

# Interfacial Engineering of W<sub>2</sub>N/WC Hetero Synthesis: A Highly Efficient Trifunctional Electrocataly

Advanced Materials

32, e1905679

DOI: [10.1002/adma.201905679](https://doi.org/10.1002/adma.201905679)

Citation Report

#	ARTICLE	IF	CITATIONS
1	Iron nanoparticles loaded on nickel sulfide nanosheets: an efficient amorphous catalyst for water oxidation. <i>Sustainable Energy and Fuels</i> , 2020, 4, 5498-5502.	2.5	3
2	LaMnO <sub>3</sub> -La <sub>2</sub> CuO <sub>4</sub> two-phase synergistic system with broad active window in NO <sub>x</sub> efficient reduction. <i>Molecular Catalysis</i> , 2020, 493, 111111.	1.0	5
3	Fabrication strategies of porous precious-metal-free bifunctional electrocatalysts for overall water splitting: Recent advances. <i>Green Energy and Environment</i> , 2021, 6, 620-643.	4.7	57
4	High efficiency electrocatalyst of LaCr <sub>0.5</sub> Fe <sub>0.5</sub> O <sub>3</sub> nanoparticles on oxygen-evolution reaction. <i>Scientific Reports</i> , 2020, 10, 13395.	1.6	17
5	Bi-Based Metal-Organic Framework Derived Leafy Bismuth Nanosheets for Carbon Dioxide Electroreduction. <i>Advanced Energy Materials</i> , 2020, 10, 2001709.	10.2	210
6	Trimetallic Nanoparticles Encapsulated into Bamboo-Like N-Doped Carbon Nanotubes as a Robust Catalyst for Efficient Oxygen Evolution Electrocatalysis. <i>ChemNanoMat</i> , 2020, 6, 1496-1501.	1.5	8
7	The solid-state <i>in situ</i> construction of Cu <sub>2</sub> O/CuO heterostructures with adjustable phase compositions to promote CO oxidation activity. <i>CrystEngComm</i> , 2020, 22, 7808-7815.	1.3	7
8	Self-Organized Single-Atom Tungsten Supported on the N-Doped Carbon Matrix for Durable Oxygen Reduction. <i>ACS Applied Materials &amp; Interfaces</i> , 2020, 12, 43586-43595.	4.0	29
9	Recent Advances on the Modulation of Electrocatalysts Based on Transition Metal Nitrides for the Rechargeable Zn-Air Battery. , 2020, 2, 1423-1434.		111
10	Boosting Hydrogen Evolution Reaction Activities of Three-Dimensional Flower-like Tungsten Carbonitride via Anion Regulation. <i>ACS Sustainable Chemistry and Engineering</i> , 2020, 8, 14109-14116.	3.2	16
11	Hollow Carbon Nanocubes as Oxygen Reduction Reaction Electrocatalyst. <i>ChemistrySelect</i> , 2020, 5, 13300-13304.	0.7	3
12	Engineering Co/Ni(OH) <sub>2</sub> heterostructures with improved intrinsic interfacial charge transfer toward simultaneous hydrogen generation and urea-rich wastewater purification. <i>Journal of Power Sources</i> , 2020, 480, 229151.	4.0	29
13	Deep Eutectic Solvent-Mediated Construction of Oxygen Vacancy-Rich Fe-Based Electrocatalysts for Efficient Oxygen Evolution Reaction. <i>Advanced Sustainable Systems</i> , 2020, 4, 2000038.	2.7	13
14	Ionic Exchange of Metal-Organic Frameworks for Constructing Unsaturated Copper Single-Atom Catalysts for Boosting Oxygen Reduction Reaction. <i>Small</i> , 2020, 16, e2001384.	5.2	70
15	Cooperative intergrowth effect in LaMnO <sub>3</sub> , La <sub>2</sub> CuO <sub>4</sub> and CuO three-phase system with broad active window for highly efficient NO <sub>x</sub> reduction. <i>Fuel</i> , 2020, 278, 118266.	3.4	6
16	Interface Engineering of Hierarchical Branched Mo-Doped Ni <sub>3</sub> S <sub>2</sub> /Ni <sub>x</sub> P <sub>y</sub> Hollow Heterostructure Nanorods for Efficient Overall Water Splitting. <i>Advanced Energy Materials</i> , 2020, 10, 1903891.	10.2	443
17	Rich atomic interfaces between sub-1 nm RuO <sub>x</sub> clusters and porous Co <sub>3</sub> O <sub>4</sub> nanosheets boost oxygen electrocatalysis bifunctionality for advanced Zn-air batteries. <i>Energy Storage Materials</i> , 2020, 32, 20-29.	9.5	84
18	Interfacial Engineering of NiO/NiCo <sub>2</sub> O <sub>4</sub> Porous Nanofibers as Efficient Bifunctional Catalysts for Rechargeable Zinc-Air Batteries. <i>ACS Applied Materials &amp; Interfaces</i> , 2020, 12, 21661-21669.	4.0	80

#	ARTICLE	IF	CITATIONS
19	Metallic Ni <sub>3</sub> Mo <sub>3</sub> N Porous Microrods with Abundant Catalytic Sites as Efficient Electrocatalyst for Large Current Density and Superstability of Hydrogen Evolution Reaction and Water Splitting. <i>Applied Catalysis B: Environmental</i> , 2020, 272, 118956.	10.8	138
20	Bionic Structural Design and Electrochemical Manufacture of WC/N-Doped Carbon Hybrids as Efficient ORR Catalyst. <i>Journal of the Electrochemical Society</i> , 2020, 167, 064502.	1.3	9
21	MOFs derived carbon nanotubes coated CoNi alloy nanocomposites with N-doped rich-defect and abundant cavity structure as efficient trifunctional electrocatalyst. <i>Applied Surface Science</i> , 2021, 536, 147786.	3.1	50
22	Design of grain boundary enriched bimetallic borides for enhanced hydrogen evolution reaction. <i>Chemical Engineering Journal</i> , 2021, 405, 126977.	6.6	56
23	Ultrafine VN nanoparticles confined in Co@N-doped carbon nanotubes for boosted hydrogen evolution reaction. <i>Journal of Alloys and Compounds</i> , 2021, 853, 157257.	2.8	22
24	Interface engineering of Co <sub>3</sub> Fe <sub>7</sub> -Fe <sub>3</sub> C heterostructure as an efficient oxygen reduction reaction electrocatalyst for aluminum-air batteries. <i>Chemical Engineering Journal</i> , 2021, 404, 127124.	6.6	46
25	Constructing Co@WC <sub>1-x</sub> heterostructure on N-doped carbon nanotubes as an efficient bifunctional electrocatalyst for zinc-air batteries. <i>Journal of Power Sources</i> , 2021, 485, 229251.	4.0	18
26	Layered PdW nanosheet assemblies for alcohol electrooxidation. <i>Applied Surface Science</i> , 2021, 537, 147860.	3.1	44
27	Enhanced hydrogen evolution from the face-sharing [RuO <sub>6</sub> ] octahedral motif. <i>Journal of Energy Chemistry</i> , 2021, 56, 276-282.	7.1	6
28	Single Ru Atoms Stabilized by Hybrid Amorphous/Crystalline FeCoNi Layered Double Hydroxide for Ultraefficient Oxygen Evolution. <i>Advanced Energy Materials</i> , 2021, 11, .	10.2	223
29	Artificial Heterointerfaces Achieve Delicate Reaction Kinetics towards Hydrogen Evolution and Hydrazine Oxidation Catalysis. <i>Angewandte Chemie - International Edition</i> , 2021, 60, 5984-5993.	7.2	234
30	MoS <sub>2</sub> /Co <sub>9</sub> S <sub>8</sub> /MoC heterostructure connected by carbon nanotubes as electrocatalyst for efficient hydrogen evolution reaction. <i>Journal of Materials Science and Technology</i> , 2021, 79, 29-34.	5.6	28
31	Artificial Heterointerfaces Achieve Delicate Reaction Kinetics towards Hydrogen Evolution and Hydrazine Oxidation Catalysis. <i>Angewandte Chemie</i> , 2021, 133, 6049-6058.	1.6	42
32	Multistage porogen-induced heteroporous Co, N-doped carbon catalyst toward efficient oxygen reduction. <i>Chemical Communications</i> , 2021, 57, 903-906.	2.2	15
33	Formation of sandwiched leaf-like CNTs-Co/ZnCo <sub>2</sub> O <sub>4</sub> @NC-CNTs nanohybrids for high-power-density rechargeable Zn-air batteries. <i>Nano Energy</i> , 2021, 82, 105710.	8.2	133
34	Recent perspectives on the structure and oxygen evolution activity for non-noble metal-based catalysts. <i>Journal of Power Sources</i> , 2021, 485, 229335.	4.0	43
35	Two-dimensional Porous Molybdenum Phosphide/Nitride Heterojunction Nanosheets for pH-Universal Hydrogen Evolution Reaction. <i>Angewandte Chemie - International Edition</i> , 2021, 60, 6673-6681.	7.2	227
36	A highly active composite electrocatalyst Ni-Fe-P-Nb <sub>2</sub> O <sub>5</sub> /NF for overall water splitting. <i>International Journal of Hydrogen Energy</i> , 2021, 46, 581-588.	3.8	7

