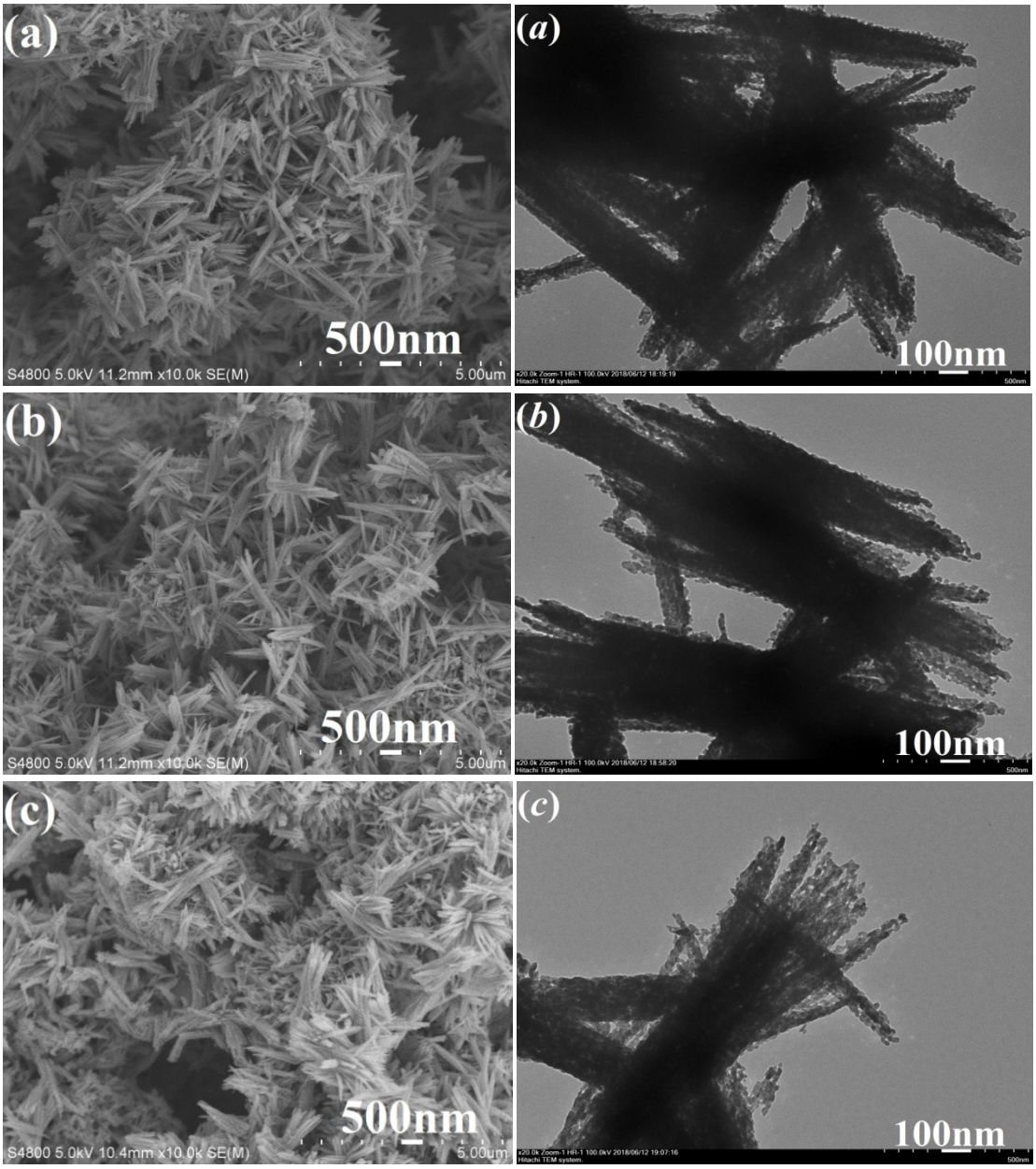
Supporting Information

Simple gas-solid-reaction route for porous Cu_2O nanorods with good HER catalytic activity

Meifang Wang[a,b], Xiaomei Cheng[a] and Yonghong Ni[a] *

[a] College of Chemistry and Materials Science, Key Laboratory of Functional Molecular Solids of Education Ministry, Anhui Laboratory of Molecule-Based Materials, Anhui Normal University, 189 Jiuhua Southern Road, Wuhu 241002, P.R. China.

