

[补充信息]

纳米碳片负载 Mott-Schottky 型 $\text{Co}/\text{Co}_9\text{S}_8$ 异质结的原位合成及电催化性能研究

方 瑜^{1,2}, 李 靖^{1,2}, 孔维超¹, 周 雪^{1,2}, 徐 林^{1,2,✉}, 孙冬梅^{1,2,✉}, 唐亚文^{1,2}

1 南京师范大学化学与材料科学学院, 南京 210023

2 江苏省新型动力电池重点实验室, 南京 210023

[Supplementary Information]

In-situ Synthesis of Mott-Schottky $\text{Co}/\text{Co}_9\text{S}_8$ Heterojunction Anchored on Carbon Nanosheets for Efficient Electrochemical Performance

FANG Yu^{1,2}, LI Jing^{1,2}, KONG Weichao¹, ZHOU Xue^{1,2}, XU Lin^{1,2,✉}, SUN Dongmei^{1,2,✉}, TANG Yawen^{1,2}

1 School of Chemistry and Materials Science, Nanjing Normal University, Nanjing 210023, China

2 Jiangsu Key Laboratory of New Power Batteries, Nanjing 210023, China

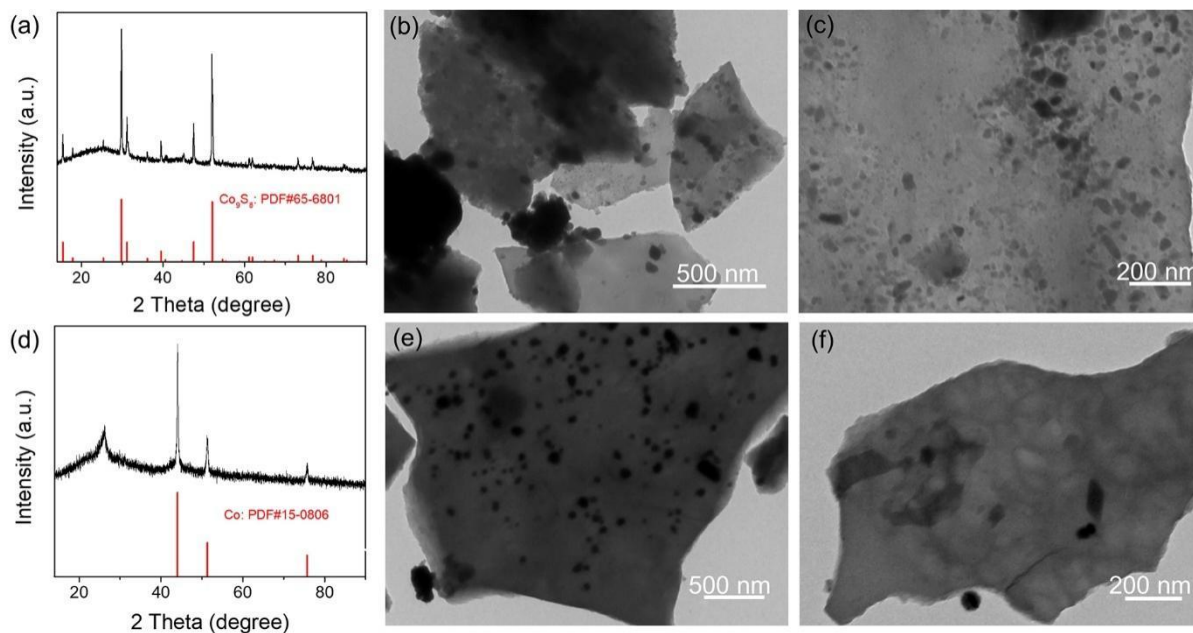


图 S1 对比样品的结构和形貌表征: (a—c) 对应于 $\text{Co}_9\text{S}_8@\text{N,S-CNSs}$, (d—f) 对应于 $\text{Co}@\text{N,S-CNSs}$, (a、d) XRD 图, (b、c、e、f) TEM 图

Fig. S1 Structure and morphology characterizations of $\text{Co}_9\text{S}_8@\text{N,S-CNSs}$ (a—c) and $\text{Co}@\text{N,S-CNSs}$ (d—f).