#	ARTICLE	IF	CITATIONS
37	Metal-organic framework derived Fe-Co-CN/reduced graphene oxide for efficient HER and OER. <i>Electrochimica Acta</i> , 2021, 365, 137384.	2.6	69
38	Interface Engineering of CoS/CoO@N-Doped Graphene Nanocomposite for High-Performance Rechargeable Zn-Air Batteries. <i>Nano-Micro Letters</i> , 2021, 13, 3.	14.4	95
39	Superassembly of NiCoO <sub>x</sub> solid solution hybrids with a 2D/3D porous polyhedron-on-sheet structure for multi-functional electrocatalytic oxidation. <i>Journal of Materials Chemistry A</i> , 2021, 9, 8576-8585.	5.2	14
40	Mechanistic insights into interfaces and nitrogen vacancies in cobalt hydroxide/tungsten nitride catalysts to enhance alkaline hydrogen evolution. <i>Journal of Materials Chemistry A</i> , 2021, 9, 11323-11330.	5.2	12
41	One-dimensional CO <sub>9</sub> S <sub>8</sub> -V <sub>3</sub> S <sub>4</sub> heterojunctions as bifunctional electrocatalysts for highly efficient overall water splitting. <i>Science China Materials</i> , 2021, 64, 1396-1407.	3.5	36
42	Synergistic catalytic effects of MoO <sub>2</sub> and Vulcan carbon on the oxygen reduction reaction. <i>New Journal of Chemistry</i> , 2021, 45, 2775-2780.	1.4	4
43	One-step construction of Co <sub>2</sub> P nanoparticles encapsulated in N, P co-doped biomass-based porous carbon as bifunctional efficient electrocatalysts for overall water splitting. <i>Sustainable Energy and Fuels</i> , 2021, 5, 2477-2485.	2.5	12
44	Biomimetic 2D-Ni(Co,Fe)P/1D-WO <sub>x</sub> nanocoral reef electrocatalysts for efficient water splitting. <i>Journal of Materials Chemistry A</i> , 2021, 9, 10909-10920.	5.2	28
45	Cobalt sulfides constructed heterogeneous interfaces decorated on N,S-codoped carbon nanosheets as a highly efficient bifunctional oxygen electrocatalyst. <i>Journal of Materials Chemistry A</i> , 2021, 9, 13926-13935.	5.2	27
46	Atomic layer deposition-triggered hierarchical core/shell stable bifunctional electrocatalysts for overall water splitting. <i>Journal of Materials Chemistry A</i> , 2021, 9, 21132-21141.	5.2	10
47	W <sub>2</sub> N/WC composite nanofibers as an efficient electrocatalyst for photoelectrochemical hydrogen evolution. <i>RSC Advances</i> , 2021, 11, 20285-20291.	1.7	9
48	Nb <sub>2</sub> O <sub>5</sub> @Ni <sub>3</sub> N heterojunction tuned by interface oxygen vacancy engineering for the enhancement of electrocatalytic hydrogen evolution activity. <i>Journal of Materials Chemistry A</i> , 2021, 9, 11563-11570.	5.2	40
49	Water-Induced Formation of Ni <sub>2</sub> P@Ni <sub>12</sub> P <sub>5</sub> Interfaces with Superior Electrocatalytic Activity toward Hydrogen Evolution Reaction. <i>Small</i> , 2021, 17, e2006770.	5.2	83
50	Impact of synthesis conditions on the morphology and crystal structure of tungsten nitride nanomaterials. <i>RSC Advances</i> , 2021, 11, 28198-28210.	1.7	1
51	One-step calcination synthesis of WC@Mo <sub>2</sub> C heterojunction nanoparticles as novel H <sub>2</sub> -production cocatalysts for enhanced photocatalytic activity of TiO <sub>2</sub> . <i>Catalysis Science and Technology</i> , 2021, 11, 7307-7315.	2.1	19
52	Crystalline/amorphous hetero-phase Ru nanoclusters for efficient electrocatalytic oxygen reduction and hydrogen evolution. <i>Materials Chemistry Frontiers</i> , 2021, 5, 6648-6658.	3.2	12
53	N-doped mixed Co, Ni-oxides with petal structure as effective catalysts for hydrogen and oxygen evolution by water splitting. <i>RSC Advances</i> , 2021, 11, 1022-1029.	1.7	4
54	Two-Dimensional Porous Molybdenum Phosphide/Nitride Heterojunction Nanosheets for pH-Universal Hydrogen Evolution Reaction. <i>Angewandte Chemie</i> , 2021, 133, 6747-6755.	1.6	25

#	ARTICLE	IF	CITATIONS
55	Porous sunflower plate-like NiFe <sub>2</sub> O <sub>4</sub> /CoNiS heterostructure as efficient electrocatalyst for overall water splitting. International Journal of Hydrogen Energy, 2021, 46, 8557-8566.	3.8	22
56	Designing High-Valence Metal Sites for Electrochemical Water Splitting. Advanced Functional Materials, 2021, 31, 2009779.	7.8	195
57	Visualization of an Accelerated Electrochemical Reaction under an Enhanced Electric Field. Research, 2021, 2021, 1742919.	2.8	18
58	Dual Interface-Engineered Tin Heterostructure for Enhanced Ambient Ammonia Electrosynthesis. ACS Applied Materials & Interfaces, 2021, 13, 15270-15278.	4.0	19
59	Three-Dimensional Flower-like Fe, C-Doped-MoS <sub>2</sub> /Ni <sub>3</sub> S <sub>2</sub> Heterostructures Spheres for Accelerating Electrocatalytic Oxygen and Hydrogen Evolution. Crystals, 2021, 11, 340.	1.0	12
61	In Situ Anchoring Polymetallic Phosphide Nanoparticles within Porous Prussian Blue Analogue Nanocages for Boosting Oxygen Evolution Catalysis. Nano Letters, 2021, 21, 3016-3025.	4.5	250
62	Lattice Mismatch in Ni <sub>3</sub> Se <sub>4</sub> -MoSe <sub>2</sub> Nanoheterostructures with an Abundant Interface for Catalytic Hydrogen Evolution. ACS Applied Nano Materials, 2021, 4, 3493-3499.	2.4	18
63	Biomass wood-derived efficient Fe-N-C catalysts for oxygen reduction reaction. Journal of Materials Science, 2021, 56, 12764-12774.	1.7	8
64	S-doped CoMn <sub>2</sub> O <sub>4</sub> with more high valence metallic cations and oxygen defects for zinc-air batteries. Journal of Power Sources, 2021, 491, 229584.	4.0	40
65	Engineering Two-Phase Bifunctional Oxygen Electrocatalysts with Tunable and Synergetic Components for Flexible Zn-Air Batteries. Nano-Micro Letters, 2021, 13, 126.	14.4	79
66	Regulating Intrinsic Electronic Structures of Transition-Metal-Based Catalysts and the Potential Applications for Electrocatalytic Water Splitting. , 2021, 3, 752-780.		62
67	Recent Advances in the Understanding of the Surface Reconstruction of Oxygen Evolution Electrocatalysts and Materials Development. Electrochemical Energy Reviews, 2021, 4, 566-600.	13.1	90
68	Structural Design Strategy and Active Site Regulation of High-Efficient Bifunctional Oxygen Reaction Electrocatalysts for Zn-Air Battery. Small, 2021, 17, e2006766.	5.2	89
69	Monolithic Co-N-C membrane integrating Co atoms and clusters as a self-supporting multi-functional electrode for solid-state zinc-air batteries and self-powered water splitting. Chemical Engineering Journal, 2021, 414, 128739.	6.6	20
70	Rational Construction of Ruthenium-Cobalt Oxides Heterostructure in ZIFs-Derived Double-Shelled Hollow Polyhedrons for Efficient Hydrogen Evolution Reaction. Small, 2021, 17, e2100998.	5.2	27
71	Structural advantages and enhancement strategies of heterostructure water-splitting electrocatalysts. Cell Reports Physical Science, 2021, 2, 100443.	2.8	66
72	Electrochemical activation of C-H by electron-deficient W <sub>2</sub> C nanocrystals for simultaneous alkoxylation and hydrogen evolution. Nature Communications, 2021, 12, 3882.	5.8	24
74	Growth of IrCu nanoislands with rich IrCu/Ir interfaces enables highly efficient overall water splitting in non-acidic electrolytes. Chemical Engineering Journal, 2021, 416, 129128.	6.6	41