[b] Department of Basic medicine, Wannan Medical College, Wuhu 241000, P. R. China



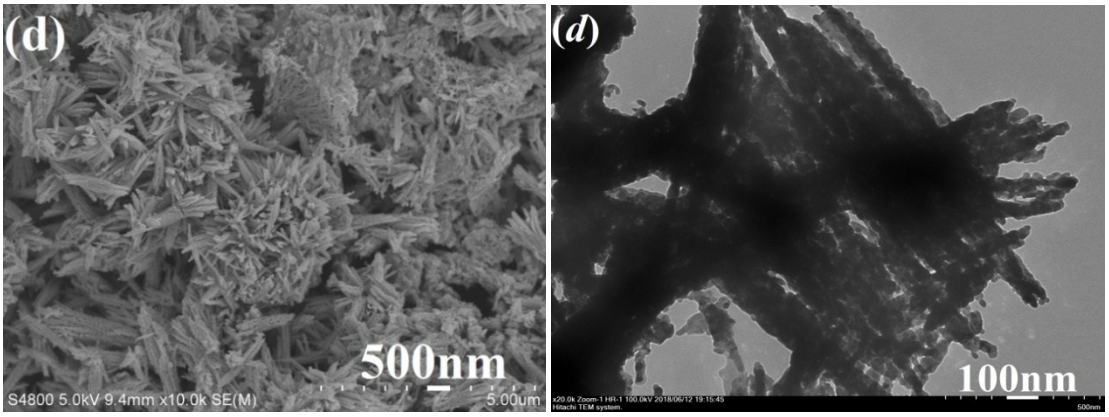


Figure S1. FESEM and TEM images of as-prepared Cu_2O nanorods at different temperatures for 2 h: (a, *a*) 220 °C, (b, *b*) 220 °C, (c, *c*) 260 °C and (d, *d*) 280°C.