(a) and (d) XRD patterns, (b, c, e, f) TEM images

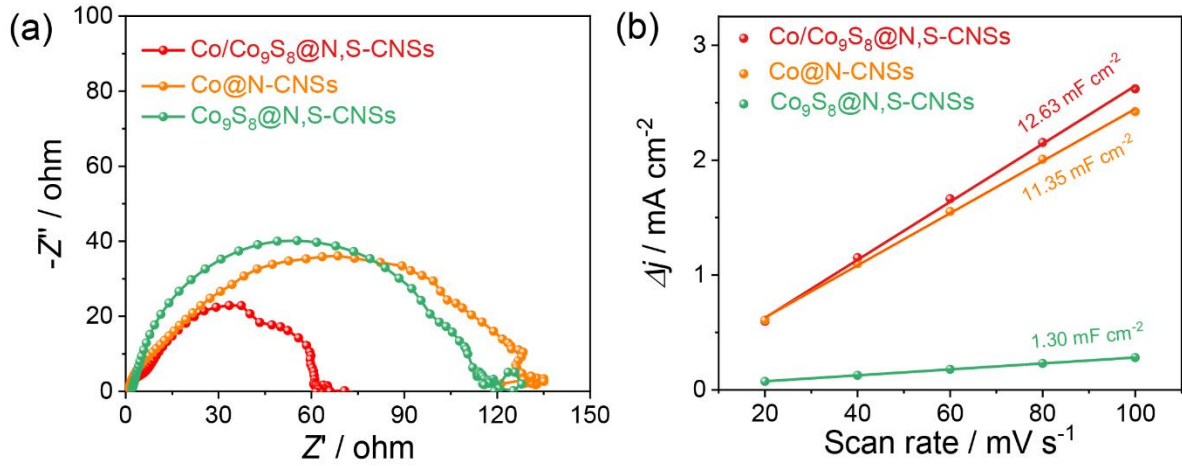


图 S2 Co/Co₉S₈@N,S-CNSs、Co₉S₈@N,S-CNSs 和 Co@N-CNSs 的(a)电化学阻抗谱(Nyquist 图)及(b) C_{dl} 测试图

Fig. S2 (a) Nyquist plots from EIS Data and (b) C_{dl} test curves of Co/Co₉S₈@N,S-CNSs, Co₉S₈@N,S-CNSs, and Co@N-CNSs

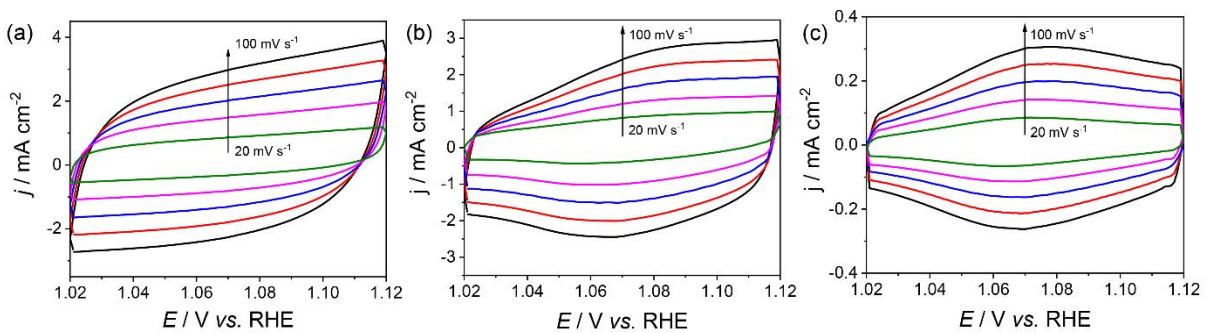


图 S3 (a) Co/Co₉S₈@N,S-CNSs、(b) Co@N-CNSs 和(c) Co₉S₈@N,S-CNSs 在非法拉第电位区间(1.02~1.12 V)不同扫速(20~100 mV s⁻¹)下的 CV 曲线

Fig. S3 CV curves of (a) Co/Co₉S₈@N,S-CNSs, (b) Co@N-CNSs and (c) Co₉S₈@N,S-CNSs under different scan rates (20-100 mV s⁻¹) in the non-Faradaic potential window (1.02-1.12V)