#	ARTICLE	IF	CITATIONS
75	In situ construction of $\text{I}^3\text{-MoC}/\text{VN}$ heterostructured electrocatalysts with strong electron coupling for highly efficient hydrogen evolution reaction. <i>Chemical Engineering Journal</i> , 2021, 416, 129130.	6.6	31
76	In-situ construction of $\text{WC}/\text{Bi}_2\text{WO}_6$ nanocomposites for efficient photodegradation of bisphenol A with peroxymonosulfate activation. <i>Ceramics International</i> , 2021, 47, 20626-20637.	2.3	16
77	Metal-organic framework derived $\text{FeS}/\text{MoS}_2$ composite as a high performance anode for sodium-ion batteries. <i>Journal of Alloys and Compounds</i> , 2021, 869, 159348.	2.8	28
78	Electron Density Modulation of $\text{MoO}_2/\text{Ni}$ to Produce Superior Hydrogen Evolution and Oxidation Activities. <i>ACS Applied Materials &amp; Interfaces</i> , 2021, 13, 39470-39479.	4.0	20
79	Cost-efficient Photovoltaic Water Electrolysis over Ultrathin Nanosheets of Cobalt/Iron Molybdenum Oxides for Potential Large-scale Hydrogen Production. <i>Small</i> , 2021, 17, e2102222.	5.2	16
80	$\text{Co}_2$ Nanoparticles Embedded in Covalent Organic Polymers as Efficient Electrocatalyst for Oxygen Evolution Reaction with Ultralow Overpotential. <i>Chemistry - an Asian Journal</i> , 2021, 16, 3102-3106.	1.7	14
81	Heteroatom sulfur-induced defect engineering in carbon nanotubes: Enhanced electrocatalytic activity of oxygen reduction reaction. <i>Carbon</i> , 2021, 180, 31-40.	5.4	21
82	In-situ mediation of graphitic carbon film-encapsulated tungsten carbide for enhancing hydrogen evolution performance and stability. <i>Electrochimica Acta</i> , 2021, 388, 138566.	2.6	3
83	Assembly of Cobalt Layered Double Hydroxide on Cuprous Phosphide Nanowire with Strong Built-in Potential for Accelerated Overall Water Splitting. <i>Small</i> , 2021, 17, e2101725.	5.2	26
84	Tuning the oxidation state of Ru to surpass Pt in hydrogen evolution reaction. <i>Nano Research</i> , 2021, 14, 4321-4327.	5.8	19
85	$\text{Co}/\text{MoC}$ Nanoparticles Embedded in Carbon Nanoboxes as Robust Trifunctional Electrocatalysts for a Zn-Air Battery and Water Electrocatalysis. <i>ACS Nano</i> , 2021, 15, 13399-13414.	7.3	141
86	Recent developments of nanocarbon based supports for PEMFCs electrocatalysts. <i>Chinese Journal of Catalysis</i> , 2021, 42, 1297-1326.	6.9	38
87	All-in-One Sulfur Host: Smart Controls of Architecture and Composition for Accelerated Liquid-Solid Redox Conversion in Lithium-Sulfur Batteries. <i>ACS Applied Materials &amp; Interfaces</i> , 2021, 13, 39424-39434.	4.0	22
88	Quasi-Two-Dimensional Earth-Abundant Bimetallic Electrocatalysts for Oxygen Evolution Reactions. <i>ACS Energy Letters</i> , 2021, 6, 3367-3375.	8.8	29
89	$\text{Mo}_2\text{W}_2\text{N}$ Heterostructures Embedded in Spherical Carbon Superstructure as Highly Efficient Polysulfide Electrocatalysts for Stable Room-Temperature Na-S Batteries. <i>Advanced Materials</i> , 2021, 33, e2103846.	11.1	78
90	Porous $\text{Pd}/\text{NiFeO}_x$ Nanosheets Enhance the pH-Universal Overall Water Splitting. <i>Advanced Functional Materials</i> , 2021, 31, 2107181.	7.8	61
91	Research progress of carbon nanofiber-based precious-metal-free oxygen reaction catalysts synthesized by electrospinning for Zn-Air batteries. <i>Journal of Power Sources</i> , 2021, 507, 230280.	4.0	24
92	Constructing a $\text{WC}/\text{NCN}$ Schottky Junction for Rapid Electron Transfer and Enrichment for Highly Efficient Photocatalytic Hydrogen Evolution. <i>ACS Applied Materials &amp; Interfaces</i> , 2021, 13, 46598-46607.	4.0	20

#	ARTICLE	IF	CITATIONS
93	Crystallographic phase and morphology dependent hydrothermal synthesis of tungsten oxide for robust hydrogen evolution reaction. <i>Journal of Alloys and Compounds</i> , 2021, 875, 160054.	2.8	9
94	Dual interface engineering of NiO/NiCo <sub>2</sub> O <sub>4</sub> /CoO heterojunction within graphene networks for high-performance lithium storage. <i>Electrochimica Acta</i> , 2021, 389, 138536.	2.6	14
95	Heterostructuring Mesoporous 2D Iridium Nanosheets with Amorphous Nickel Boron Oxide Layers to Improve Electrolytic Water Splitting. <i>Small Methods</i> , 2021, 5, e2100679.	4.6	40
96	One-pot scalable route to tri-functional electrocatalysts FeCoP <sub>x</sub> nanoparticles for integrated electrochemical devices. <i>Applied Catalysis B: Environmental</i> , 2021, 295, 120275.	10.8	12
97	Co-doped Ni <sub>x</sub> Py loading on Co <sub>3</sub> O <sub>4</sub> embedded in Ni foam as a hierarchically porous self-supported electrode for overall water splitting. <i>Chemical Engineering Journal</i> , 2021, 422, 130062.	6.6	24
98	Recent progress of transition metal carbides/nitrides for electrocatalytic water splitting. <i>Journal of Alloys and Compounds</i> , 2021, 883, 160833.	2.8	126
99	Porous MoWN/MoWC@N C Nano-octahedrons synthesized via confined carburization and vapor deposition in MOFs as efficient trifunctional electrocatalysts for oxygen reversible catalysis and hydrogen production in the same electrolyte. <i>Journal of Colloid and Interface Science</i> , 2021, 601, 626-639.	5.0	10
100	High-efficient and durable overall water splitting performance by interfacial engineering of Fe-doped urchin-like Ni <sub>2</sub> P/Ni <sub>3</sub> S <sub>2</sub> heterostructure. <i>Chemical Engineering Journal</i> , 2021, 424, 130434.	6.6	49
101	Modulating proton binding energy on the tungsten carbide nanowires surfaces for boosting hydrogen evolution in acid. <i>Journal of Energy Chemistry</i> , 2021, 62, 610-616.	7.1	10
102	Trifunctional electrocatalyst of N-doped graphitic carbon nanosheets encapsulated with CoFe alloy nanocrystals: The key roles of bimetal components and high-content graphitic-N. <i>Applied Catalysis B: Environmental</i> , 2021, 298, 120512.	10.8	120
103	Interfacial hetero-phase construction in nickel/molybdenum selenide hybrids to promote the water splitting performance. <i>Applied Materials Today</i> , 2021, 25, 101175.	2.3	12
104	N, P doped carbon nanotubes confined WN-Ni Mott-Schottky heterogeneous electrocatalyst for water splitting and rechargeable zinc-air batteries. <i>Applied Catalysis B: Environmental</i> , 2021, 298, 120511.	10.8	77
105	Defect and interface engineering for electrochemical nitrogen reduction reaction under ambient conditions. <i>Journal of Energy Chemistry</i> , 2022, 65, 448-468.	7.1	38
106	Recent progress of electrocatalysts for oxygen reduction in fuel cells. <i>Journal of Colloid and Interface Science</i> , 2022, 607, 791-815.	5.0	55
107	Interface engineering of porous Fe <sub>2</sub> P-WO <sub>2.92</sub> catalyst with oxygen vacancies for highly active and stable large-current oxygen evolution and overall water splitting. <i>Journal of Energy Chemistry</i> , 2022, 65, 574-582.	7.1	43
108	ORR/OER activity and zinc-air battery performance of various kinds of graphene-based air catalysts. <i>Materials Science for Energy Technologies</i> , 2021, 4, 1-22.	1.0	6
109	A strategy for preparing high-efficiency and economical catalytic electrodes toward overall water splitting. <i>Nanoscale</i> , 2021, 13, 10624-10648.	2.8	53
110	FeNiP nanoparticle/N,P dual-doped carbon composite as a trifunctional catalyst towards high-performance zinc-air batteries and overall water electrolysis. <i>Nanoscale</i> , 2021, 13, 17136-17146.	2.8	10



