Electronic Supplementary Information

MoS_2 nanosheets-coated CoS_2 nanowire arrays on carbon cloth as three-dimensional electrodes for efficient electrocatalytic hydrogen evolution

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Table S1. Comparison of HER catalytic performance of MoS_2/CoS_2/CC and other catalysts on 3D electrodes

HER catalysts	Tafel slope (mV/dec)	Overpotential (mV) at 10 mA/cm^2	Ref.
MoS_2/CoS_2/CC	73.4	−87	This work
CoS_2	52	−192	10
Li-doped MoS_2/CC	62	−118	33
N-doped carbon-coated cobalt nanorod arrays on a Titanium mesh	78.2	−106	36
metallic CoS_2 nanostructures	51.6	-148	39
metallic CoS_2 nanopyramid arrays	70.1	-67	44

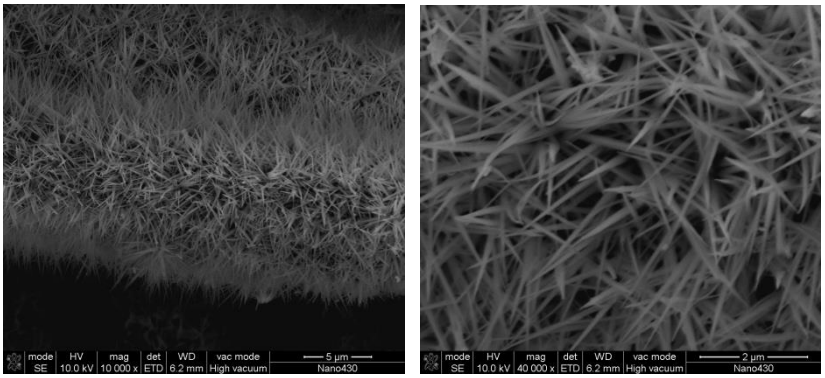

Figure S1. SEM images of $Co(OH)_2$ nanowires on CC.

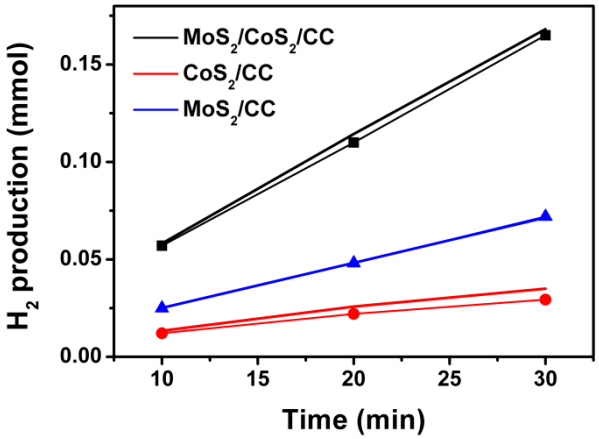

Figure S2. The amount of theoretically calculated (solid line) and experimentally measured (squares) hydrogen versus time for MoS_2/CoS_2/CC, CoS_2/CC and MoS_2/CC electrodes (0.5 cm × 0.5 cm) at the applied potential of –0.15 V (vs RHE). The gas generated from the electrochemical cell for 30 min was collected and quantified by gas chromatographic measurements (GC-2060F, LuNan Analytical Instruments, LTD, China).

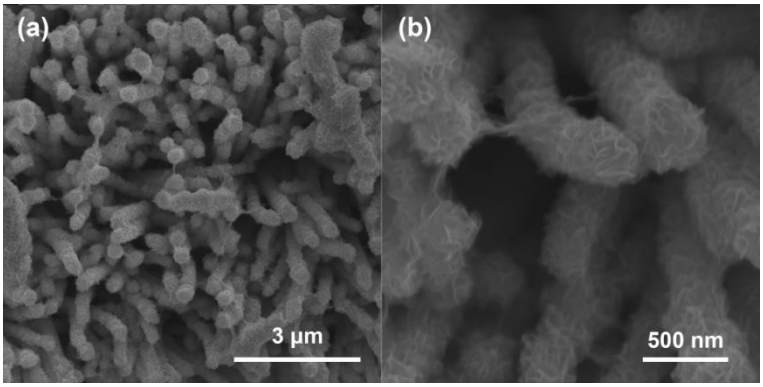

Figure S3. SEM images of MoS_2/CoS_2/CC after i-t testing.

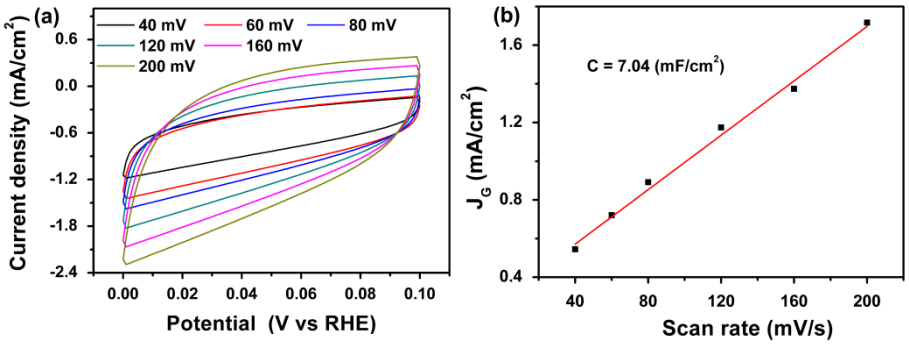

Figure S4. (a) Cyclic voltammograms within the range of 0 to +0.1 V where no faradaic reactions occurred. (b) Variation of double-layer charging currents at +0.05 V with potential scan rate.