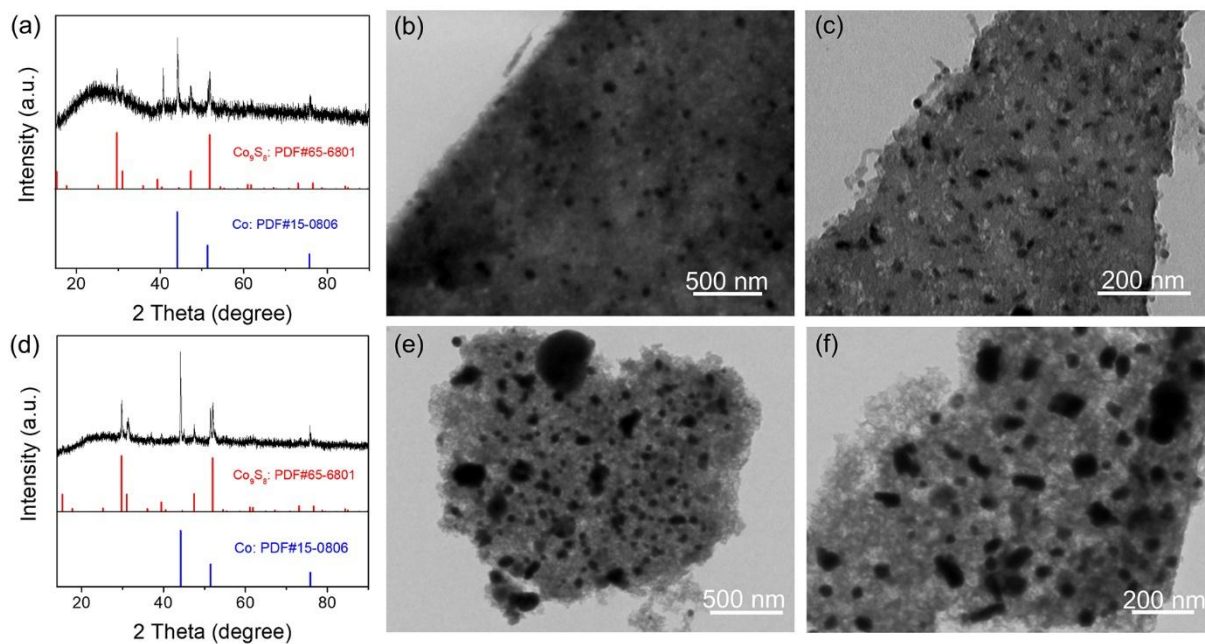


图 S4 其他热解温度样品的结构和形貌表征: (a—c) 对应于 $\text{Co}/\text{Co}_9\text{S}_8@\text{N,S-CNSs-800}$, (d—f) 对应 $\text{Co}/\text{Co}_9\text{S}_8@\text{N,S-CNSs-900}$, (a、d) XRD 图, (b、c、e 和 f) TEM 图

Fig. S4 Structure and morphology characterizations of (a—c) $\text{Co}/\text{Co}_9\text{S}_8@\text{N,S-CNSs-800}$ and (d—f) $\text{Co}/\text{Co}_9\text{S}_8@\text{N,S-CNSs-900}$. (a), (d) XRD patterns, (b, c, e and (f) TEM images

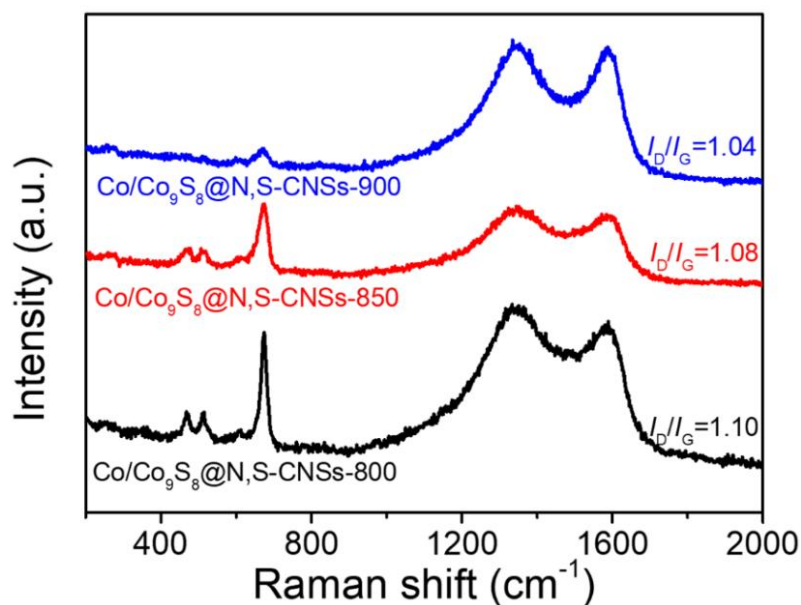


图 S5 不同热解温度下样品的拉曼光谱

Fig. S5 Raman spectra of the synthesized products under different pyrolysis temperatures

