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Cupric oxide nanowires on three-dimensional copper foam for application in click reaction

Chunxia Wang,[ab‡] Fan Yang,[a‡*] Yan Cao,[a] Xing He,[a] Yushu Tang[a] and Yongfeng Li[a*]

[a] *State Key Laboratory of Heavy oil Processing, China University of Petroleum, Beijing, 102249, China.*
E-mail: yangfan@cup.edu.cn; yfli@cup.edu.cn (Y.F. Li)
[b] *New Energy Research Institute, China University of Petroleum, Beijing, 102249, China.*

1. XPS survey of O 1s scan of CuO-n

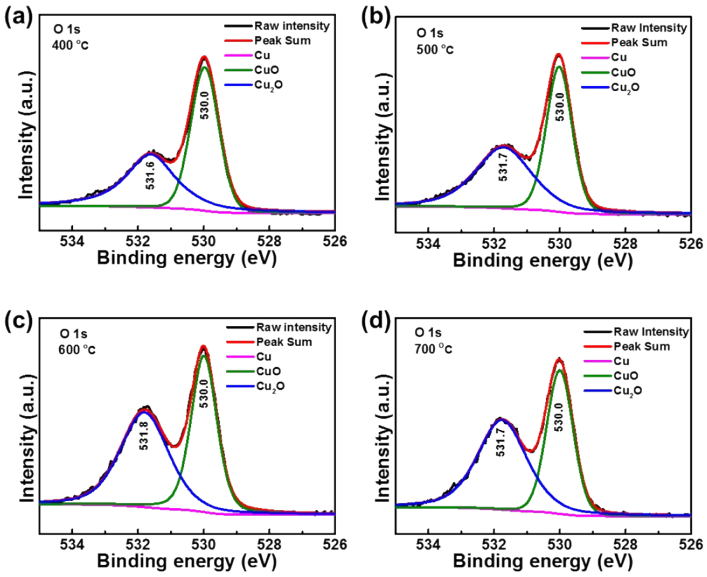

Fig. S1 XPS survey of O 1s scan of CuO-400 (a), CuO-500 (b), CuO-600 (c), CuO-700 (d).

2. SEM survey of CuO-600 after cyclic reaction

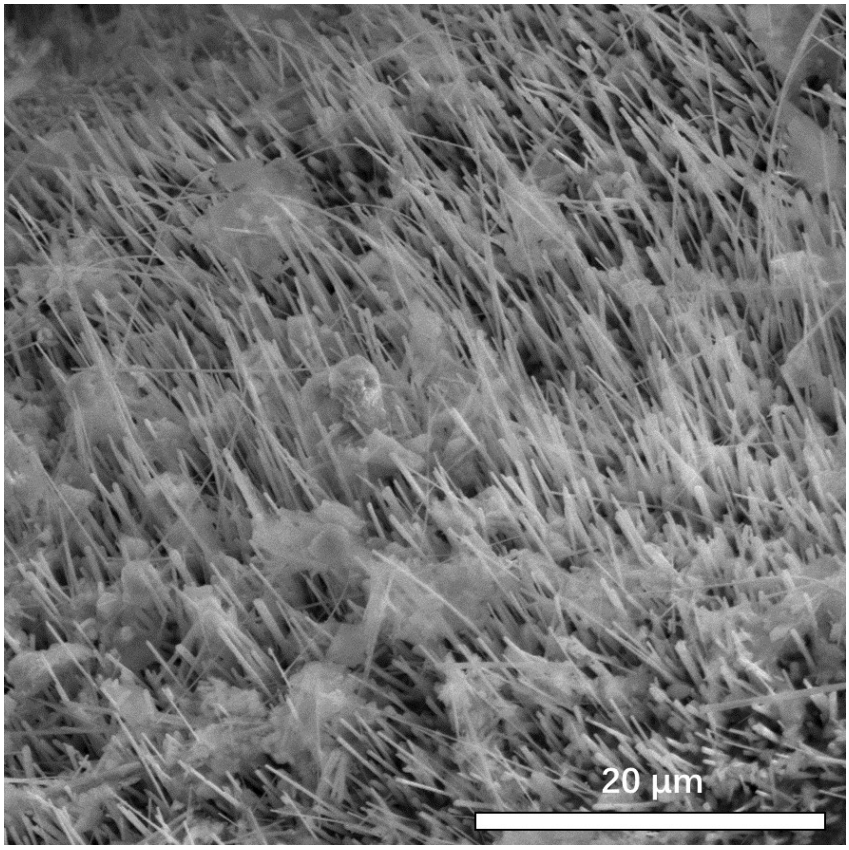

Fig. S2 SEM survey of CuO-600 after cyclic reaction.

