

Rational Design of Coraloid Co₉S₈-CuS Hierarchical Architectures for Quantum Dot-Sensitized Solar Cells

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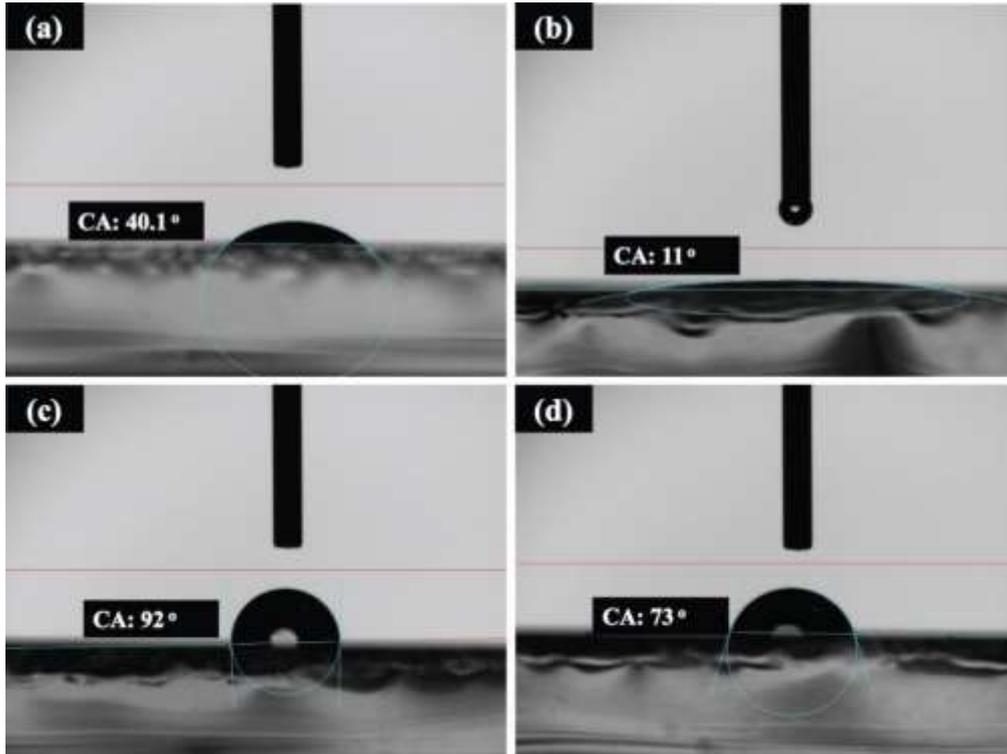


Figure S1. Contact angle analysis of the (a) bare FTO substrate, (b) TiO₂, (c) CuS, and (d) ZnO blocking layers.

