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MoS₂Ni₃S₂ Heteronanorods as Efficient and Stable Bifunctional Electrocatalysts for Overall Water Splitting

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817	3D Nitrogen-Anion-Decorated Nickel Sulfides for Highly Efficient Overall Water Splitting. 2017 , 29, 1701584	375
816	Activation of Ternary Transition Metal Chalcogenide Basal Planes through Chemical Strain for the Hydrogen Evolution Reaction. 2017 , 82, 785-791	22
815	Bimetallic NiMo nitride nanotubes as highly active and stable bifunctional electrocatalysts for full water splitting. 2017 , 5, 13648-13658	139
814	Electrospinning Hetero-Nanofibers of Fe C-Mo C/Nitrogen-Doped-Carbon as Efficient Electrocatalysts for Hydrogen Evolution. 2017 , 10, 2597-2604	82
813	Vertical Growth of 2D Amorphous FePO Nanosheet on Ni Foam: Outer and Inner Structural Design for Superior Water Splitting. 2017 , 29, 1704574	206
812	Thin MoS ₂ nanosheets grafted MOFs-derived porous CoNi flakes grown on electrospun carbon nanofibers as self-supported bifunctional catalysts for overall water splitting. 2017 , 5, 23898-23908	98
811	Metallic Cobalt@Nitrogen-Doped Carbon Nanocomposites: Carbon-Shell Regulation toward Efficient Bi-Functional Electrocatalysis. 2017 , 9, 37721-37730	48
810	Facile synthesis of free-standing nickel chalcogenide electrodes for overall water splitting. 2017 , 26, 1217-1222	49
809	Identification of pH-dependent synergy on Ru/MoS interface: a comparison of alkaline and acidic hydrogen evolution. 2017 , 9, 16616-16621	95
808	Photogenerated Carriers Boost Water Splitting Activity over Transition-Metal/Semiconducting Metal Oxide Bifunctional Electrocatalysts. <i>ACS Catalysis</i> , 2017 , 7, 6464-6470	13.1 45
807	Hydrothermal synthesis of 3D hierarchical MoSe ₂ /NiSe ₂ composite nanowires on carbon fiber paper and their enhanced electrocatalytic activity for the hydrogen evolution reaction. 2017 , 5, 19752-19759	100
806	Surface anion-rich NiS ₂ hollow microspheres derived from metal-organic frameworks as a robust electrocatalyst for the hydrogen evolution reaction. 2017 , 5, 20985-20992	197
805	Few-Layered MoWS Hollow Nanospheres on NiS Nanorod Heterostructure as Robust Electrocatalysts for Overall Water Splitting. 2017 , 9, 26066-26076	81
804	Controlling electrodeposited ultrathin amorphous Fe hydroxides film on V-doped nickel sulfide nanowires as efficient electrocatalyst for water oxidation. 2017 , 363, 44-53	86
803	Strongly Coupled Molybdenum Carbide on Carbon Sheets as a Bifunctional Electrocatalyst for Overall Water Splitting. 2017 , 10, 3540-3546	84
802	In Situ Fabrication of NiMo Bimetal Sulfide Hybrid as an Efficient Electrocatalyst for Hydrogen Evolution over a Wide pH Range. <i>ACS Catalysis</i> , 2017 , 7, 6179-6187	13.1 210
801	Efficient coupling of a hierarchical V ₂ O ₅ @Ni ₃ S ₂ hybrid nanoarray for pseudocapacitors and hydrogen production. 2017 , 5, 17954-17962	61
800	NiS Nanosheet Flowers Decorated with CdS Quantum Dots as a Highly Active Electrocatalysis Electrode for Synergistic Water Splitting. 2017 , 9, 29660-29668	63

799	Sn:In ₂ O ₃ and Sn:In ₂ O ₃ /NiS ₂ Core-shell Nanowires on Ni, Mo Foils and C Fibers for H ₂ and O ₂ Generation. 2017 , 121, 27839-27848		5