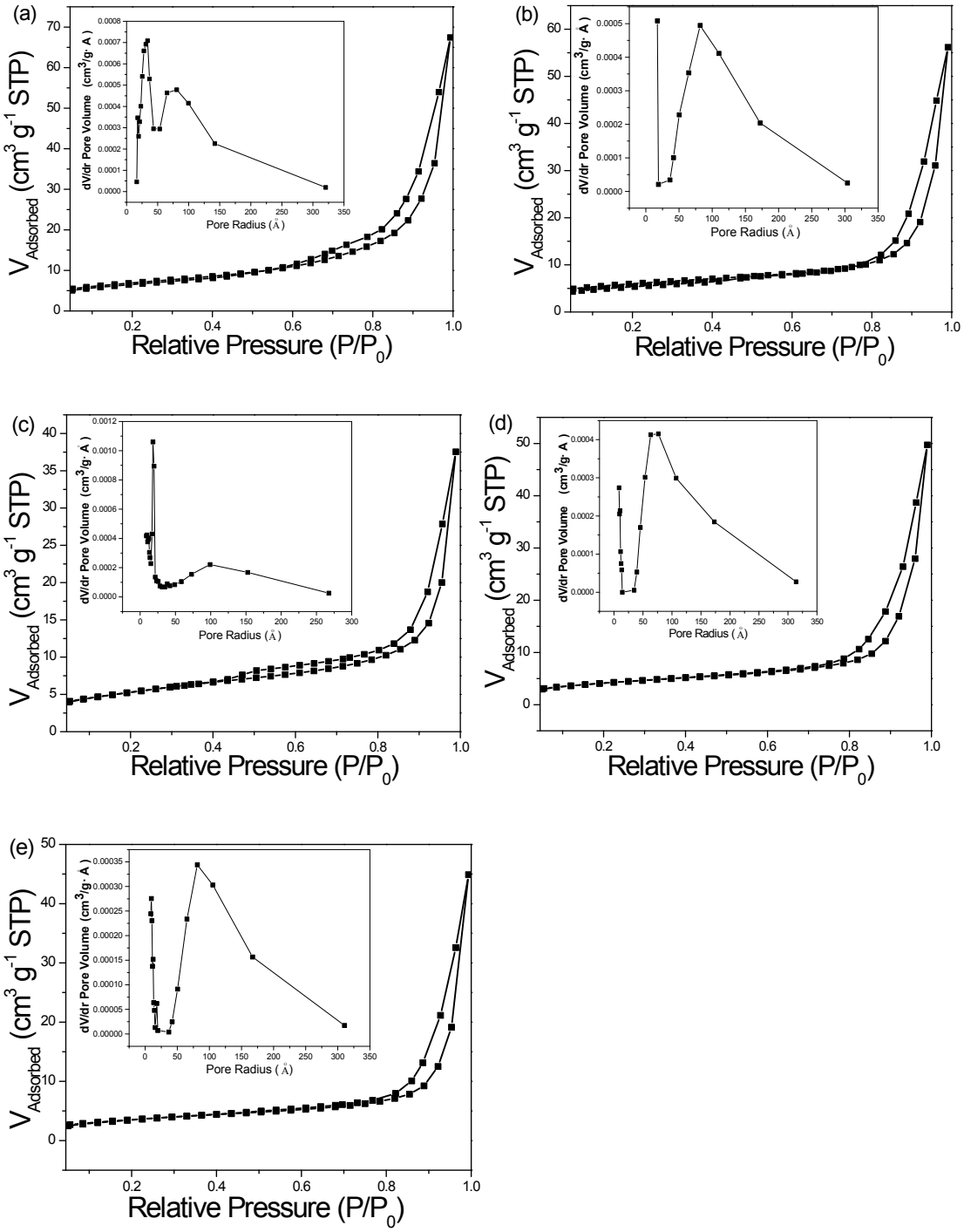


Figure S2. N_2 sorption–desorption isotherms and pore size distributions of porous Cu_2O nanorods prepared at various temperatures for 2 h: (a) 200, (b) 220, (c) 240, (d) 260 and (e) 280 °C.

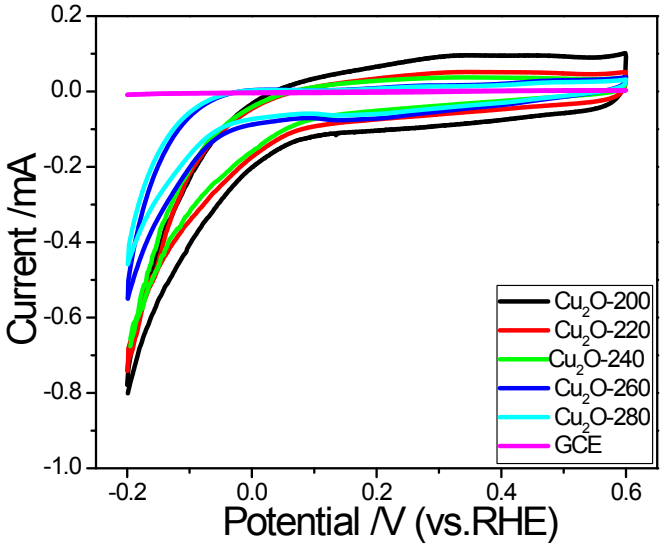


Figure S3. CVs of the as-synthesized Cu_2O nanorods catalysts and bare GCE recorded in phosphate buffer solution with pH 7.0 at a scan rate of 50 $mV \cdot s^{-1}$.

Table S1 the R_s, Q and R_{ct} values of various Cu_2O/GCE fitted by the equivalent circuit.

Electrode material	Cu_2O-200	Cu_2O-220	Cu_2O-240	Cu_2O-260	Cu_2O-280
R_s /Ω	20.42	24.56	20.22	24.59	24.20
Q /$\times 10^{-6}$ Ω	5.246	3.886	1.992	1.527	1.266
R_{ct} /$\times 10^{2}$ Ω	2.402	3.243	5.748	8.550	12.67

Table S2 the electric conductivities of various Cu_2O samples that have been pressed into pellets under the pressure of 10.0 MPa at 1000 Hz at room temperature

Electrode material	Cu_2O-200	Cu_2O-220	Cu_2O-240	Cu_2O-260	Cu_2O-280
Conductivity /S m^{-1}	0.0338	0.0275	0.0204	0.0172	0.0117