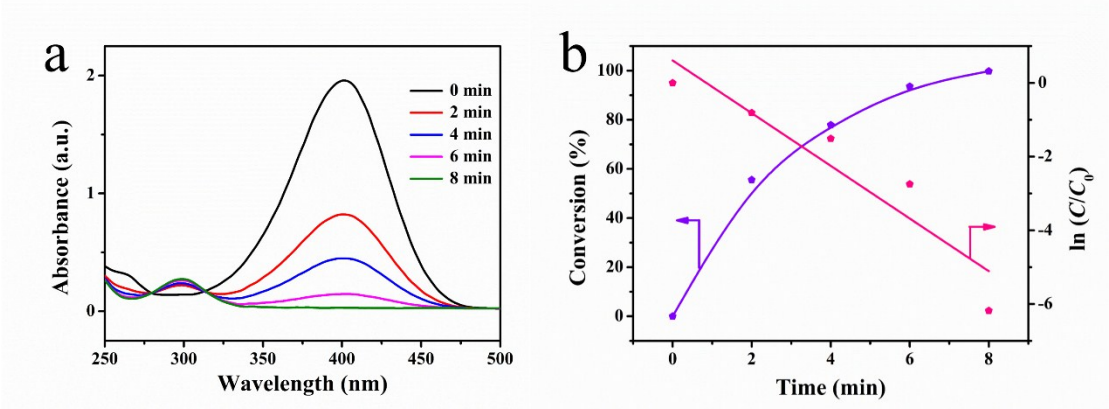

Figure S4 (a) UV-vis spectra of the 4-NP reduction reaction on Cu_2O (C-0) catalysts at different time. (b) Conversion rate of 4-NP over Cu_2O (C-0) as a function of time (min, left); the relationship between $\ln(C/C_0)$ and reaction time (min) for Cu_2O (C-0, right).

Table S1 Summary of catalytic activities for the reduction of 4-NP with various catalysts.

Catalysts	4-NP, (10^{-3} mmol)	Catalyst usage (mg)	Time	k_{app} (10^{-3} s^{-1})	M[a] (10^{-3} mol g^{-1} h^{-1})	E_a . (kJ mol^{-1})	Refs.
Cu_2O/rGO	50	2	8 min	7.0	115	-	This work
Cu/Cu_2O/rGO	50	2	6 min	16.3	250	24.94	This work
Pd@hTiO_2	0.184	0.025	16 min	4.5	6	-	1 [1]
CuO-MnO_2	0.3	1	14 min	4.4	1	-	2 [2]
$CuFe_2O_4$	0.5	0.04	10 min	120	75	-	3 [3]
Cu_2O on h-BN	7.2	10	12 min	7.08	0.5	-	4 [4]
CuO/ZnO	62.5	5	180 s	-	0.25	-	5 [5]
Cu-LDH/rGO	0.2	0.025	2 min	27.04	240	-	6 [6]
NiO/CuO	0.3	0.05	4 min	0.025	36	-	7 [7]
Leaf-like CuO	0.3	0.03	2 min	35.5	120	33.56	8 [8]
1.0Au/MCN	0.01919.33	20	18 min	5.67	-	-	9 [9]
Fe_3O_4@TA/Ag	3	2	60 s	43.6	-	-	10 [10]
MgAl-LDH@Au	0.3	0.02	260 s	13	-	-	11 [11]
Cu-Pd/HSAG	0.3	1.5	20 s	300	1.8	-	12 [12]

[a] M is a specific rate per mass of catalyst basis.

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