Supplementary data for

Controlled Fabrication of Hierarchically Structured MnO_2@NiCo-LDH Nanoarrays for Efficient Electrocatalytic Urea Oxidization

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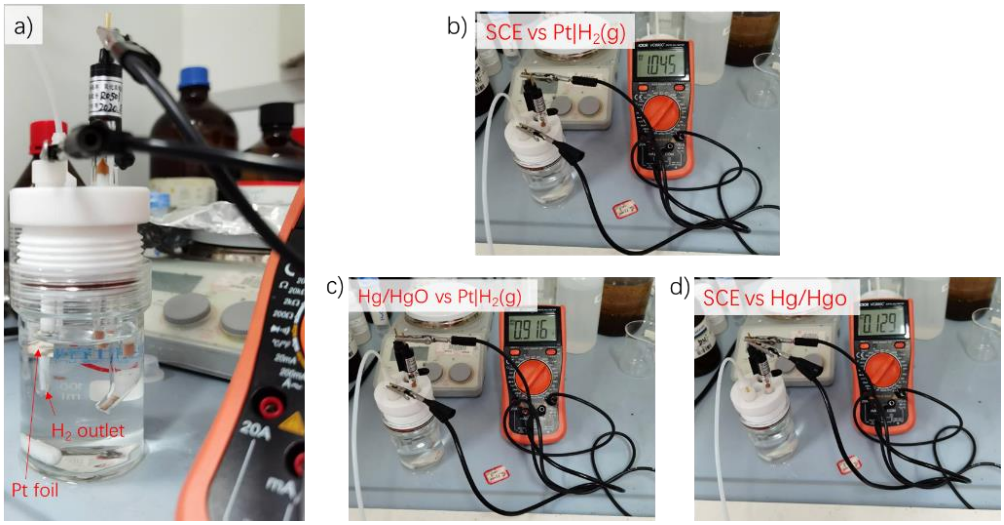

Figure S1. Potential calibration of the SCE and Hg/HgO against a Pt|H_2(g) electrode in 1 M KOH. Note: H_2 gas was bubbled against a fresh polished platinum foil for at least 30 min, and the voltage measurements were conducted immediately after shutting off the gas to avoid any mechanical disturbance by the gas bubbling.

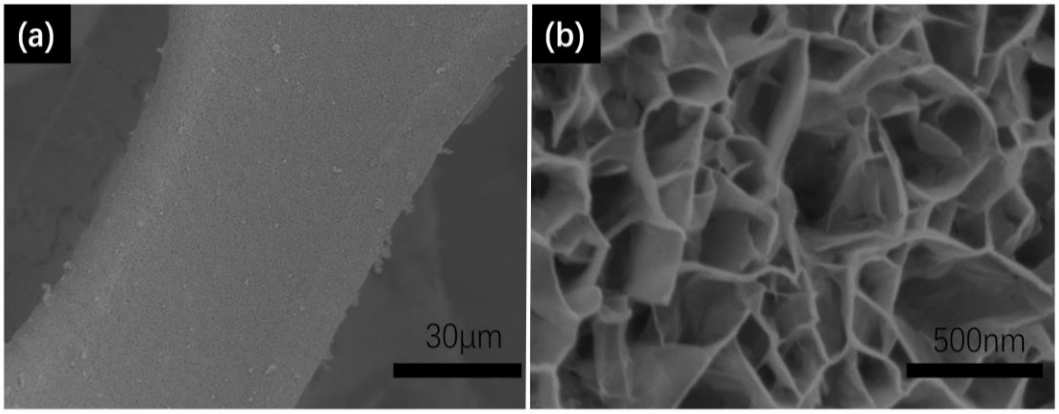

Figure S2. SEM images of MnO_2 nanosheet arrays grown on nickel foam (NF).

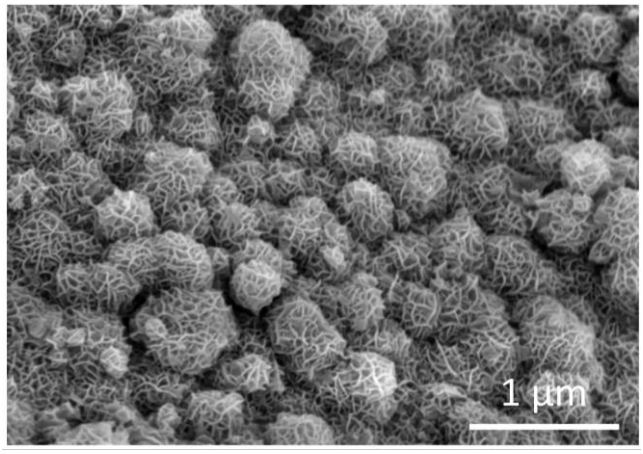

Figure S3. SEM image of CoNi-LDH deposited on NF.