798	Novel Ni(S _{0.49} Se _{0.51}) ₂ porous flakes array on carbon fiber cloth for efficient hydrogen evolution reaction. 2017 , 42, 30119-30125		18
797	Facile synthesis of binary NiCoS nanorods supported on nickel foam as efficient electrocatalysts for oxygen evolution reaction. 2017 , 42, 17129-17135		37
796	Precision and correctness in the evaluation of electrocatalytic water splitting: revisiting activity parameters with a critical assessment. 2018 , 11, 744-771		628
795	Improved Electrocatalytic Performance in Overall Water Splitting with Rational Design of Hierarchical Co ₃ O ₄ @NiFe Layered Double Hydroxide Core-Shell Nanostructure. 2018 , 5, 1357-1363		27
794	Boosting the oxygen evolution reaction in non-precious catalysts by structural and electronic engineering. 2018 , 6, 10253-10263		43
793	Vertically Aligned Oxygenated-CoS ₂ /MoS ₂ Heteronanoshet Architecture from Polyoxometalate for Efficient and Stable Overall Water Splitting. <i>ACS Catalysis</i> , 2018 , 8, 4612-4621	13.1	182
792	Low-temperature synthesis of NiS/MoS ₂ /C nanowires/nanoflakes as electrocatalyst for hydrogen evolution reaction in alkaline medium via calcining/sulfurizing metal-organic frameworks. 2018 , 274, 74-83		34
791	Enhanced electrocatalytic performance for the hydrogen evolution reaction through surface enrichment of platinum nanoclusters alloying with ruthenium in situ embedded in carbon. 2018 , 11, 1232-1239 ¹⁶⁹		
790	Self-supported NiMo-based nanowire arrays as bifunctional electrocatalysts for full water splitting. 2018 , 6, 8479-8487		94
789	Polyoxometalate precursors for precisely controlled synthesis of bimetallic sulfide heterostructure through nucleation-doping competition. 2018 , 10, 8404-8412		39
788	3D structured Mo-doped Ni ₃ S ₂ nanosheets as efficient dual-electrocatalyst for overall water splitting. 2018 , 441, 1024-1033		80
787	Urchin-Like Nanorods of Binary NiCoS Supported on Nickel Foam for Electrocatalytic Overall Water Splitting. 2018 , 165, H102-H108		33
786	Phosphorus-Doped Co ₃ O ₄ Nanowire Array: A Highly Efficient Bifunctional Electrocatalyst for Overall Water Splitting. <i>ACS Catalysis</i> , 2018 , 8, 2236-2241	13.1	367
785	Trimetallic NiFeMo for Overall Electrochemical Water Splitting with a Low Cell Voltage. 2018 , 3, 546-554		120
784	One-pot synthesis of iron-nickel-selenide nanorods for efficient and durable electrochemical oxygen evolution. 2018 , 5, 814-818		24
783	TiO ₂ @3HT:PCBM photoelectrochemical tandem cells for solar-driven overall water splitting. 2018 , 6, 4032-4039		20
782	Bifunctional Heterostructure Assembly of NiFe LDH Nanosheets on NiCoP Nanowires for Highly Efficient and Stable Overall Water Splitting. 2018 , 28, 1706847		389

781	Tunable 3D hierarchical Ni ₃ S ₂ superstructures as efficient and stable bifunctional electrocatalysts for both H ₂ and O ₂ generation. 2018 , 6, 4485-4493	56
780	Nonprecious Intermetallic Al ₇ Cu ₄ Ni Nanocrystals Seamlessly Integrated in Freestanding Bimodal Nanoporous Copper for Efficient Hydrogen Evolution Catalysis. 2018 , 28, 1706127	51