#	ARTICLE	IF	CITATIONS
111	Accurately metal-modulated bimetallic metal-organic frameworks as advanced trifunctional electrocatalysts. <i>Journal of Materials Chemistry A</i> , 2021, 9, 14682-14690.	5.2	15
112	Engineering multinary heterointerfaces in two-dimensional cobalt molybdenum phosphide hybrid nanosheets for efficient electrocatalytic water splitting. <i>Sustainable Energy and Fuels</i> , 2021, 5, 3458-3466.	2.5	9
113	Understanding the efficient electrocatalytic activities of MoSe <sub>2</sub> @Cu <sub>2</sub> S nanoheterostructures. <i>Journal of Materials Chemistry A</i> , 2021, 9, 9837-9848.	5.2	31
114	Supercapattery driven electrolyzer both empowered by the same superb electrocatalyst. <i>Journal of Materials Chemistry A</i> , 2021, 9, 21750-21759.	5.2	13
115	The <i>in situ</i> removal of surface molybdenum oxide for making binder-free porous Mo <sub>1.98</sub> C <sub>1.02</sub> film a more efficient electrocatalyst for alkaline rather than acidic hydrogen production. <i>Sustainable Energy and Fuels</i> , 2021, 5, 3373-3381.	2.5	4
116	Supramolecular Modulation of Molecular Conformation of Metal Porphyrins toward Remarkably Enhanced Multipurpose Electrocatalysis and Ultrahigh Performance Zinc-Air Batteries. <i>Advanced Energy Materials</i> , 2021, 11, 2102062.	10.2	27
117	Surface unsaturated WO <sub>x</sub> activating PtNi alloy nanowires for oxygen reduction reaction. <i>Journal of Colloid and Interface Science</i> , 2022, 607, 1928-1935.	5.0	22
118	Surficial charge state tuning of tungsten carbide for catalyzing alkaline hydrogen evolution reaction. <i>International Journal of Hydrogen Energy</i> , 2021, , .	3.8	1
119	Edge-hosted Fe-N <sub>3</sub> sites on a multiscale porous carbon framework combining high intrinsic activity with efficient mass transport for oxygen reduction. <i>Chem Catalysis</i> , 2021, 1, 1291-1307.	2.9	86
120	NiFe Layered Double Hydroxide/FeOOH Heterostructure Nanosheets as an Efficient and Durable Bifunctional Electrocatalyst for Overall Seawater Splitting. <i>Inorganic Chemistry</i> , 2021, 60, 17371-17378.	1.9	56
121	Crystal-plane-controlled restructuring and enhanced oxygen-involving performances of bifunctional catalyst. <i>Applied Catalysis A: General</i> , 2021, , 118417.	2.2	5
122	Accelerating Triple Transport in Zinc-Air Batteries and Water Electrolysis by Spatially Confining Co Nanoparticles in Breathable Honeycomb-Like Macroporous N-Doped Carbon. <i>Small</i> , 2021, 17, e2103517.	5.2	43
123	Dimethylimidazole and dicyandiamide assisted synthesized rich-defect and highly dispersed CuCo-N <sub>x</sub> anchored hollow graphite carbon nanocages as efficient trifunctional electrocatalyst in the same electrolyte. <i>Journal of Power Sources</i> , 2022, 517, 230721.	4.0	14
124	Interfacial engineering in hollow NiS <sub>2</sub> /FeS <sub>2</sub> -NSGA heterostructures with efficient catalytic activity for advanced Li-CO <sub>2</sub> battery. <i>Chemical Engineering Journal</i> , 2022, 430, 133029.	6.6	17
125	WN <sub>0.67</sub> -Embedded N-doped Graphene-Nanosheet Interlayer as efficient polysulfide catalyst and absorbant for High-Performance Lithium-Sulfur batteries. <i>Chemical Engineering Journal</i> , 2022, 431, 133439.	6.6	31
126	Electrospinning Preparation of N, P Dual-Doped Molybdenum Carbide/Porous Carbon Fibers with Highly Improved Electrocatalytic Activity for Hydrogen Evolution Reaction. <i>ACS Applied Energy Materials</i> , 2021, 4, 13051-13060.	2.5	24
127	Interface engineering of iron sulfide/tungsten nitride heterostructure catalyst for boosting oxygen reduction activity. <i>Chemical Engineering Journal</i> , 2022, 431, 133274.	6.6	8
128	<i>In situ</i> construction of FeNi <sub>2</sub> Se <sub>4</sub> -FeNi LDH heterointerfaces with electron redistribution for enhanced overall water splitting. <i>Inorganic Chemistry Frontiers</i> , 2021, 9, 146-154.	3.0	18



#	ARTICLE	IF	CITATIONS
129	Ni and WC nanoparticles co-embedded in carbon nanofibers as robust bifunctional electrocatalyst for oxygen and hydrogen evolution reactions. , 2021, , .		0
130	Controllable synthesis of Mo <sub>2</sub> C with different morphology and application to electrocatalytic hydrogen evolution reaction. Nanotechnology, 2021, , .	1.3	1
131	Interface engineering of tungsten carbide/phosphide heterostructures anchored on N,P-codoped carbon for high-efficiency hydrogen evolution reaction. Science China Materials, 2022, 65, 967-973.	3.5	8
132	Boosting oxygen evolution reaction of hierarchical spongy NiFe-PBA/Ni <sub>3</sub> C(B) electrocatalyst: Interfacial engineering with matchable structure. Chemical Engineering Journal, 2022, 433, 133524.	6.6	22
133	Interface engineered Co, Ni, Fe, Cu oxide hybrids with biphasic structures for water splitting with enhanced activity. Journal of Colloid and Interface Science, 2022, 609, 149-157.	5.0	6
134	Polyvinylpyrrolidone gel based Pt/Ni(OH) <sub>2</sub> heterostructures with redistributing charges for enhanced alkaline hydrogen evolution reaction. Journal of Materials Chemistry A, 2021, 9, 27061-27071.	5.2	24
135	Coupling isolated Ni single atoms with sub-10 nm Pd nanocrystals embedded in porous carbon frameworks to boost oxygen electrocatalysis for Zn-air batteries. Journal of Materials Chemistry A, 2022, 10, 6086-6095.	5.2	9
136	An electrochemically reconstructed WC/WO <sub>2</sub> -WO <sub>3</sub> heterostructure as a highly efficient hydrogen oxidation electrocatalyst. Journal of Materials Chemistry A, 2022, 10, 622-631.	5.2	15
137	Aminouracil-assisted synthesis of CoFe decorated bougainvillea-like N-doped carbon nanoflowers for boosting Zn-air battery and water electrolysis. Journal of Power Sources, 2022, 521, 230926.	4.0	59
138	Synergistically coupling of Co/Mo <sub>2</sub> C/Co <sub>6</sub> Mo <sub>6</sub> C <sub>2</sub> @C electrocatalyst for overall water splitting: The role of carbon precursors in structural engineering and catalytic activity. Applied Surface Science, 2022, 579, 152148.	3.1	29
139	Electrospinning construction of heterostructural Co <sub>3</sub> W <sub>3</sub> C/CoP nanoparticles embedded in N, P-doped hierarchically porous carbon fibers as excellent multifunctional electrocatalyst for Zn-air batteries and water splitting. Chemical Engineering Journal, 2022, 431, 134188.	6.6	46
140	Cathode electrochemically reconstructed V-doped CoO nanosheets for enhanced alkaline hydrogen evolution reaction. Chemical Engineering Journal, 2022, 432, 134331.	6.6	31
141	Interfacial polarization in ultra-small Co <sub>3</sub> S <sub>4</sub> ~MoS <sub>2</sub> heterostructure for efficient electrocatalytic hydrogen evolution reaction. Applied Materials Today, 2022, 26, 101311.	2.3	21
142	Highly Active and Durable Single-Atom Tungsten-Doped Ni <sub>0.5</sub> Se <sub>0.5</sub> Nanosheet@Ni <sub>0.5</sub> Se <sub>0.5</sub> Nanorod Heterostructures for Water Splitting. Advanced Materials, 2022, 34, e2107053.	11.1	136
143	Recent advances in heterostructured cathodic electrocatalysts for non-aqueous Li-O <sub>2</sub> batteries. Chemical Science, 2022, 13, 2841-2856.	3.7	20
144	Low-dimensional heterostructures for advanced electrocatalysis: an experimental and computational perspective. Chemical Society Reviews, 2022, 51, 812-828.	18.7	62
145	Ultrafine Mo <sub>2</sub> C nanoparticles embedded in an MOF derived N and P co-doped carbon matrix for an efficient electrocatalytic oxygen reduction reaction in zinc-air batteries. Nanoscale, 2022, 14, 2065-2073.	2.8	16
146	Electrocatalytic activation of organic chlorides via direct and indirect electron transfer using atomic vacancy control of palladium-based catalyst. Cell Reports Physical Science, 2022, 3, 100713.	2.8	14