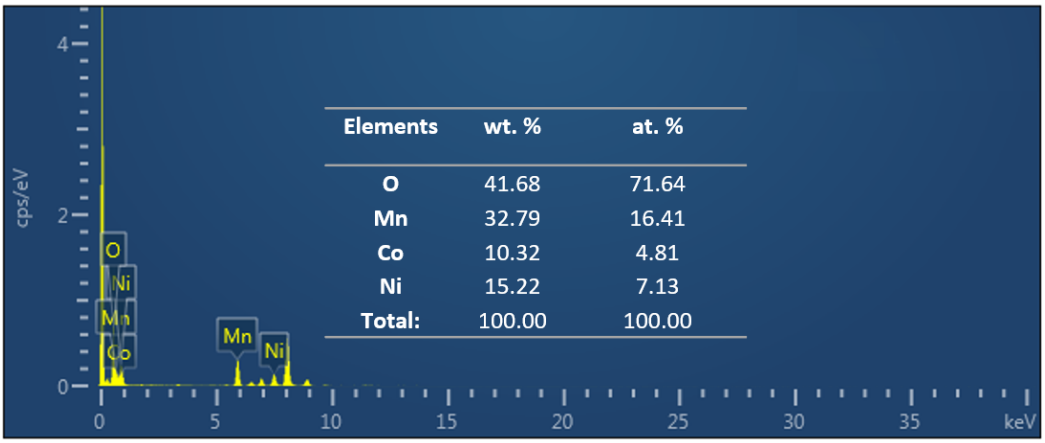

Figure S4. EDS spectrum of the mapping area.

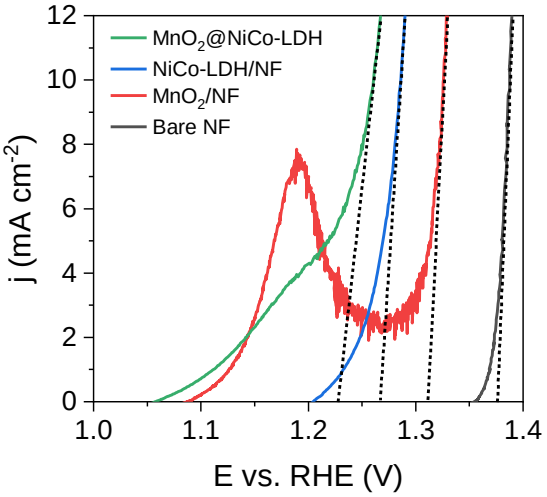

Figure S5. Enlarged view of the UOR LSV curves of different catalysts.

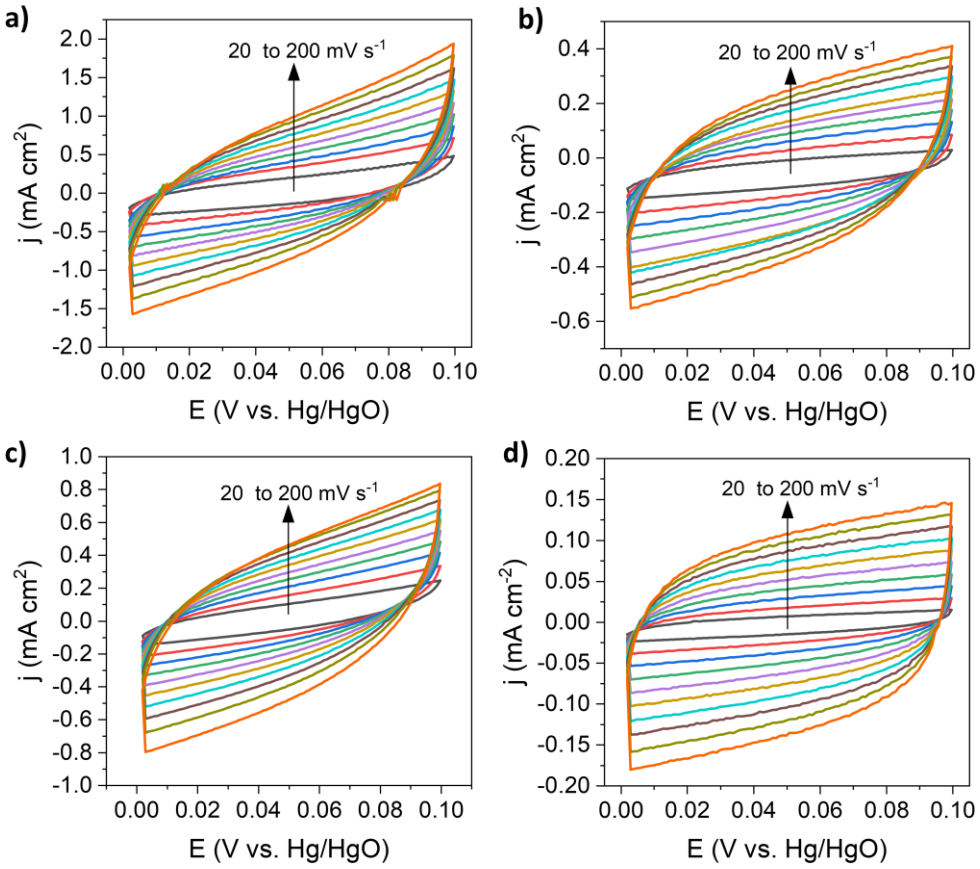

Figure S6. CV curves of a) MnO_2@NiCo-LDH, b) NiCo-LDH/NF, c) MnO_2/NF, and d) NF at different potential scan rates in the non-Faradaic potential range.