779	Mutually beneficial Co ₃ O ₄ @MoS ₂ heterostructures as a highly efficient bifunctional catalyst for electrochemical overall water splitting. 2018 , 6, 2067-2072	129
778	Fabrication of 3D Porous Hierarchical NiMoS Flowerlike Architectures for Hydrodesulfurization Applications. 2018 , 1, 442-454	18
777	Chemical Valence-Dependent Electrocatalytic Activity for Oxygen Evolution Reaction: A Case of Nickel Sulfides Hybridized with N and S Co-Doped Carbon Nanoparticles. 2018 , 14, 1703273	30
776	Ni ₃ S ₂ Nanosheets in Situ Epitaxially Grown on Nanorods as High Active and Stable Homojunction Electrocatalyst for Hydrogen Evolution Reaction. 2018 , 6, 2474-2481	56
775	CoS@MoS Core-Shell Heterostructures as Trifunctional Electrocatalysts for Overall Water Splitting and Zn-Air Batteries. 2018 , 10, 1678-1689	159
774	Reduced Graphene Oxide-Wrapped Co Fe S /Co,Fe-N-C Composite as Bifunctional Electrocatalyst for Oxygen Reduction and Evolution. 2018 , 14, 1703748	98
773	Self-Supported Ternary Ni-S-Se Nanorod Arrays as Highly Active Electrocatalyst for Hydrogen Generation in Both Acidic and Basic Media: Experimental Investigation and DFT Calculation. 2018 , 10, 2430-2441	68
772	Bimetallic NiBe phosphide nanocomposites with a controlled architecture and composition enabling highly efficient electrochemical water oxidation. 2018 , 6, 2231-2238	76
771	Enhanced Catalysis of Electrochemical Overall Water Splitting in Alkaline Media by Fe Doping in Ni ₃ S ₂ Nanosheet Arrays. <i>ACS Catalysis</i> , 2018 , 8, 5431-5441	13.1 328
770	Dimensional construction and morphological tuning of heterogeneous MoS ₂ /NiS electrocatalysts for efficient overall water splitting. 2018 , 6, 9833-9838	75
769	Few-layer tiny nanoflakes of molybdenum sulfide loaded on porous carbon as an efficient electrocatalyst for hydrogen generation. 2018 , 750, 927-934	5
768	MetalOrganic framework-derived Zn _{0.975} Co _{0.025} S/CoS ₂ embedded in N,S-codoped carbon nanotube/nanopolyhedra as an efficient electrocatalyst for overall water splitting. 2018 , 6, 10441-10446	52
767	NiO as a Bifunctional Promoter for RuO toward Superior Overall Water Splitting. 2018 , 14, e1704073	147
766	Metallic NiS Films Grown by Atomic Layer Deposition as an Efficient and Stable Electrocatalyst for Overall Water Splitting. 2018 , 10, 12807-12815	63
765	Controlled synthesis of Ni(OH) ₂ /Ni ₃ S ₂ hybrid nanosheet arrays as highly active and stable electrocatalysts for water splitting. 2018 , 6, 6938-6946	169
764	Heteroporous MoS/NiS towards superior electrocatalytic overall urea splitting. 2018 , 54, 5181-5184	63

763	In situ synthesis of hierarchical MoSe ₂ /CoSe ₂ nanotubes as an efficient electrocatalyst for the hydrogen evolution reaction in both acidic and alkaline media. 2018 , 6, 7842-7850	124
762	Triple Ni-Co-Mo metal sulfides with one-dimensional and hierarchical nanostructures towards highly efficient hydrogen evolution reaction. 2018 , 361, 204-213	83
761	Heteromorphic NiCoS/NiS/Ni Foam as a Self-Standing Electrode for Hydrogen Evolution Reaction in Alkaline Solution. 2018 , 10, 10890-10897	102
760	One-step synthesis of cobalt-doped MoS nanosheets as bifunctional electrocatalysts for overall water splitting under both acidic and alkaline conditions. 2018 , 54, 3859-3862	130
