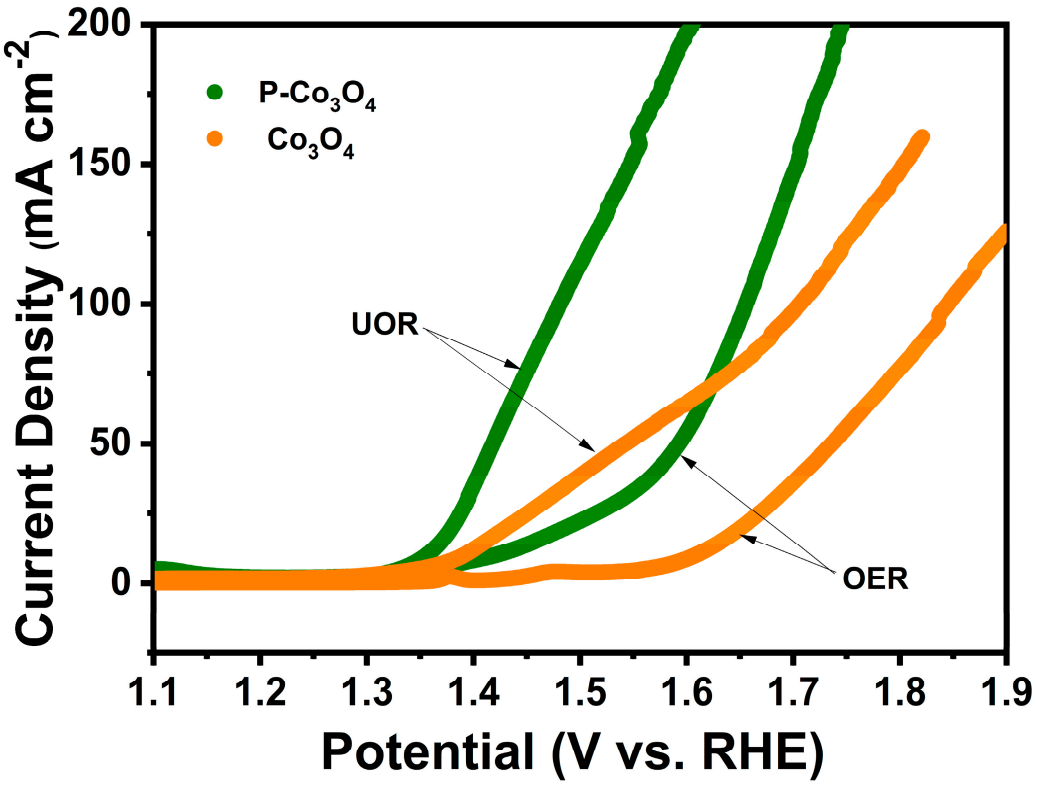


Figure S1. Polarization curves for the UOR and OER of P-Co_3O_4/NF and Co_3O_4/NF samples.

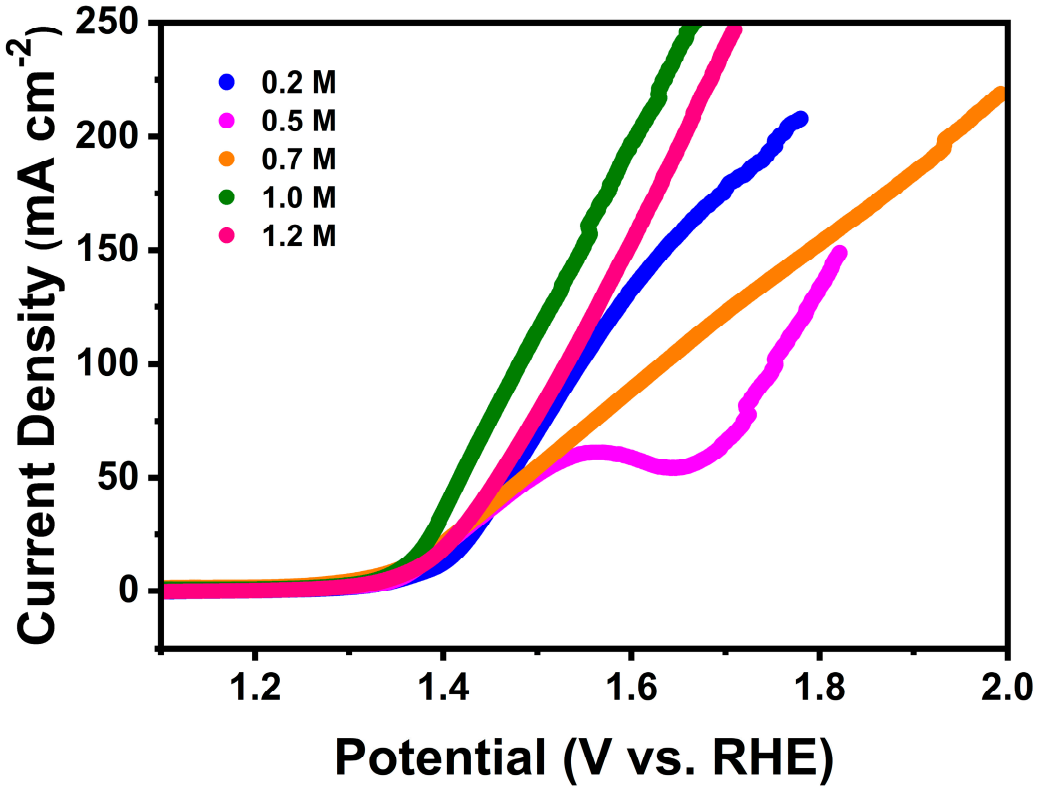


Figure S2. UOR polarization curves of P-Co_3O_4/NF catalyst in 1 M KOH with various urea concentrations.