#	ARTICLE	IF	CITATIONS
147	Modulating heterointerfaces of tungsten incorporated CoSe/Co <sub>3</sub> O <sub>4</sub> as a highly efficient electrocatalyst for overall water splitting. <i>Journal of Materials Chemistry A</i> , 2022, 10, 3782-3792.	5.2	35
148	Metal-organic framework derived carbon-encapsulated hollow CuO/Cu <sub>2</sub> O heterostructure heterohedron as an efficient electrocatalyst for hydrogen evolution reaction. <i>Dalton Transactions</i> , 2022, 51, 3349-3356.	1.6	10
149	Heterointerface Engineering of Hierarchically Assembling Layered Double Hydroxides on Cobalt Selenide as Efficient Trifunctional Electrocatalysts for Water Splitting and Zinc-Air Battery. <i>Advanced Science</i> , 2022, 9, e2104522.	5.6	79
150	Superdurable Bifunctional Oxygen Electrocatalyst for High-Performance Zinc-Air Batteries. <i>Journal of the American Chemical Society</i> , 2022, 144, 2694-2704.	6.6	151
151	Promotional effects of trace Ni on its dual-functional electrocatalysis of Co/N-doped carbon nanotube catalysts for ORR and OER. <i>International Journal of Hydrogen Energy</i> , 2022, 47, 7761-7769.	3.8	30
152	Citrulline-induced mesoporous CoS/CoO heterojunction nanorods triggering high-efficiency oxygen electrocatalysis in solid-state Zn-air batteries. <i>Chemical Engineering Journal</i> , 2022, 434, 134744.	6.6	55
153	Rational design of self-supported WC/Co <sub>3</sub> W <sub>3</sub> N/Co@NC yolk/shell nitrogen-doped porous carbon catalyst for highly efficient overall water splitting. <i>Journal of Alloys and Compounds</i> , 2022, 902, 163627.	2.8	8
154	Interface engineering of Co <sub>2</sub> N <sub>0.67</sub> /CoMoO <sub>4</sub> heterostructure nanosheets as a highly active electrocatalyst for overall water splitting and Zn-H <sub>2</sub> O cell. <i>Chemical Engineering Journal</i> , 2022, 435, 134795.	6.6	24
155	Engineering of Co <sub>3</sub> O <sub>4</sub> @Ni <sub>2</sub> P heterostructure as trifunctional electrocatalysts for rechargeable zinc-air battery and self-powered overall water splitting. <i>Journal of Materials Science and Technology</i> , 2022, 115, 19-28.	5.6	35
156	Thermal migration towards constructing W-W dual-sites for boosted alkaline hydrogen evolution reaction. <i>Nature Communications</i> , 2022, 13, 763.	5.8	68
157	Sandwich-like superstructure of in-situ self-assembled hetero-structured carbon nanocomposite for improving electrocatalytic oxygen reduction. <i>Journal of Colloid and Interface Science</i> , 2022, 616, 34-43.	5.0	6
158	Interfacial Fe-O-Ni-O-Fe Bonding Regulates the Active Ni Sites of Ni-MOFs via Iron Doping and Decorating with FeOOH for Super-Efficient Oxygen Evolution. <i>Angewandte Chemie</i> , 0, , .	1.6	6
159	Interfacial Fe-O-Ni-O-Fe Bonding Regulates the Active Ni Sites of Ni-MOFs via Iron Doping and Decorating with FeOOH for Super-Efficient Oxygen Evolution. <i>Angewandte Chemie - International Edition</i> , 2022, 61, , .	7.2	159
160	WO <sub>3-x</sub> @W <sub>2</sub> N heterogeneous nanorods cross-linked in carbon nanosheets for electrochemical potassium storage. <i>Chemical Engineering Journal</i> , 2022, 435, 135188.	6.6	10
161	Co <sub>4</sub> S <sub>3</sub> grafted 1T-phase dominated WS <sub>2</sub> ultrathin nanosheet arrays for highly efficient overall water splitting in alkaline media. <i>Journal of Colloid and Interface Science</i> , 2022, 615, 577-586.	5.0	25
162	Interfacial Coupling Porous Cobalt Nitride Nanosheets Array with N-Doped Carbon as Robust Trifunctional Electrocatalysts for Water Splitting and Zn-Air Battery. <i>SSRN Electronic Journal</i> , 0, , .	0.4	0
163	Rationally Designed Ni <sub>2</sub> p/WS <sub>2</sub> /Co <sub>9</sub> S <sub>8</sub> @C Multi-Interfacial Electrocatalyst for Efficient Overall Water Splitting. <i>SSRN Electronic Journal</i> , 0, , .	0.4	0
164	Scalable Bifunctional Con <sub>3</sub> Single-Atom Catalysts Dispersed on N-Doped Carbon Nanosheets for Ultrastable Zn-Air Batteries. <i>SSRN Electronic Journal</i> , 0, , .	0.4	0

#	ARTICLE	IF	CITATIONS
165	Ni-Directed biphase N-doped Mo <sub>2</sub> C as an efficient hydrogen evolution catalyst in both acidic and alkaline conditions. Dalton Transactions, 2022, 51, 6464-6472.	1.6	6
166	<i>In situ</i> phase transition induced TM <sup>+</sup> MoC/Mo <sub>2</sub> C (TM= Fe, Co, Ni, and Cu) heterostructure catalysts for efficient hydrogen evolution. Journal of Materials Chemistry A, 2022, 10, 10493-10502.	5.2	20
167	Ni Single Atoms and Ni Phosphate Clusters Synergistically Triggered Surface <sup>+</sup> Functionalized MoS <sub>2</sub> Nanosheets for High <sup>+</sup> performance Freshwater and Seawater Electrolysis. Energy and Environmental Materials, 2022, 5, 1340-1349.	7.3	20
168	Boosting room-temperature NO <sub>2</sub> detection via in-situ interfacial engineering on Ag <sub>2</sub> S/SnS <sub>2</sub> heterostructures. Journal of Hazardous Materials, 2022, 434, 128782.	6.5	21
169	Enhancing catalytic activity of NdFeO <sub>3</sub> perovskite by tuning A-site cation deficiency for oxygen evolution reaction. International Journal of Hydrogen Energy, 2022, 47, 14542-14551.	3.8	18
170	Robust Porous WC <sup>+</sup> -Based Self <sup>+</sup> -Supported Ceramic Electrodes for High Current Density Hydrogen Evolution Reaction. Advanced Science, 2022, 9, e2106029.	5.6	24
171	An inclusive perspective on the recent development of tungsten <sup>+</sup> -based catalysts for overall <sup>+</sup> water <sup>+</sup> splitting <sup>+</sup> : A review. International Journal of Energy Research, 2022, 46, 10228-10258.	2.2	6
172	Heteroatom-Doped Amorphous Cobalt <sup>+</sup> -Molybdenum Oxides as a Promising Catalyst for Robust Hydrogen Evolution. Inorganic Chemistry, 2022, 61, 5033-5039.	1.9	10
173	Encapsulation of Fe-CoP with P, N-co-doped porous carbon matrix as a multifunctional catalyst for wide electrochemical applications. Journal of Energy Chemistry, 2022, 71, 36-44.	7.1	55
174	Interface Engineering of Anti-Perovskite Ni <sub>3</sub> FeN/VN Heterostructure for High-Performance Rechargeable Zinc <sup>+</sup> -Air batteries. Chemical Engineering Journal, 2022, 437, 135291.	6.6	81
175	Interfacial coupling porous cobalt nitride nanosheets array with N-doped carbon as robust trifunctional electrocatalysts for water splitting and Zn-air battery. Chemical Engineering Journal, 2022, 437, 135281.	6.6	45
176	Highly accessible single Mn-N <sub>3</sub> sites-enriched porous graphene structure via a confined thermal-erosion strategy for catalysis of oxygen reduction. Chemical Engineering Journal, 2022, 440, 135850.	6.6	28
177	A nanoflower-like polypyrrole-based cobalt-nickel sulfide hybrid heterostructures with electrons migration to boost overall water splitting. Journal of Colloid and Interface Science, 2022, 618, 1-10.	5.0	11
178	Metal-organic frameworks-derived nitrogen-doped carbon with anchored dual-phased phosphides as efficient electrocatalyst for overall water splitting. Sustainable Materials and Technologies, 2022, 32, e00421.	1.7	6
179	Hierarchical mesoporous S,N-codoped carbon nanostructures composed of Co/Co-Cu-S/carbon nanoplate arrays on carbon nanofibers as a self-supported air cathode for long-lasting rechargeable Zn-air batteries. Science China Technological Sciences, 2022, 65, 693-703.	2.0	6
180	Free-Standing P-Doped NiSe <sub>2</sub> /MoSe <sub>2</sub> Catalyst for Efficient Hydrogen Evolution in Acidic and Alkaline Media. ACS Sustainable Chemistry and Engineering, 2022, 10, 279-287.	3.2	44
181	Engineering Antiperovskite Ni <sub>4</sub> N/VN Heterostructure with Improved Intrinsic Interfacial Charge Transfer as a Bifunctional Catalyst for Rechargeable Zinc <sup>+</sup> -Air Batteries. ACS Sustainable Chemistry and Engineering, 2021, 9, 17007-17015.	3.2	22
182	Review on Low <sup>+</sup> -Cost Counter Electrode Materials for Dye <sup>+</sup> -Sensitized Solar Cells: Effective Strategy to Improve Photovoltaic Performance. Advanced Materials Interfaces, 2022, 9, .	1.9	35