759	3D heterostructured pure and N-Doped Ni ₃ S ₂ /VS ₂ nanosheets for high efficient overall water splitting. 2018 , 269, 55-61	91
758	Porous NiMoS Nanowire Network Film Electrode as a High-Efficiency Bifunctional Electrocatalyst for Overall Water Splitting. 2018 , 5, 335-342	41
757	Highly efficient hydrogen evolution based on Ni ₃ S ₄ @MoS ₂ hybrids supported on N-doped reduced graphene oxide. 2018 , 428, 1046-1055	14
756	Organic-inorganic hybrids-directed ternary NiFeMoS anemone-like nanorods with scaly surface supported on nickel foam for efficient overall water splitting. 2018 , 334, 922-931	162
755	Facile and Controllable One-Pot Synthesis of Hierarchical Co ₉ S ₈ Hollow Microspheres as High-Performance Electroactive Materials for Energy Storage and Conversion. 2018 , 5, 137-143	13
754	3-Dimensional MWCNT/CuO nanostructures use as an electrochemical catalyst for oxygen evolution reaction. 2018 , 735, 2311-2317	19
753	A novel hierarchical MoS ₂ -ZnO-Ni electrocatalyst prepared by electrodeposition coupling with dealloying for hydrogen evolution reaction. 2018 , 808, 173-179	8
752	Synthesis of 3D Hexagram-Like Cobalt-Manganese Sulfides Nanosheets Grown on Nickel Foam: A Bifunctional Electrocatalyst for Overall Water Splitting. 2018 , 10, 6	65
751	Needle-Leaf-Like Cu ₂ Mo ₆ S ₈ Films for Highly Efficient Visible-Light Photocatalysis. 2018 , 35, 1700302	6
750	Highly efficient dual cocatalyst-modified TiO ₂ photocatalyst: RGO as electron-transfer mediator and MoS _x as H ₂ -evolution active site. 2018 , 430, 176-183	56
749	Facile Synthesis of Fe-Doped Ni ₃ S ₂ Nanoparticles Supported on Ni Foam as Highly Active Electrocatalyst for Water Splitting. 2018 , 186, 012002	0
748	CoO-modified Co ₄ N as a heterostructured electrocatalyst for highly efficient overall water splitting in neutral media. 2018 , 6, 24767-24772	69
747	Controllable synthesis of NiO/Ni ₃ S ₂ hybrid arrays as efficient electrocatalysts for water splitting. 2018 , 42, 18201-18207	5
746	Morphology and electronic structure modulation induced by fluorine doping in nickel-based heterostructures for robust bifunctional electrocatalysis. 2018 , 10, 20384-20392	34

745	3D hierarchical CoO@CoS nanoarrays as anode and cathode materials for oxygen evolution reaction and hydrogen evolution reaction. 2018 , 47, 16305-16312	17
744	Morphology engineering of nickel molybdate hydrate nanoarray for electrocatalytic overall water splitting: from nanorod to nanosheet.. 2018 , 8, 35131-35138	14
743	Synergistic Improvement in Thermal Conductivity of Polyimide Nanocomposite Films Using Boron Nitride Coated Copper Nanoparticles and Nanowires. 2018 , 10,	14
742	Direct Observation of Structural Evolution of Metal Chalcogenide in Electrocatalytic Water Oxidation. 2018 , 12, 12369-12379	220
741	In Situ Engineering MoS ₂ NDs/VS ₂ Lamellar Heterostructure for Enhanced Electrocatalytic Hydrogen Evolution. 2018 , 6, 15471-15479	27
740	Palladium Phosphide as a Stable and Efficient Electrocatalyst for Overall Water Splitting. 2018 , 57, 14862-14867	58
739	Palladium Phosphide as a Stable and Efficient Electrocatalyst for Overall Water Splitting. 2018 , 130, 15078-15083	58