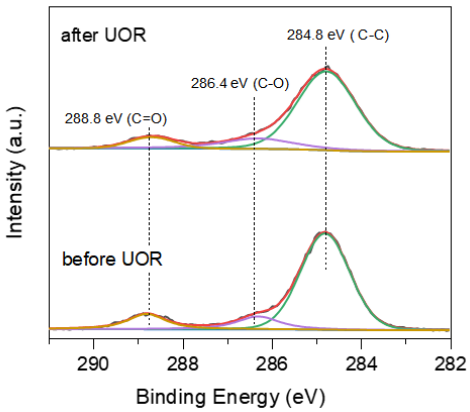

Figure S7: High-resolution calibrated C 1s XPS spectra of MnO_2@NiCo-LDH before and after the UOR test.

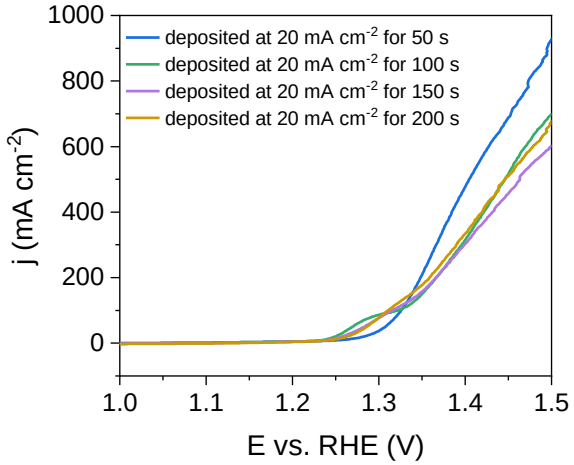

Figure S8. LSV curves of UOR of various MnO_2@NiCo-LDH samples with different deposition time.

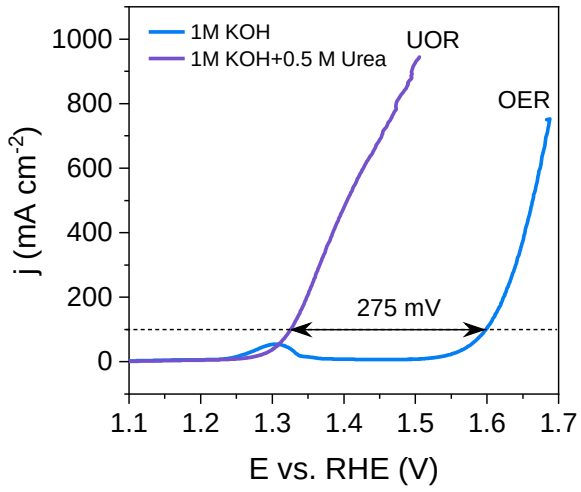

Figure S9. LSV curves of MnO_2@NiCo-LDH deposited for 50 s for UOR and OER.

Table S1. Performance comparison of UOR catalysts reported recently.

Catalysts	Electrolyte	j (mA cm^{-2})	Potential (V)	Reference
CoS_2-MoS_2	1.0 M KOH 0.5 M urea	10	1.29	Adv. Energy Mater., 2018, 1801775
Ni_3N/NF	1.0 M KOH 0.5 M urea	100	1.42	ACS Appl. Mater. Interfaces, 2019, 11, 13168
Mo-Co-S-Se/CC	1.0 M KOH 0.5 M urea	10	1.40	ACS Sustainable Chem. Eng., 2019, 7, 16577
$NiMoO_3S$/NF	1.0 M KOH 0.5 M urea	10	1.34	Chem. Commun., 2020, 56, 11038
$NiSe_2$-NiO 350	1.0 M KOH 0.33 M urea	10	1.33	Appl. Catal. B Environ., 2020, 276,119165
CoFeCr LDH/NF	1.0 M KOH 0.33 M urea	10	1.31	Appl. Catal. B Environ., 2020, 272,118959.
$NiMo_xO_y$/NF	1.0 M KOH 0.5 M urea	100	1.36	Applied Catalysis A, General, 2021 622, 118220
$Ni_2Fe(CN)_6$	1.0 M KOH 0.33 M urea	100	1.35	Nature Energy, 2021, 6, 904–912
NiCoGe oxyhydroxide	1.0 M KOH 0.33 M urea	100	1.33	Adv. Funct. Mater., 2023, 33, 2300687
Ni-TPA@NiSe/NF	1.0 M KOH 0.5 M urea	100	1.37	ACS Catal. 2023, 13, 837−847
MnO_2@NiCo -LDH	**1.0 M KOH 0.5 M urea**	**10**	**1.262**	**This work**
		100	**1.326**	