#	ARTICLE	IF	CITATIONS
183	Processing Agricultural Cornstalks toward High-Efficient Stable Bifunctional ORR/OER Electrocatalysts. <i>Advanced Sustainable Systems</i> , 2022, 6, .	2.7	10
184	Nanoporous $\text{CoP}$ nanowire arrays decorated with carbon-coated $\text{CoP}$ nanoparticles: the role of interfacial engineering for efficient overall water splitting. <i>International Journal of Energy Research</i> , 2022, 46, 11359-11370.	2.2	3
185	Interfacial Engineering of a Phase-Controlled Heterojunction for High-Efficiency HER, OER, and ORR Trifunctional Electrocatalysis. <i>ACS Omega</i> , 2022, 7, 13687-13696.	1.6	13
186	Few-Layered $\text{WS}_2$ Anchored on Co, N-Doped Carbon Hollow Polyhedron for Oxygen Evolution and Hydrogen Evolution. <i>ACS Applied Materials &amp; Interfaces</i> , 2022, 14, 22030-22040.	4.0	25
187	Heterostructural $\text{Co} \text{Cu}$ Coated with Nitrogen-Doped Carbon as a Highly Efficient Electrocatalyst for Oxygen Reduction Reaction and Hydrogen Evolution Reaction. <i>ACS Sustainable Chemistry and Engineering</i> , 2022, 10, 5986-5997.	3.2	2
188	Hydrogen Adsorption on the Vertical Heterostructures of Graphene and Two-Dimensional Electrides: A First-Principles Study. <i>ACS Omega</i> , 2022, 7, 16063-16069.	1.6	2
189	Rationally designed $\text{Ni}_2\text{P}/\text{WS}_2/\text{Co}_9\text{S}_8@\text{C}$ multi-interfacial electrocatalyst for efficient overall water splitting. <i>Chemical Engineering Journal</i> , 2022, 446, 136961.	6.6	22
190	In-Plane Mott-Schottky Effects Enabling Efficient Hydrogen Evolution from $\text{Mo}_5\text{N}_6$ - $\text{MoS}_2$ Heterojunction Nanosheets in Universal-pH Electrolytes. <i>Small</i> , 2022, 18, e2201137.	5.2	37
191	Engineering iron-group bimetallic nanotubes as efficient bifunctional oxygen electrocatalysts for flexible Zn-air batteries. <i>EScience</i> , 2022, 2, 546-556.	25.0	77
192	Synthesis of $\text{NiSe}_2/\text{Fe}_3\text{O}_4$ Nanotubes with Heteroepitaxy Configuration as a High-Efficient Oxygen Evolution Electrocatalyst. <i>Small Methods</i> , 2022, 6, e2200377.	4.6	22
193	Construction of Synergistic $\text{Ni}_3\text{S}_2$ - $\text{MoS}_2$ Nanoheterojunctions on Ni Foam as Bifunctional Electrocatalyst for Hydrogen Evolution Integrated with Biomass Valorization. <i>Small</i> , 2022, 18, e2201306.	5.2	46
194	In-Situ and controllable construction of $\text{Mo}_2\text{N}$ embedded $\text{Mo}_2\text{C}$ nanobelts as robust electrocatalyst for superior pH-universal hydrogen evolution reaction. <i>Journal of Alloys and Compounds</i> , 2022, 918, 165611.	2.8	11
195	Activating ruthenium dioxide via compressive strain achieving efficient multifunctional electrocatalysis for Zn-air batteries and overall water splitting. <i>Informa-Materially</i> , 2022, 4, .	8.5	25
196	A biomass derived porous carbon materials with adjustable interfacial electron transmission dynamics as highly-efficient air cathode for Zn-Air battery. <i>Materials Research Bulletin</i> , 2022, 153, 111908.	2.7	5
197	Vanadium Nitride/Carbon Nanotube Vertical Nanoarrays on Iron Foam for Oxygen Evolution Reaction. <i>ACS Applied Nano Materials</i> , 2022, 5, 7714-7722.	2.4	10
198	Defect engineering tuning electron structure of biphasic tungsten-based chalcogenide heterostructure improves its catalytic activity for hydrogen evolution and triiodide reduction. <i>Journal of Colloid and Interface Science</i> , 2022, 625, 800-816.	5.0	23
199	Solid-State Construction of $\text{CuOx}/\text{Cu}_{1.5}\text{Mn}_{1.5}\text{O}_4$ Nanocomposite with Abundant Surface $\text{CuOx}$ Species and Oxygen Vacancies to Promote CO Oxidation Activity. <i>International Journal of Molecular Sciences</i> , 2022, 23, 6856.	1.8	7
200	Electrical Discharge Induced Bulk-to-Nanoparticle Transformation: Nano High-Entropy Carbide as Catalysts for Hydrogen Evolution Reaction. <i>Advanced Functional Materials</i> , 2022, 32, .	7.8	17

#	ARTICLE	IF	CITATIONS
201	Synergistic Effect of Bimetallic Nitride Micro-Flower Promotes Highly Efficient Overall Water Splitting. <i>Journal of Alloys and Compounds</i> , 2022, , 165934.	2.8	6
202	Substitutional Doping Engineering toward $W_{2}N$ Nanorod for Hydrogen Evolution Reaction at High Current Density. , 2022, 4, 1374-1380.		21
203	Nickel-induced charge redistribution in Ni-Fe/Fe <sub>3</sub> C@nitrogen-doped carbon nanocage as a robust Mott-Schottky bi-functional oxygen catalyst for rechargeable Zn-air battery. <i>Journal of Colloid and Interface Science</i> , 2022, 625, 521-531.	5.0	22
204	Energy-saving hydrogen production by the methanol oxidation reaction coupled with the hydrogen evolution reaction co-catalyzed by a phase separation induced heterostructure. <i>Journal of Materials Chemistry A</i> , 2022, 10, 20761-20769.	5.2	37
205	One-dimensional amorphous cobalt( $\langle scp \rangle$ ) metal-organic framework nanowire for efficient hydrogen evolution reaction. <i>Inorganic Chemistry Frontiers</i> , 2022, 9, 4184-4193.	3.0	6
206	Beads-on-a-string hierarchical structured electrocatalysts for efficient oxygen reduction reaction. , 2023, 5, .		14
207	Magic hybrid structure as multifunctional electrocatalyst surpassing benchmark Pt/C enables practical hydrazine fuel cell integrated with energy-saving H <sub>2</sub> production. <i>EScience</i> , 2022, 2, 416-427.	25.0	57
208	Facile construction of porous and heterostructured molybdenum nitride/carbide nanobelt arrays for large current hydrogen evolution reaction. <i>International Journal of Hydrogen Energy</i> , 2022, 47, 27887-27895.	3.8	4
209	Interfacial Heterojunction-Engineered Fe <sub>2</sub> O <sub>3</sub> /CoFe-Layered Double Hydroxide Catalyst for the Electrocatalytic Oxygen Evolution Reaction. <i>Energy &amp; Fuels</i> , 2022, 36, 11584-11590.	2.5	12
210	Role of tungsten carbide (WC) and its hybrids in electrochemical water splitting application- A comprehensive review. <i>FlatChem</i> , 2022, 35, 100404.	2.8	4
211	Construction of Ni <sub>3</sub> S <sub>2</sub> -Ni <sub>x</sub> P <sub>y</sub> /NF@NiFe LDH with heterogeneous interface to accelerate catalytic kinetics of overall water splitting. <i>Materials Research Letters</i> , 2022, 10, 762-770.	4.1	8
212	Self-supported porous heterostructure WC/WO <sub>3-x</sub> ceramic electrode for hydrogen evolution reaction in acidic and alkaline media. <i>Journal of Advanced Ceramics</i> , 2022, 11, 1208-1221.	8.9	29
213	In-situ growth of ruthenium-based nanostructure on carbon cloth for superior electrocatalytic activity towards HER and OER. <i>Applied Catalysis B: Environmental</i> , 2022, 317, 121729.	10.8	77
214	Prospective applications of transition metal-based nanomaterials. <i>Journal of Materials Research</i> , 2022, 37, 2109-2123.	1.2	6
215	Co <sub>1-x</sub> S/Co <sub>3</sub> S <sub>4</sub> @N,S-co-doped agaric-derived porous carbon composites for high-performance supercapacitors. <i>Electrochimica Acta</i> , 2022, 426, 140825.	2.6	15
216	ZIF-67 derived Mo <sub>2</sub> N/Mo <sub>2</sub> C heterostructure as high-efficiency electrocatalyst for hydrogen evolution reaction. <i>Journal of Alloys and Compounds</i> , 2022, 922, 166216.	2.8	14
217	Bifunctional electrocatalyst with CoN <sub>3</sub> active sites dispersed on N-doped graphitic carbon nanosheets for ultrastable Zn-air batteries. <i>Applied Catalysis B: Environmental</i> , 2022, 316, 121674.	10.8	48
218	Interfacing nickel with molybdenum oxides as monolithic catalyst to accelerate alkaline hydrogen electrocatalysis with robust stability. <i>Applied Catalysis B: Environmental</i> , 2022, 317, 121786.	10.8	19



