Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.

Supporting Information

Strategically Designed Trimetallic Catalyst with Minimal Ru Addresses Both Water Dissociation and Hydride Poisoning Barriers in Alkaline HER

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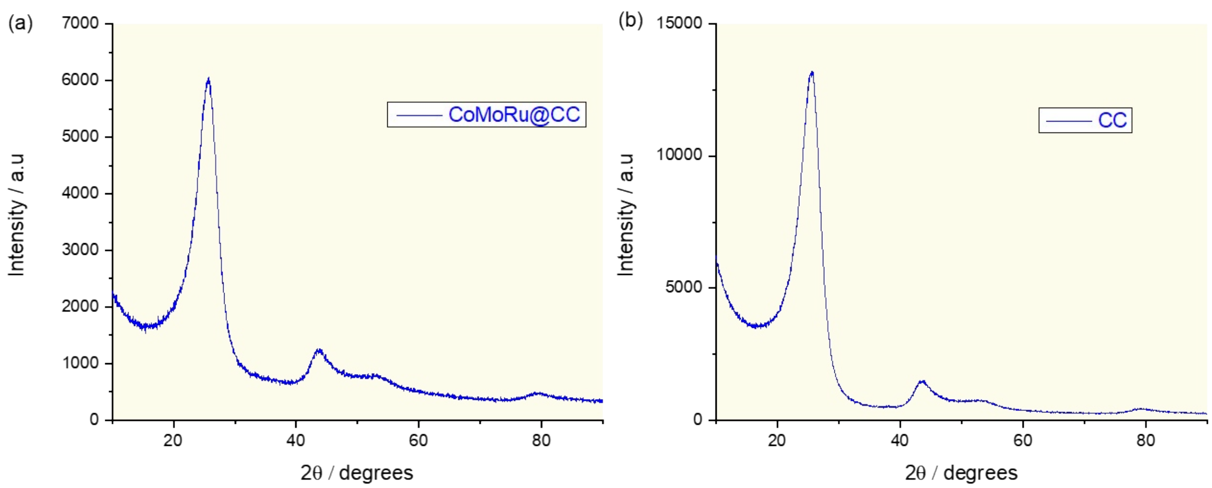


Figure S1: XRD patterns of CoMoRu/CC and bare CC.

