Electronic Supplementary Material (ESI) for Chemical Science.

Recent Advances in Heterostructured Cathodic Electrocatalysts for Non-aqueous Li-O_2 Batteries

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Table S1 Comparison table of the synthesis methods and electrocatalytic performance based on reported typical heterostructures catalysts for Li-O_2 batteries.

Materials	Synthesis Method	1st Discharge Capacity[a]/ Current Density	Overall Potential Gap/ Current Density	Cycles or hours/Current Density-Fixed Capacity	Ref.
Mo_2C@CNTs	Ball Milling+Thermal Treatment	-	0.47 V/100 mA g^{-1}	100/100 mA g^{-1}-500 mAh g^{-1}	1
Co_4N@CNFs	Hydrothermal+Nitridation Process	~11000 mAh g^{-1}/00 mA g^{-1}	1.23 V/700 mA g^{-1}	177/200 mA g^{-1}-500 mAh g^{-1}	2
$CuGeO_3$@Graphene	Hydrothermal+Thermal Treatment	10030 mAh g^{-1}/200 mA g^{-1}	1.50 V/200 mA g^{-1}	50/1000 mA g^{-1}-2000 mAh g^{-1}	3
Co_9S_8@CFs	Hydrothermal+Thermal Treatment	6875 mAh g^{-1}/50 mA g^{-1}	0.57 V/50 mA g^{-1}	105/100 mA g^{-1}-500 mAh g^{-1}	4
$(Mn_{1/3}Co_{2/3})O$@CNTs	One-pot Spray Pyrolysis	20588 mAh g^{-1}/500 mA g^{-1}-	0.64 V/200 mA g^{-1}	245/200 mA g^{-1}-500 mAh g^{-1}	5
Mo_2C@CC	Infiltrated+Thermal Treatment	7646 mAh g^{-1}/200 mA g^{-1}	~1.25 V/200 mA g^{-1}	700h/500 mA g^{-1}-500 mAh g^{-1}	6
N-Co@Graphene	Solution Reaction+Thermal Treatment	-	~0.9 V/0.1 mA cm^{-2}	30/0.1 mA cm^{-2}-1 mAh cm^{-2}	7
Pd-C@CP	Electrophoretic+In-Situ Modification	5900 mAh g^{-1}/1500 mA g^{-1}	~1 V/300 mA g^{-1}	213/300 mA g^{-1}-1000 mAh g^{-1}	8
$Ag/La_{0.9}FeO_{3-\delta}$	Electrospinning+Thermal Treatment	8476 mAh g^{-1}/100 mA g^{-1}	0.66 V/100 mA g^{-1}	174/100 mA g^{-1}-1000 mAh g^{-1}	9
Co_3O_4/Ag	Solution Reaction+Hydrothermal	12000 mAh g^{-1}/200 mA g^{-1}	~1.2 V/200 mA g^{-1}	80/200 mA g^{-1}-1000 mAh g^{-1}	10
AuNi/NPNi/FNi	Thermal Treatment+In-Situ Modification+Atom Interdiffusion	22551 mAh g^{-1}/1000 mA g^{-1}	0.68 V/1000 mA g^{-1}	268/1000 mA g^{-1}-3000 mAh g^{-1}	11
Au/Cu@FCu	Solution Immersion+Redox Replacement	27270 mAh g^{-1}/100 mA g^{-1}	0.64 V/100 mA g^{-1}	220/100 mA g^{-1}-500 mAh g^{-1}	12
Pd/$NiCo_2O_4$	Hydrothermal+Solution Immersion	4000 mAh g^{-1}/200 mA g^{-1}	~1.3 V/100 mA g^{-1}	100/200 mA g^{-1}-1000 mAh g^{-1}	13
Ru/$ZnIn_2S_{4-x}$	Hydrothermal+Solution Immersion	3532mAh g^{-1}/500 mA g^{-1}	0.77 V/500 mA g^{-1}	1254h/500 mA g^{-1}-1000 mAh g^{-1}	14
Pd/Pd_4S	Solution Reaction	8777 mAh g^{-1}/100 mA g^{-1}	1.55 V/100 mA g^{-1}	160/500 mA g^{-1}-500 mAh g^{-1}	15
MnO_2/Co_3O_4@CP	Hydrothermal+Thermal Treatment	4850 mAh g^{-1}/103 mA g^{-1}	0.95 V/103 mA g^{-1}	53/103 mA g^{-1}-1030 mAh g^{-1}	16
$NiCo_2S_4$/NiO	Hydrothermal+Solution	10050 mAh g^{-1}/200 mA g^{-1}	0.88 V/200 mA g^{-1}	300/200 mA g^{-1}-1000 mAh g^{-1}	17

	Immersion+Thermal Treatment				
PdO/Co_3O_4	Solution Immersion+Pyrolysis	-	0.22 V/200 mA g^{-1}	90/200 mA g^{-1}-500 mAh g^{-1}	18
Co_3O_4/MnO_2	Hydrothermal+Thermal Treatment	5738 mAh g^{-1}/100 mA g^{-1}	0.82 V/100 mA g^{-1}	60/200 mA g^{-1}-1000 mAh g^{-1}	19
$NiCo_2O_4/NiO$	Hydrothermal	17463 mAh g^{-1}/500 mA g^{-1}	0.98 V/500 mA g^{-1}	500/100 mA g^{-1}-1000 mAh g^{-1}	20
Mo_2C/MoO_2	Hydrothermal+Thermal Treatment	~2000 mAh g^{-1}/800 mA g^{-1}	0.56 V/200 mA g^{-1}	100/200 mA g^{-1}-1000 mAh g^{-1}	21
RuO_2/Mn_2O_3	Solution Reaction+Electrospinning	-	0.96 V/100 mA g^{-1}	121/400 mA g^{-1}-1000 mAh g^{-1}	22
Urchin-$NiO/NiCo_2O_4$	Hydrothermal+Thermal Treatment	9231 mAh g^{-1}/100 mA g^{-1}	1.48 V/100 mA g^{-1}	80/100 mA g^{-1}-600 mAh g^{-1}	23
$NiS_2/ZnIn_2S_4$	Hydrothermal	3682 mAh g^{-1}/500 mA g^{-1}	~1.2 V/500 mA g^{-1}	490/500 mA g^{-1}-500 mAh g^{-1}	24
$CoSe_2/NiSe_2$	Hydrothermal+Thermal Treatment	3530 mAh g^{-1}/600 mA g^{-1}	0.95 V/100 mA g^{-1}	250/200 mA g^{-1}-1000 mAh g^{-1}	25
$Ni_3Se_2/NiSe_2$@NF	Hydrothermal	23092 mAh g^{-1}/500 mA g^{-1}	0.38 V/100 mA g^{-1}	500/100 mA g^{-1}-1000 mAh g^{-1}	26
CdSe/ZnS QD@CNT	Hydrothermal+Solution Reaction	-	~1.3 V/100 mA g^{-1}	100/100 mA g^{-1}-1000 mAh g^{-1}	27
Co-Fe-(LDH) /RuO_2	Co-precipitation +Self-assembling	~4300 mAh g^{-1}/10 mA cm^{-2}	0.64 V/100 mA g^{-1}	100/10 mA cm^{-2}-800 mAh g^{-1}	28

[a]The specific discharge capacities were calculated based on the amount of catalysts in the cathodes.

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