#	ARTICLE	IF	CITATIONS
219	Phase-controlled Synthesis of Nickel-Iron Nitride Nanocrystals Armored with Amorphous N-Doped Carbon Nanoparticles Nanocubes for Enhanced Overall Water Splitting. <i>Small</i> , 2022, 18, .	5.2	13
220	Metal-supported cathodically activated graphite via self-reduction as electrocatalysts for efficient hydrogen evolution reaction. <i>Materials Today Chemistry</i> , 2022, 26, 101099.	1.7	0
221	Self-supported cobalt/cobalt selenide heterojunction for highly efficient overall water splitting. <i>Journal of Alloys and Compounds</i> , 2022, 925, 166683.	2.8	13
222	Interfacial component coupling effects towards precise heterostructure design for efficient electrocatalytic water splitting. <i>Nano Energy</i> , 2022, 103, 107753.	8.2	47
223	Coupling of ruthenium with hybrid metal nitrides heterostructure as bifunctional electrocatalyst for water electrolysis. <i>Journal of Colloid and Interface Science</i> , 2023, 629, 155-164.	5.0	9
224	Isolated transition metal nanoparticles anchored on N-doped carbon nanotubes as scalable bifunctional electrocatalysts for efficient Zn-air batteries. <i>Journal of Colloid and Interface Science</i> , 2023, 629, 640-648.	5.0	25
225	Interfacial engineering of tungstic disulfide-carbide heterojunction for high-current-density hydrogen evolution. <i>RSC Advances</i> , 2022, 12, 27225-27229.	1.7	3
226	Constructing a bifunctional MoO <sub>2</sub> /Co heterojunction for efficient electrocatalytic hydrogen evolution and hydrazine oxidation. <i>Journal of Materials Chemistry A</i> , 2022, 10, 17297-17306.	5.2	16
227	Construction of Core-shell Co-Nc@W <sub>2</sub> n Schottky Heterojunctions for High-Efficiency Hydrogen Evolution Reaction. <i>SSRN Electronic Journal</i> , 0, , .	0.4	0
228	Heterogeneous Ni <sub>3</sub> P/Ni nanoparticles with optimized Ni active sites anchored in N-doped mesoporous nanofibers for boosting pH-universal hydrogen evolution. <i>Nanoscale</i> , 2022, 14, 14779-14788.	2.8	10
229	Localizing Tungsten Single Atoms around Tungsten Nitride Nanoparticles for Efficient Oxygen Reduction Electrocatalysis in Metal-Air Batteries. <i>Advanced Science</i> , 2022, 9, .	5.6	11
230	Active-site and interface engineering of cathode materials for aqueous Zn gas batteries. <i>Nano Research</i> , 2023, 16, 2325-2346.	5.8	63
231	Interface regulation of Cu <sub>2</sub> Se via Cu-Se-C bonding for superior lithium-ion batteries. <i>Nano Research</i> , 2023, 16, 2421-2427.	5.8	10
232	Constructing Three-Phase Heterojunction with 1D/3D Hierarchical Structure as Efficient Trifunctional Electrocatalyst in Alkaline Seawater. <i>Advanced Functional Materials</i> , 2022, 32, .	7.8	43
233	Regulated electronic structure and improved electrocatalytic performances of S-doped FeWO <sub>4</sub> for rechargeable zinc-air batteries. <i>Journal of Energy Chemistry</i> , 2023, 76, 359-367.	7.1	45
234	Structural Fine-tuning and In-situ Generation of P, O Vacancies in Hollow Co-Ferrocene-MOFs Derived Phosphides for Efficient Water Oxidation. <i>ChemCatChem</i> , 2022, 14, .	1.8	3
235	Construction of core-shell Co-NC@W <sub>2</sub> N Schottky heterojunctions for high-efficiency hydrogen evolution reaction. <i>Applied Surface Science</i> , 2023, 608, 155159.	3.1	5
236	Exploring high-efficiency electrocatalysts of metal-doped two-dimensional C <sub>4</sub> N for oxygen reduction, oxygen evolution, and hydrogen evolution reactions by first-principles screening. <i>Physical Chemistry Chemical Physics</i> , 2022, 24, 26061-26069.	1.3	15



#	ARTICLE	IF	CITATIONS
237	Modular Flow Reactors for Valorization of Kraft Lignin and Low-Voltage Hydrogen Production. <i>Advanced Science</i> , 2022, 9, .	5.6	6
238	Co <sub>2</sub> W Bimetallic Carbide Nanocatalysts: Computational Exploration, Confined Disassembly-Assembly Synthesis and Alkaline/Seawater Hydrogen Evolution. <i>Small</i> , 2022, 18, .	5.2	9
239	Activity engineering to transition metal phosphides as bifunctional electrocatalysts for efficient water-splitting. <i>International Journal of Hydrogen Energy</i> , 2022, 47, 38983-39000.	3.8	21
240	WC/Co <sub>2</sub> Fe <sub>3</sub> heterojunction embedded in N,P co-doped hierarchical carbon enables rechargeable/flexible Zn-air battery. <i>Nano Research</i> , 2023, 16, 2519-2527.	5.8	2
241	Interfacially engineered induced nickel-based heterostructures as efficient catalysts for Li-O <sub>2</sub> batteries. <i>Electrochimica Acta</i> , 2023, 437, 141476.	2.6	10
242	Cobalt clusters on g-C <sub>3</sub> N <sub>4</sub> nanosheets for enhanced H <sub>2</sub> /H <sub>2</sub> O <sub>2</sub> generation and NO removal. <i>Journal of Environmental Chemical Engineering</i> , 2022, 10, 108747.	3.3	8
243	One-dimensional hierarchical ZnCo-NCNT/Mo <sub>2</sub> C nanostructure as a high-efficiency bifunctional catalyst for rechargeable Zn-air batteries. <i>Journal of Power Sources</i> , 2023, 553, 232310.	4.0	6
244	Optimization of photothermal conversion and catalytic sites for photo-assisted-catalytic degradation of volatile organic compounds. <i>Chemosphere</i> , 2023, 310, 136696.	4.2	3
245	Crystalline/amorphous CoP/MnO <sub>x</sub> heterostructure derived from phase separation for electrochemical catalysis of alkaline hydrogen evolution reaction. <i>International Journal of Hydrogen Energy</i> , 2023, 48, 2593-2604.	3.8	6
246	Active straining engineering on self-assembled stacked Ni-based hybrid electrode for ultra-low overpotential. <i>Journal of Energy Chemistry</i> , 2023, 77, 217-226.	7.1	3
247	Interface engineering of iron-doped multiphase nickel hydroxide as an effective electrocatalyst for oxygen evolution reaction. <i>Applied Surface Science</i> , 2023, 611, 155781.	3.1	4
248	Ultrafast charge separation in a WC@C/CdS heterojunction enables efficient visible-light-driven hydrogen generation. <i>Dalton Transactions</i> , 2023, 52, 290-296.	1.6	4
249	N-, P-, and O-doped porous carbon as advanced trifunctional metal-free electrocatalysts. <i>Catalysis Science and Technology</i> , 2023, 13, 910-916.	2.1	4
250	Electronic distribution tuning of vanadium-cobalt bimetallic MOFs for highly efficient hydrazine-assisted energy-saving hydrogen production. <i>Electrochimica Acta</i> , 2023, 439, 141682.	2.6	5
251	Interface engineering of Co <sub>3</sub> S <sub>4</sub> @Co <sub>3</sub> O <sub>4</sub> /N, S-doped carbon core@shell nanostructures serve as an excellent bifunctional ORR/OER electrocatalyst for rechargeable Zn-air battery. <i>Separation and Purification Technology</i> , 2023, 307, 122536.	3.9	15
252	Carbon-encapsulated Co <sub>2</sub> P/P-modified NiMoO <sub>4</sub> hierarchical heterojunction as superior pH-universal electrocatalyst for hydrogen production. <i>Journal of Colloid and Interface Science</i> , 2023, 634, 693-702.	5.0	19
253	Amorphous Mo-doped Ni <sub>0.5</sub> Se <sub>0.5</sub> Nanosheets@Crystalline Ni <sub>0.5</sub> Se <sub>0.5</sub> Nanorods for High Current-density Electrocatalytic Water Splitting in Neutral Media. <i>Angewandte Chemie</i> , 2023, 135, .	1.6	2
254	Electron Complementation-Induced Molybdenum Nitride/Co-Anchored Graphitic Carbon Nitride Porous Nanoparticles for Efficient Overall Water Splitting. <i>Inorganic Chemistry</i> , 2022, 61, 20095-20104.	1.9	0