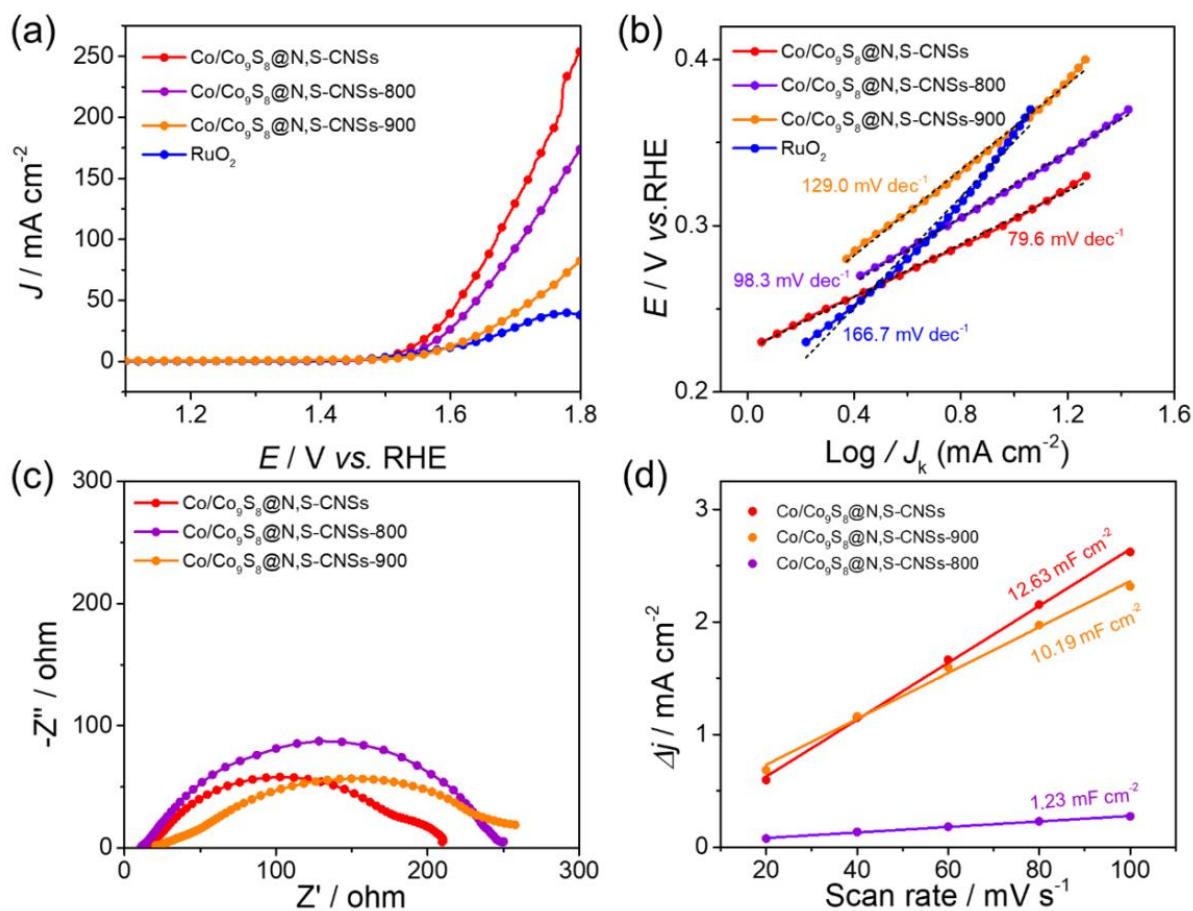


图 S6 Co/Co₉S₈@N,S-CNSs、Co/Co₉S₈@N,S-CNSs-800、Co/Co₉S₈@N,S-CNSs-900 和 RuO₂ 的电化学性能:

(a)对 OER 的 LSV 极化曲线, (b)相应的 Tafel 曲线, (c) Nyquist 图和(d) C_{dl} 测试图

Fig. S6 Electrochemical properties of Co/Co₉S₈@N,S-CNSs,

Co/Co₉S₈@N,S-CNSs-800,Co/Co₉S₈@N,S-CNSs-900 and RuO₂: (a) LSV polarization curves towards OER, (b) the corresponding Tafel plots, (c) Nyquist curves, and (d) C_{dl} test curves