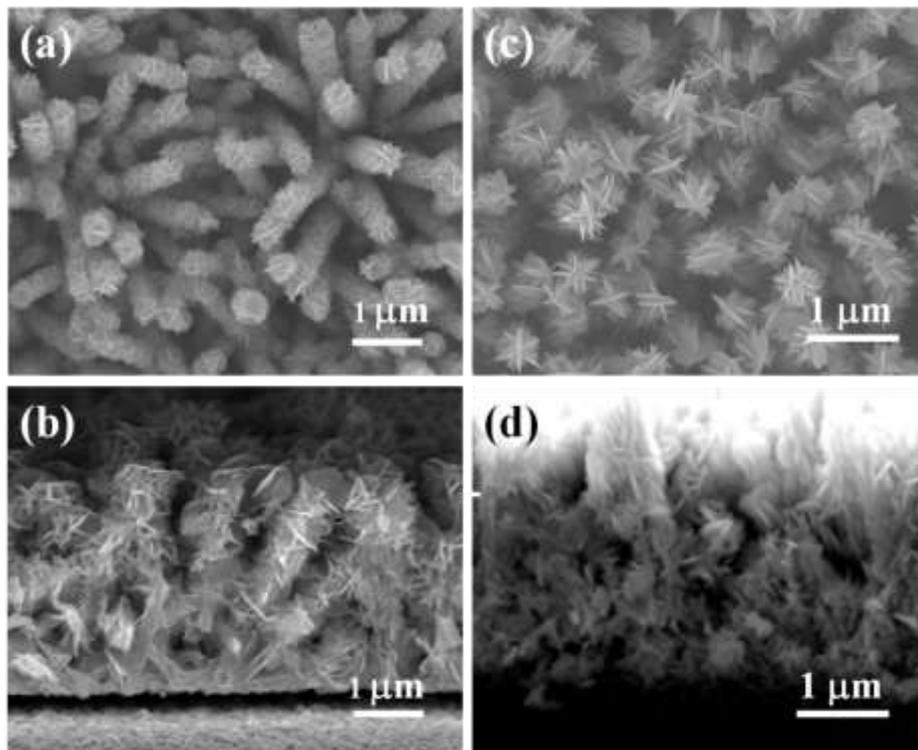


Figure S2. SEM images of the (a) Co₉S₈-CuS and (c) Co₉S₈-CuS-bs samples, (b) and (d) cross sectional views of (a) and (c), respectively.

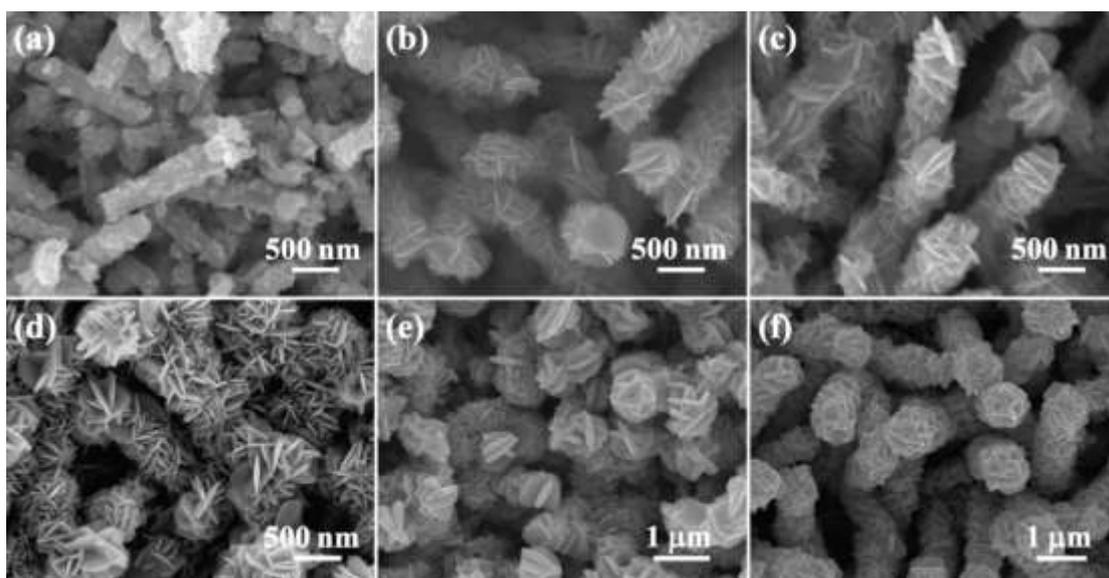


Figure S3. SEM images of the $\text{Co}_9\text{S}_8\text{-CuS}$ 3D hierarchical structures obtained by hydrothermal reaction for different time periods: (a) 1 h, (b) 2 h, (c) 4 h, (d) 6 h, (e) 8 h, and (f) 10 h.

