Cu_3N Nanoparticles with Both (100) and (111) Facets for Enhancing the Selectivity and Activity of CO_2 Electroreduction to Ethylene

Hongzhi Wang, Xinze Bi, Yuezhu Zhao, Zhongxue Yang, Zhaoliang Wang,* Mingbo Wu*

Table. S1 Comparison of the activities of Cu_3N NPs with the reported catalysts for CO_2RR.

Catalyst	Electrolyte	Potential (vs. RHE)	Total j [mA cm^{-2}]	FE of ethylene	Reference
44 nm Cu nanocubes	$KHCO_3$ (0.1M)	−1.1 V	≈3	41%	[1]
250 nm Cu cubes on Cu foils	$KHCO_3$ (0.1M)	≈−1.03 V	n/a	48%	[2]
240 nm Cu cubes pre-treated with O_2 plasma	$KHCO_3$ (0.1M)	−1.0 V	≈34.8	45%	[3]
Star decahedron Cu	$KHCO_3$ (0.1M)	−0.993 V	≈19	52.43%	[4]
Nanodefective Cu nanosheets	K_2SO_4 (0.1 M)	−1.18 V	58.8	83.20%	[5]
Graphite/carbon NPs/Cu/PTFE electrode	KOH (7 M)	−0.55 V	100	70%	[6]
Truncated-octahedral Cu_2O	$KHCO_3$ (0.5M)	−1.1 V	≈37	59%	[7]
Branched CuO nanoparticles	$KHCO_3$ (0.1M)	−1.05 V	≈25.3	68%	[8]
Electrochemical fragmented Cu_2O nanoparticles	$KHCO_3$ (0.1M)	−1.1 V	≈17.5	27% to 57.3%	[9
Cu_3N-derived Cu nanowires	$KHCO_3$ (0.1M)	−1.0 V	≈56.8	66%	[10]
CuCl-derived Cu	$KHCO_3$ (0.05M)	−2.6 V vs. Ag/AgCl	17	56%	[11]
HKUST-1-derived Cu cluster	KOH (0.1 M)	−1.07 V	262	45%	[12]
Phase-separated CuPd	KOH (0.1 M)	−0.74 V	360.5	≈48%	[13]
CuAg wire (Ag 6%)	KOH (1 M)	−0.68 V	≈300	55.20%	[14]
Dealloyed Cu–Al	KOH (1 M)	−1.5 V	400	80%	[15]
B-doped Cu	$KHCO_3$ (0.1M)	−1.1 V	70	53%	[16]
F-modified Cu	KOH (0.75 M)	−0.89 V	1600	65%	[17]
Cu–PANI nanocatalyst	$KHCO_3$ (0.1M)	−1.13 V	34.7	48.80%	[18]
EDTA-modified porous hollow Cu microspheres	$KHCO_3$ (0.1M)	−0.82 V	≈7.5	50.10%	[19]
N-Aryl-dihydropyridine-based oligomer modified Cu	$KHCO_3$ (1M)	−0.83 V	319	72%	[20]
Cu_3N NPs with both (100) and (111) facets	$KHCO_3$ (0.1M)	−0.8 V	60	61.1%	This work

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