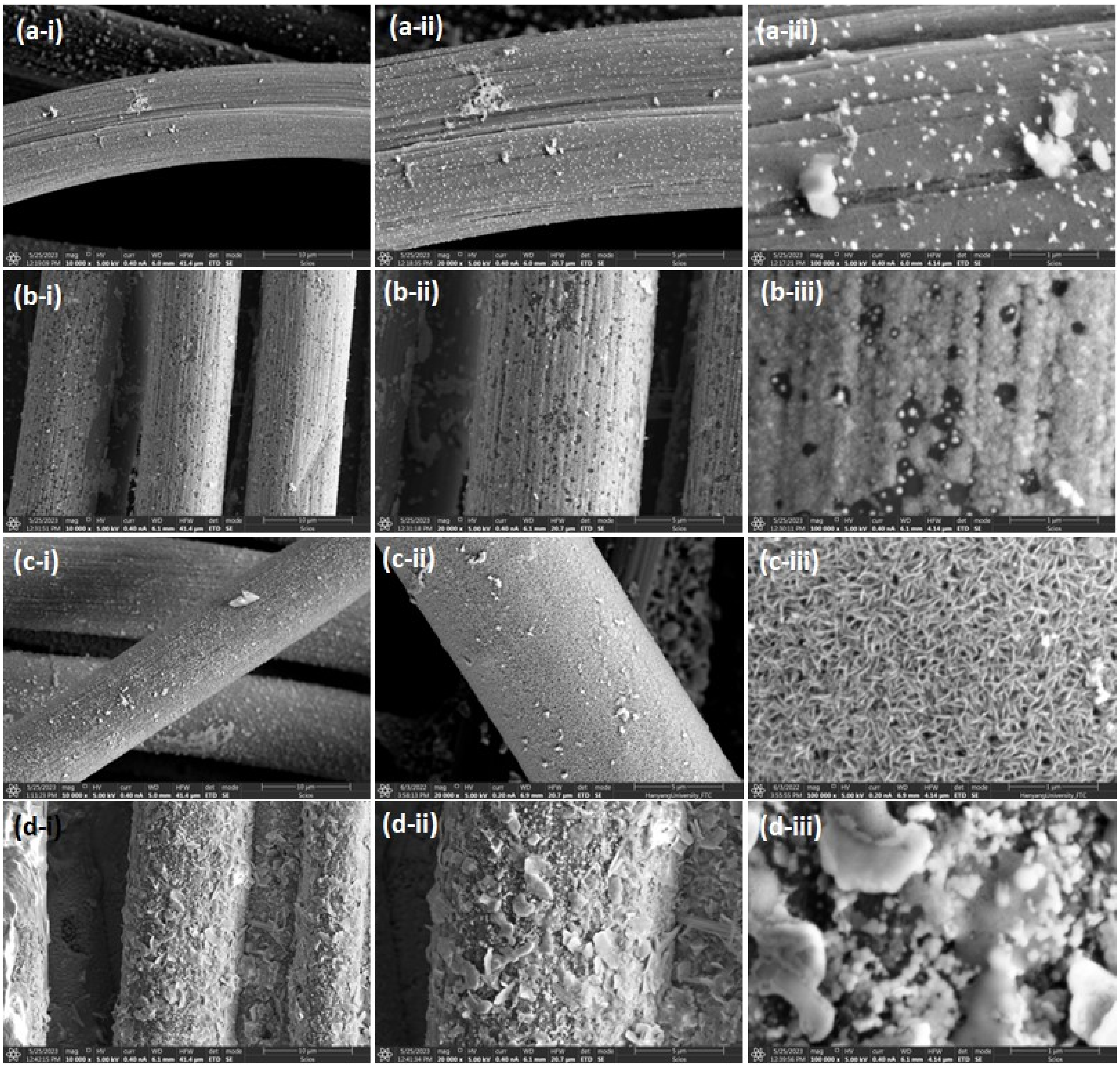


Figure S2. Influence of electrodeposition time on the morphology CoMoRu on CC (a, i-iii) 15 min, (b, i-iii) 20 min and (c, i-iii) 25 min and (d, i-iii) 30 min.

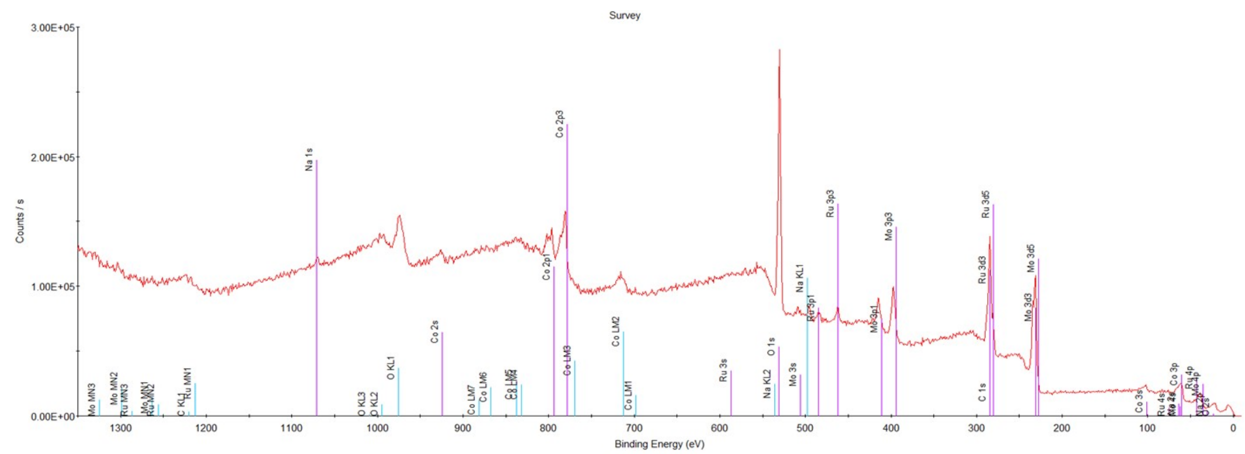


Figure S3: XPS wide (survey) scan of CoMoRu/CC showing the presence of all the expected elements.