3. The XRD patterns of CuO-600 and reused CuO-600 catalyst

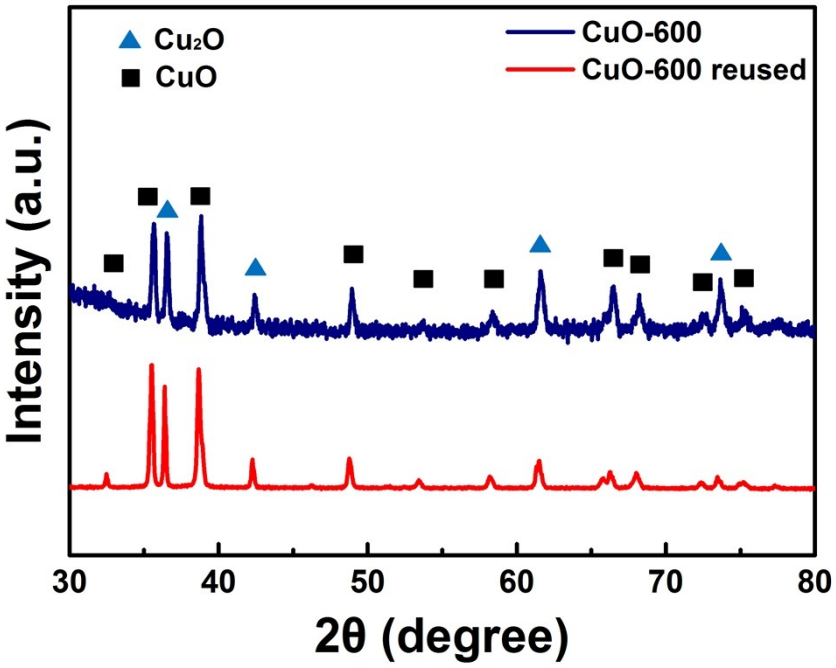

Fig. S3 The XRD patterns of CuO-600 and reused CuO-600 catalyst.

4. Click reaction catalyzed by CuO-600 and reported catalyst.

Table S1. Summary of Cu catalysts on Click reactions.

Cu/support or stabilizer	Recyclability (times)	Optimized reaction conditions	TON
Cu powder/unsupported[1]	dissoluble	10 mol % cat., RT, 2 h, H_2O/*t*BuOH, Et_3N·HCl	≤ 10
CuNPs/unsupported[2]	dissoluble	10 mol % cat., 65 °C, 0.5 h, THF, Et_3N additive	≤ 10
CuO NPs/unsupported[3]	3	5 mol % cat., RT, 0.5 h, H_2O/tBuOH, Et_3N additive	≤ 20
CuNPs-on-charcoal[4]	5	0.5 mol % cat., 70 °C, 3 h, H_2O	≤ 200
CuO-NPs/acetylene black/PVP[5]	10	3 mol % cat., 50 °C, 5 h, H_2O/tBuOH	≤ 33.3
CuNPs/tetraoctylammonium[6]	-	0.1 mol % cat., RT, 18 h, H_2O/tBuOH	≤ 1000
Cu/Cu-oxide/oleylamine[7]	-	13-20 mol % cat., RT, 2-4 h, toluene	≤ 8
CuNPs/AlO(OH) nanofiber[8]	5	3 mol % cat., RT, 1-24 h, hexane	≤ 33.3
CuNPs/SiO_2 NPs/PEI[9]	3	0.05 mol % cat., RT, 10 min, DMSO	≤ 2000
T(o-Cl)PPCuNPs/AMWCNT[10]	10	5 mol % cat., RT, 0.8-2.8 h, H_2O	≤ 20
CuNPs/PVP/ionic liquids[11]	5	5 mol % cat., RT, 15 min, H_2O	≤ 20
CuNPore[12]	10	2 mol % cat., 65 °C, 2 h, toluene	≤ 50
CuO-600	10	This work	≥ 495

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