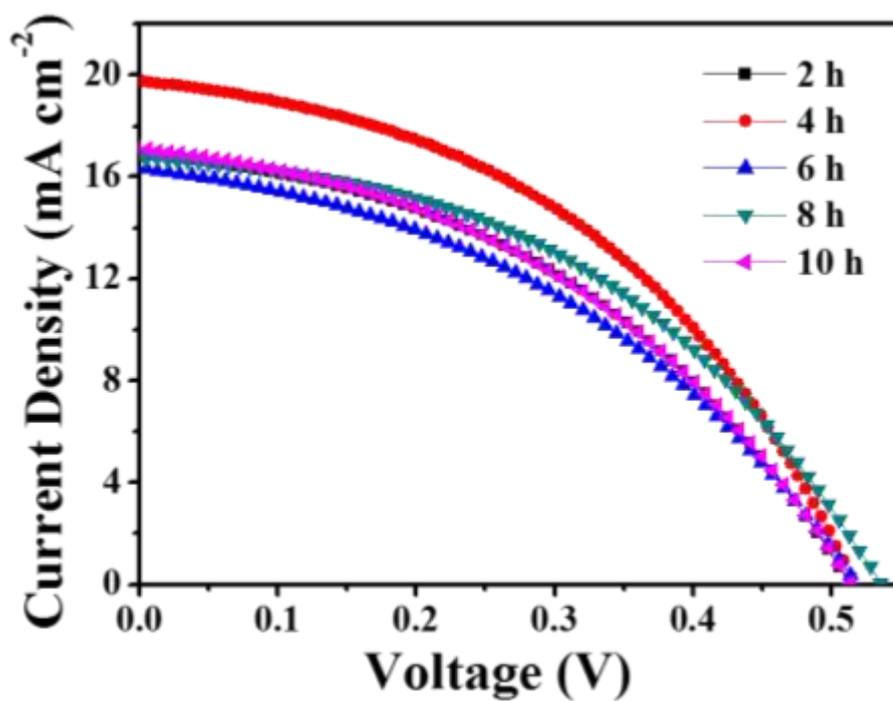


Figure S4. J-V curves of $\text{Co}_9\text{S}_8\text{-CuS}$ CE obtained by different hydrothermal reaction times.

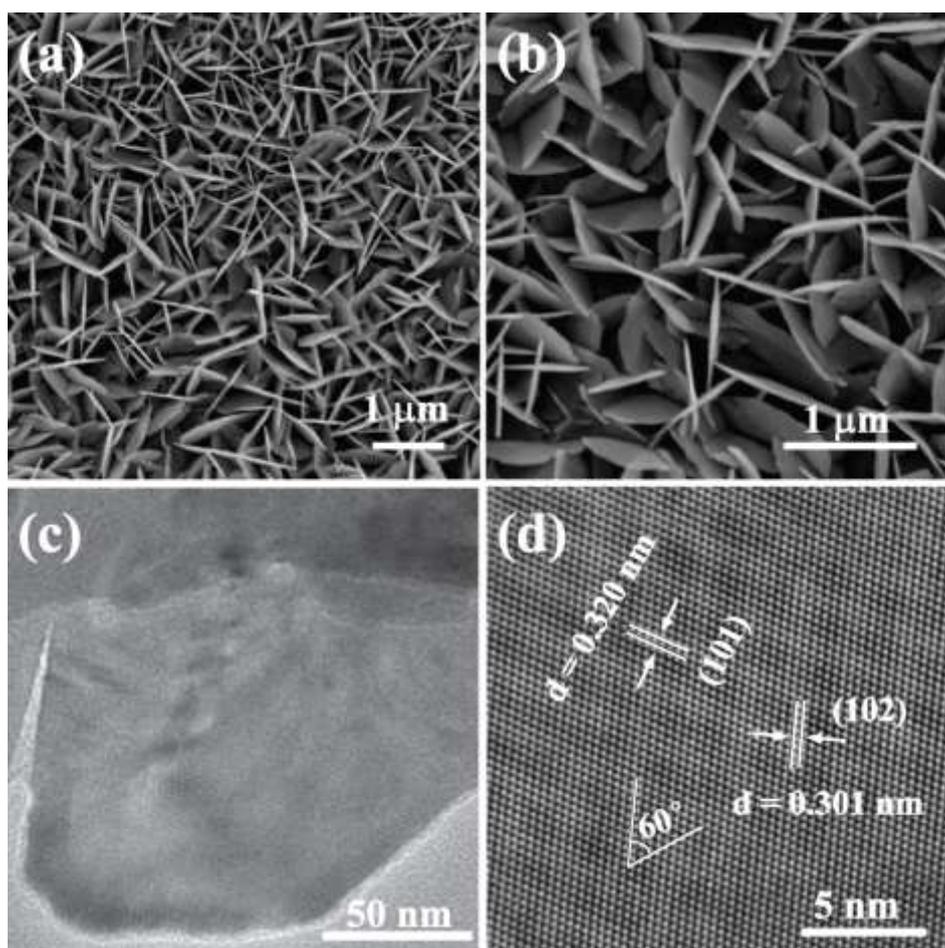


Figure S5. (a-b) SEM images of CuS, (c) TEM image of (b), and (d) HRTEM of (c).

Table S1. The photovoltaic parameters of QDSCs based on the $\text{Co}_9\text{S}_8\text{-CuS}$ CEs obtained by different hydrothermal reaction times.

Sample	J_{sc} (mA cm^{-2})	V_{oc} (V)	FF	PCE (%)
2 h	16.89	0.51	0.43	3.70
4 h	19.75	0.51	0.45	4.50
6 h	16.31	0.52	0.41	3.45
8 h	16.72	0.54	0.44	4.00
10 h	17.08	0.51	0.43	3.69