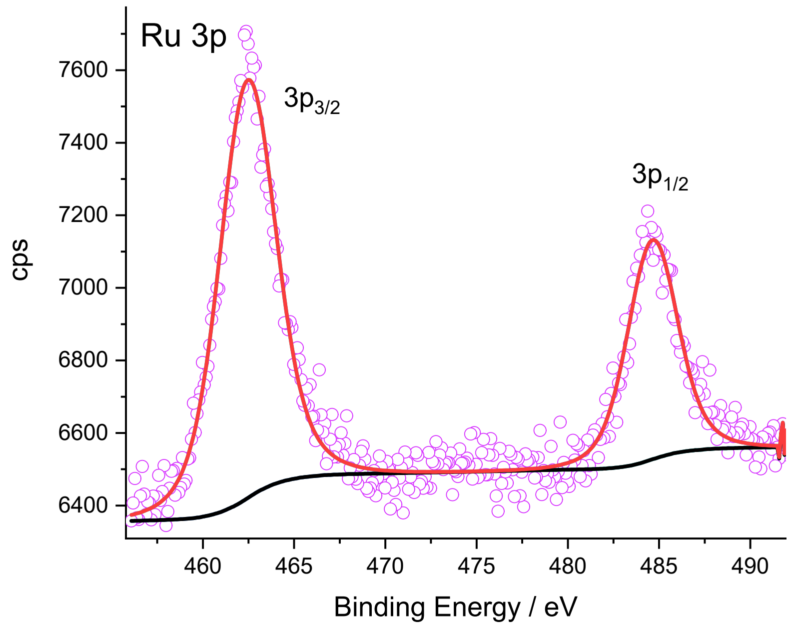


Figure S4: XPS narrow scan of Ru 3p in CoMoRu/CC