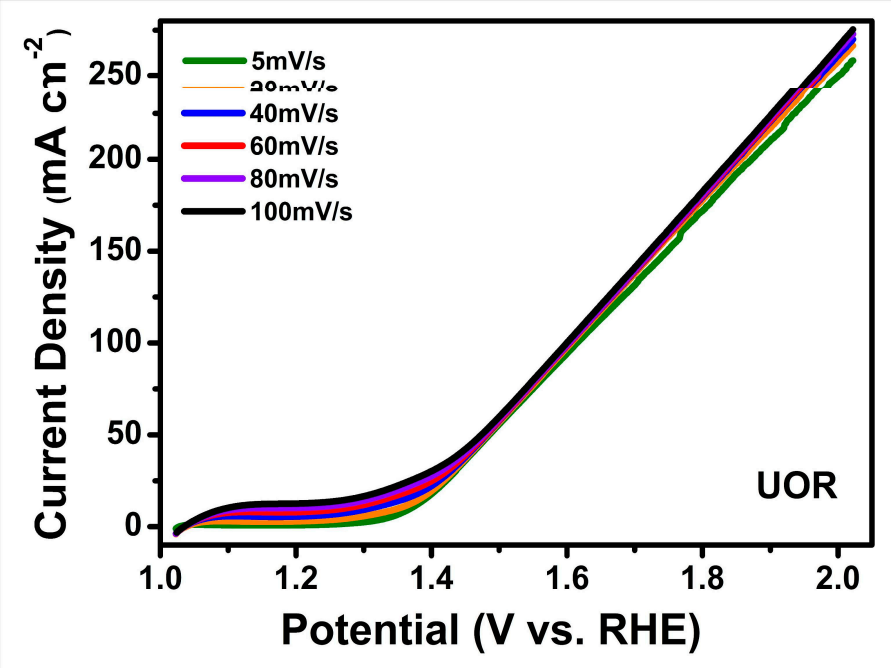


Figure S3. UOR polarization plots of P-Co_3O_4/NF catalyst at different scan rates.

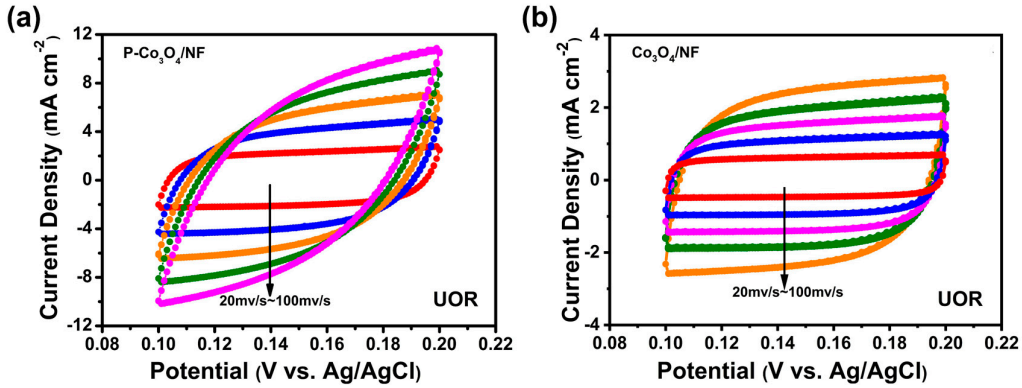


Figure S4. CV curves of (a) P-Co_3O_4/NF and (b) Co_3O_4/NF at different scan rates for UOR testing.

Table S1. Comparison of the UOR catalytic performance with different catalysts.

Electrode Materials	Urea Concentration	Working potential (V@mA cm^{-2} vs. RHE)	Stability	Tafel slope (mV dec^{-1})	Reference
P-Co_3O_4/NF	1.00 M urea	1.356@10 **1.38@20**	65000s	82	This work
N-Co_9S_8/Ni_3S_2/NF	0.5 M urea	1.47@400	20h	88.6	[1]
Ni/SiO_x/NAC	0.33 M urea	1.384@10	10800s	108	[2]
Co_3O_4/NF nanosheets@nanoneedles arrays	0.50 M urea	1.40@10	12h	139.1	[3]
NiO-SnO_2	0.3 M urea	0.14@10	20h	101	[4]
S-Co_2P@Ni_2P	0.5 M urea	1.36@100	20 h	58.7	[5]
NiAl-LDHs	0.33 M urea	1.42@10	14 h	59.8	[6]
Ni_2P-$Ni_2P_4O_{12}$	0.33 M urea	1.35@10	10 h	55	[7]

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