#	ARTICLE	IF	CITATIONS
255	Sea Urchinâ€‘Like CoS <sub>2</sub> @WS <sub>2</sub> /NF Bifunctional Catalyst for Efficient Overall Water Splitting. <i>Electrocatalysis</i> , 2023, 14, 341-352.	1.5	3
256	Amorphous Mo-doped NiS <sub>0.5</sub> Se <sub>0.5</sub> Nanosheets@Crystalline NiS <sub>0.5</sub> Se <sub>0.5</sub> Nanorods for High Current-density Electrocatalytic Water Splitting in Neutral Media. <i>Angewandte Chemie - International Edition</i> , 2023, 62, .	7.2	57
257	iRs-corrections induce potentially misjudging toward electrocatalytic water oxidation. <i>Materials Today Energy</i> , 2023, 32, 101246.	2.5	4
258	Prediction of Three-Metal Cluster Catalysts on Two-Dimensional W <sub>2</sub> N <sub>3</sub> Support with Integrated Descriptors for Electrocatalytic Nitrogen Reduction. <i>ACS Nano</i> , 2023, 17, 1522-1532.	7.3	15
259	Lattice-strain Engineering for Heterogenous Electrocatalytic Oxygen Evolution Reaction. <i>Advanced Materials</i> , 2023, 35, .	11.1	34
260	Coordination engineering on novel 2D pentagonal NiN <sub>2</sub> for bifunctional oxygen electrocatalysts. <i>Applied Surface Science</i> , 2023, 614, 156256.	3.1	6
261	COF-C <sub>4</sub> N Nanosheets with uniformly anchored single metal sites for electrocatalytic OER: From theoretical screening to target synthesis. <i>Applied Catalysis B: Environmental</i> , 2023, 325, 122366.	10.8	22
262	Effectively enhanced activity for overall water splitting through interfacially strong Co-O tetrahedral coupling interaction on CoO/CoP heterostructure hollow-nanoneedles. <i>Journal of Materials Chemistry A</i> , 2023, 11, 3136-3147.	5.2	13
263	Efficient bifunctional hydrogen and oxygen evolution reaction electrocatalyst based on the NU-1000/CuCo <sub>2</sub> S <sub>4</sub> heterojunction. <i>International Journal of Hydrogen Energy</i> , 2023, 48, 14749-14762.	3.8	10
264	Amine-assisted synthesis of the Ni <sub>3</sub> Fe alloy encapsulated in nitrogen-doped carbon for high-performance water splitting. <i>Journal of Materials Chemistry A</i> , 2023, 11, 6452-6464.	5.2	10
266	Al-SrTiO <sub>3</sub> decorated with non-noble metal co-catalyst NC-W <sub>2</sub> N for boosting photocatalytic overall water splitting via enhancing interfacial redox activity and charge separation. <i>Journal of Alloys and Compounds</i> , 2023, 947, 169515.	2.8	5
267	Bimetal-MOF and bacterial cellulose-derived three-dimensional N-doped carbon sheets loaded Co/CoFe nanoparticles wrapped graphite carbon supported on porous carbon nanofibers: An efficient multifunctional electrocatalyst for Zn-air batteries and overall water splitting. <i>Journal of Colloid and Interface Science</i> , 2023, 640, 78-90.	5.0	12
268	Top-down and matchable interfacial engineering to construct hierarchical deformed NiS/NiCoP for hydrogen evolution reaction over a broad pH range. <i>Applied Surface Science</i> , 2023, 622, 156896.	3.1	5
269	Multi-interfacial dendritic engineering facilitating congruous intrinsic activity of oxide-carbide/MOF nanostructured multimodal electrocatalyst for hydrogen and oxygen electrocatalysis. <i>Applied Catalysis B: Environmental</i> , 2023, 331, 122711.	10.8	18
270	Sulfonated polybenzimidazole engineering defect-induced N, S-codoped carbon-supported Co <sub>3</sub> C hybrid composite as high-efficiency electrocatalyst for oxygen evolution reaction. <i>Electrochimica Acta</i> , 2023, 443, 141939.	2.6	5
271	One-Step Rapid Conversion of Electroactive CoMnO Nanostructures Using a Deep Eutectic Solvent as the Template, Solvent, and Source. <i>ACS Applied Energy Materials</i> , 2023, 6, 2412-2422.	2.5	5
272	Vertically aligned W(Mo)S <sub>2</sub> /N-W(Mo)C-based light-assisted electrocatalysis for hydrogen evolution in acidic solutions. <i>Rare Metals</i> , 2023, 42, 1535-1544.	3.6	6
273	Modulating Dominant Facets of Pt through Multistep Selective Anchored on WC for Enhanced Hydrogen Evolution Catalysis. <i>ACS Applied Materials &amp; Interfaces</i> , 2023, 15, 9263-9272.	4.0	8

#	ARTICLE	IF	CITATIONS
274	Efficient oxygen reduction using a polymorphic tungsten catalyst. <i>Cell Reports Physical Science</i> , 2023, 4, 101288.	2.8	3
275	All-pH Hydrogen Evolution by Heterophase Molybdenum Carbides Prepared via Mechanochemical Synthesis. <i>ACS Sustainable Chemistry and Engineering</i> , 2023, 11, 3585-3593.	3.2	9
276	High entropy alloy nanoparticles encapsulated in graphitised hollow carbon tubes for oxygen reduction electrocatalysis. <i>Dalton Transactions</i> , 2023, 52, 4142-4151.	1.6	3
277	Dual Co <sub>x</sub> S <sub>y</sub> -Modified Tungsten Disulfide Double-Heterojunction Electrocatalyst for Efficient Hydrogen Evolution in All-pH Media. <i>ACS Applied Materials &amp; Interfaces</i> , 2023, 15, 11765-11776.	4.0	8
278	Encapsulating dual-phase WC-W <sub>2</sub> C nanoparticles into hollow carbon dodecahedrons for all-pH electrocatalytic hydrogen evolution. <i>Chemical Engineering Journal</i> , 2023, 462, 142132.	6.6	7
279	Interfacial Engineering of Ni <sub>3</sub> N/Mo <sub>2</sub> N Heterojunctions for Urea-Assisted Hydrogen Evolution Reaction. <i>ACS Catalysis</i> , 2023, 13, 4091-4100.	5.5	79
280	One-step, in situ formation of WN-W <sub>2</sub> C heterojunctions implanted on N doped carbon nanorods as efficient oxygen reduction catalyst for metal-air battery. <i>Nano Research</i> , 2023, 16, 8773-8781.	5.8	4
281	Nitrogen-Rich W <sub>2</sub> N Clusters with Atomic Disorders and Non-Grain Boundaries Confined in Carbon Nanosheets Boosting Sodium-Ion Storage. <i>Small</i> , 2023, 19, .	5.2	4
282	Hollow tubular Co <sub>3</sub> S <sub>4</sub> /NiS/FeS as high-efficiency tri-functional electrocatalyst for Zn-air battery and overall water splitting. <i>Journal of Alloys and Compounds</i> , 2023, 948, 169752.	2.8	5
283	Interfacial Engineering of CoN/Co <sub>3</sub> O <sub>4</sub> Heterostructured Hollow Nanoparticles Embedded in N-Doped Carbon Nanowires as a Bifunctional Oxygen Electrocatalyst for Rechargeable Liquid and Flexible all-Solid-State Zn-Air Batteries. <i>Small</i> , 2023, 19, .	5.2	8
284	Interfacial engineering of Co <sub>5.47</sub> N/Mo <sub>5</sub> N <sub>6</sub> nanosheets with rich active sites synergistically accelerates water dissociation kinetics for Pt-like hydrogen evolution. <i>Journal of Colloid and Interface Science</i> , 2023, 643, 455-464.	5.0	6
285	Three-dimensionally ordered Co <sub>3</sub> O <sub>4</sub> @WO <sub>3</sub> composite arrays as a binder-free air cathode for high-performance Zn-air batteries. <i>Materials Today Nano</i> , 2023, 22, 100339.	2.3	3
286	Controllable synthesis of Co/MnO heterointerfaces embedded in graphitic carbon for rechargeable Zn-air battery. <i>International Journal of Hydrogen Energy</i> , 2023, 48, 26805-26816.	3.8	5
287	Nickel sulfide-based electrocatalysts for overall water splitting. <i>International Journal of Hydrogen Energy</i> , 2023, 48, 27992-28017.	3.8	8
288	Multicomponent Metal Oxide- and Metal Hydroxide-Based Electrocatalysts for Alkaline Water Splitting. <i>Materials</i> , 2023, 16, 3280.	1.3	9
291	Recent advances in interface engineering of Fe/Co/Ni-based heterostructure electrocatalysts for water splitting. <i>Materials Horizons</i> , 2023, 10, 2312-2342.	6.4	13
306	Heterojunction Engineering for Electrocatalytic Applications. <i>ACS Applied Energy Materials</i> , 2023, 6, 7737-7784.	2.5	5
311	Critical Role of Interface Design in Acceleration of Overall Water Splitting and Hybrid Electrolysis Process: State of the Art and Perspectives. <i>Energy &amp; Fuels</i> , 2023, 37, 7603-7633.	2.5	5

#	ARTICLE	IF	CITATIONS
321	Recent progress of dual-site catalysts in emerging electrocatalysis: a review. <i>Catalysis Science and Technology</i> , 2023, 13, 4615-4634.	2.1	3
362	Recent advances in trifunctional electrocatalysts for Zn-air battery and water splitting. <i>Materials Chemistry Frontiers</i> , 0, , .	3.2	0
372	Application of 1D/2D carbon material supported metal nanoclusters for electrochemical conversion. <i>Catalysis Science and Technology</i> , 2024, 14, 1462-1479.	2.1	0