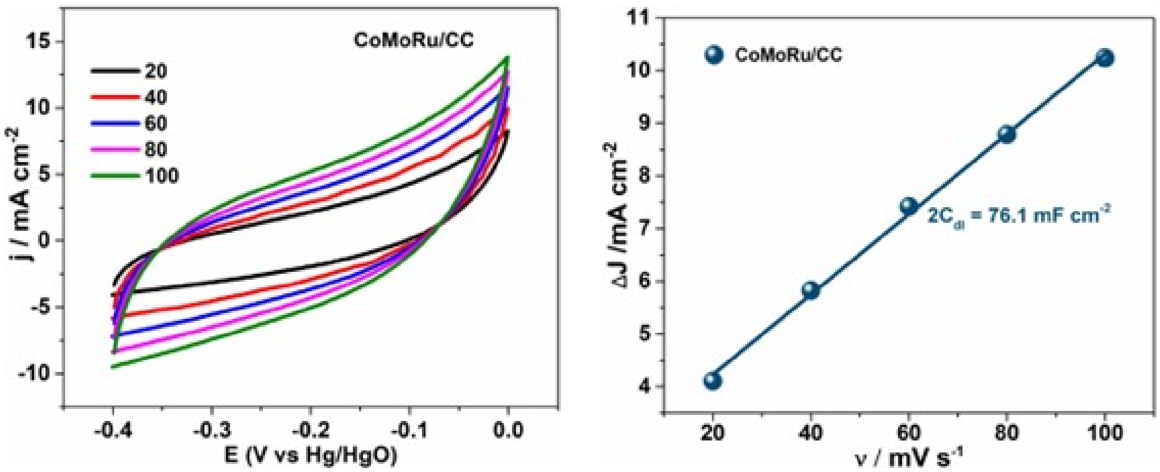
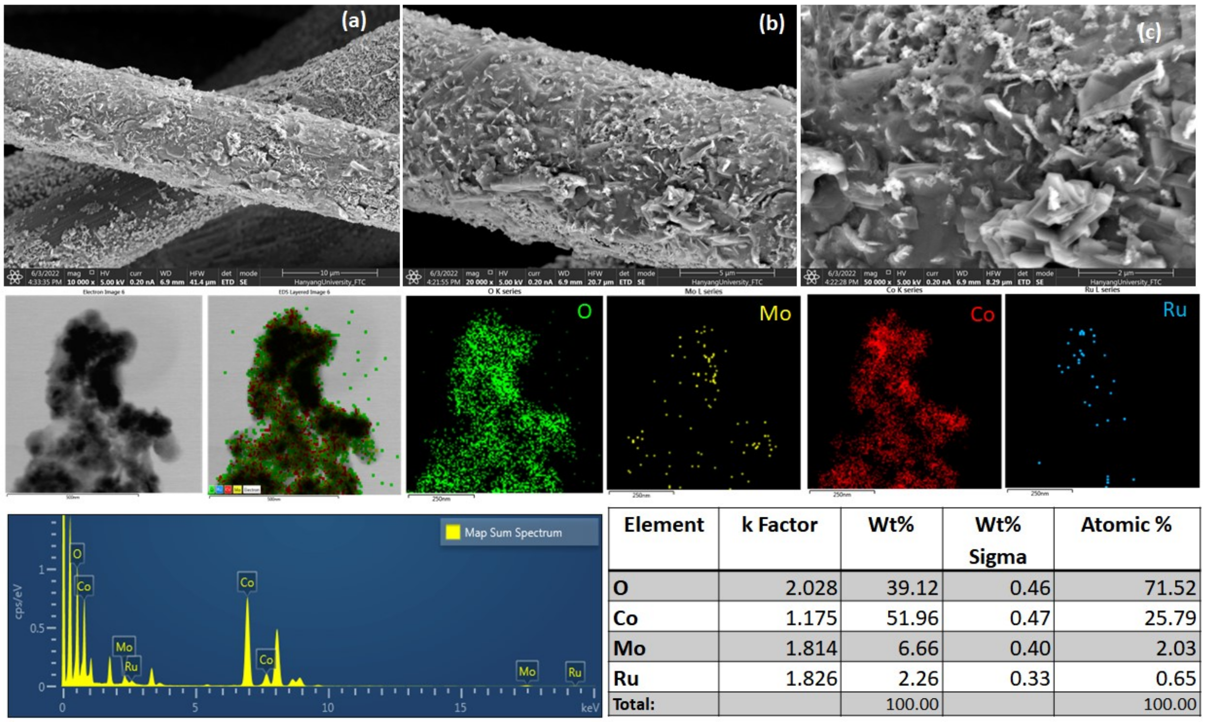


Figure S5. Plot of the different scan rates (10, 50, 100, 150, 200 mV s^{-1}) against the differences in double layer charging current



Element	k Factor	Wt%	Wt% Sigma	Atomic %
O	2.028	39.12	0.46	71.52
Co	1.175	51.96	0.47	25.79
Mo	1.814	6.66	0.40	2.03
Ru	1.826	2.26	0.33	0.65
Total:		100.00		100.00

Fig. S6 SEM, EDS mapping and spectrum of CoMoRu/CC after 24 h chronoamperometry

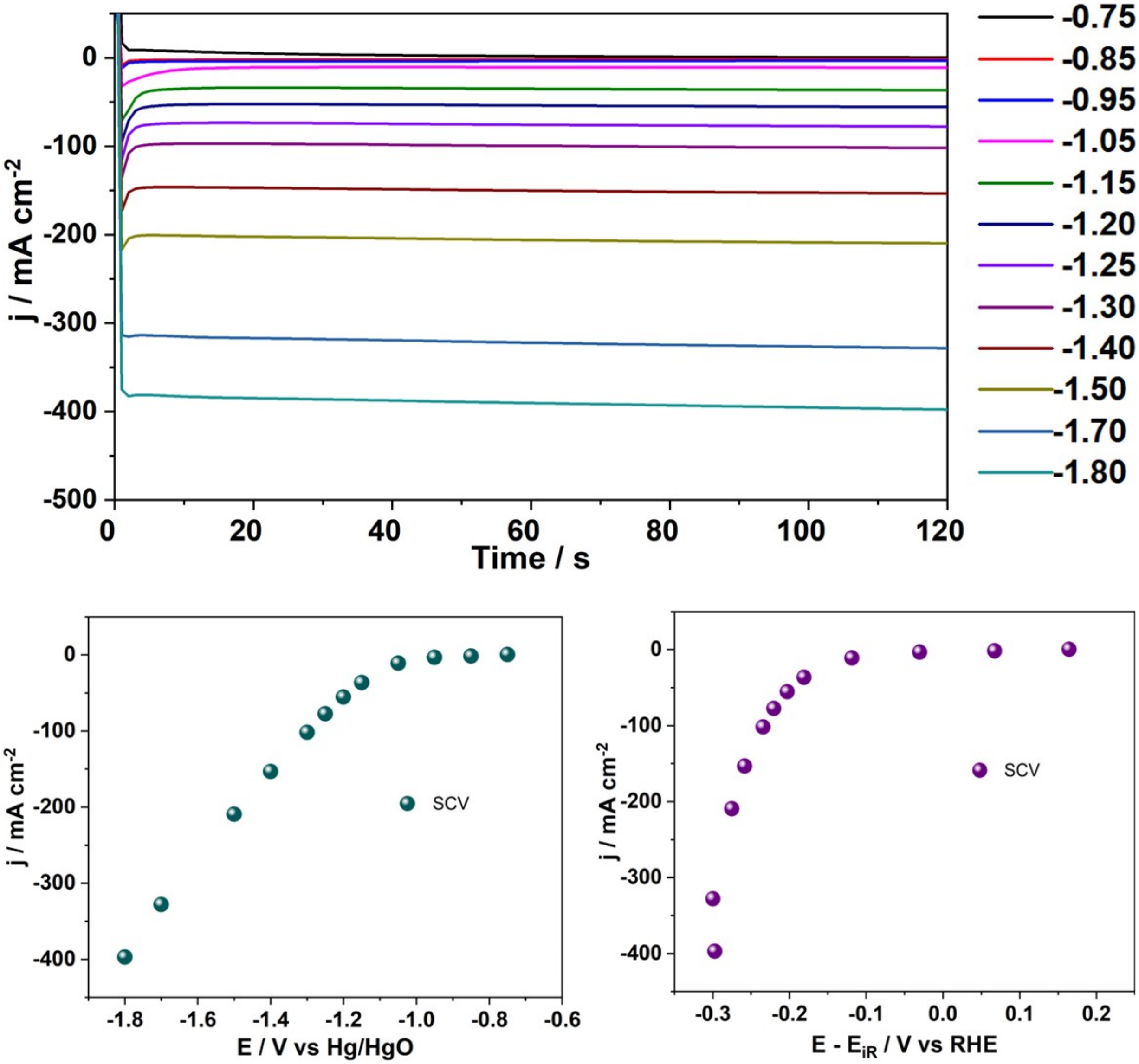


Figure S7: (a) CA responses used to build the SCV curve. (b-c) SCV curve of CoMoRu/CC without and with iR drop compensation, respectively.

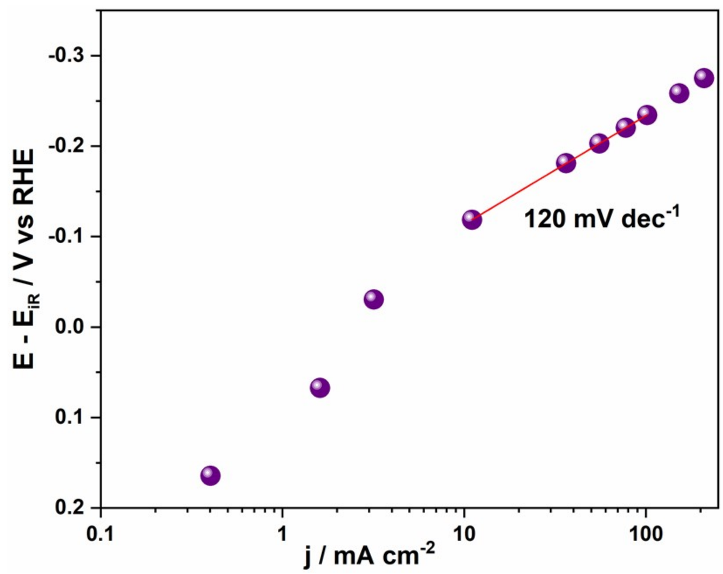


Figure S8: Tafel line of CoMoRu/CC extracted from iR drop compensated SCV responses.

List of references cited in Figure 5c[1–9]

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