738	Highly Efficient and Durable Electrocatalyst Based on Nanowires of Cobalt Sulfide for Overall Water Splitting. 2018 , 4, 1240-1246	19
737	Efficient Electrocatalytic Oxygen Evolution at Extremely High Current Density over 3D Ultrasmall Zero-Valent Iron-Coupled Nickel Sulfide Nanosheets. 2018 , 5, 3866-3872	37
736	One-pot synthesis of graphene-wrapped NiSe ₂ -Ni _{0.85} Se hollow microspheres as superior and stable electrocatalyst for hydrogen evolution reaction. 2018 , 291, 242-248	20
735	Homogeneous core-shell NiCo ₂ S ₄ nanorods as flexible electrode for overall water splitting. 2018 , 43, 20627-20635	42
734	Novel Cobalt-Doped NiSe Chalcogenides (Co NiSe) as High Active and Stable Electrocatalysts for Hydrogen Evolution Reaction in Electrolysis Water Splitting. 2018 , 10, 40491-40499	58
733	Encapsulation of Ni ₃ Fe Nanoparticles in N-Doped Carbon Nanotube-Grafted Carbon Nanofibers as High-Efficiency Hydrogen Evolution Electrocatalysts. 2018 , 28, 1805828	124
732	One-step Synthesis of Self-standing Ni ₃ S ₂ /Ni ₂ P Heteronanorods on Nickel Foam for Efficient Electrocatalytic Hydrogen Evolution over a Wide pH Range. 2018 , 10, 5487-5495	30
731	Ultrasmall Ru/Cu-doped RuO Complex Embedded in Amorphous Carbon Skeleton as Highly Active Bifunctional Electrocatalysts for Overall Water Splitting. 2018 , 14, e1803009	104
730	Predicting New Two-Dimensional Pd ₃ (PS ₄) ₂ as an Efficient Photocatalyst for Water Splitting. 2018 , 122, 21927-21932	16
729	Phosphorus-doped nickel sulfides/nickel foam as electrode materials for electrocatalytic water splitting. 2018 , 43, 19002-19009	26
728	Needle grass array of nanostructured nickel cobalt sulfide electrode for clean energy generation. 2018 , 354, 306-312	16

727	In situ formation of consubstantial NiCo ₂ S ₄ nanorod arrays toward self-standing electrode for high activity supercapacitors and overall water splitting. 2018 , 402, 116-123	56
726	Spherical Ruthenium Disulfide-Sulfur-Doped Graphene Composite as an Efficient Hydrogen Evolution Electrocatalyst. 2018 , 10, 34098-34107	41
725	Self-supported nickel-cobalt nanowires as highly efficient and stable electrocatalysts for overall water splitting. 2018 , 10, 18767-18773	36
724	Charge State Manipulation of Cobalt Selenide Catalyst for Overall Seawater Electrolysis. 2018 , 8, 1801926	140
723	Insertion of Platinum Nanoparticles into MoS ₂ Nanoflakes for Enhanced Hydrogen Evolution Reaction. 2018 , 11,	5
722	Solid solution nitride/carbon nanotube hybrids enhance electrocatalysis of oxygen in zinc-air batteries. 2018 , 15, 380-387	20
721	Cobalt Covalent Doping in MoS ₂ to Induce Bifunctionality of Overall Water Splitting. 2018 , 30, e1801450	273
720	Scalable synthesis of porous hollow CoSe ₂ /MoSe ₂ /carbon microspheres for highly efficient hydrogen evolution reaction in acidic and alkaline media. 2018 , 6, 12701-12707	80
719	Hierarchical Ni ₃ S ₂ -NiOOH hetero-nanocomposite grown on nickel foam as a noble-metal-free electrocatalyst for hydrogen evolution reaction in alkaline electrolyte. 2018 , 456, 164-173	34
718	Oxygen vacancy rich tungsten oxide with nitrogen doped mesoporous carbon as matrix for overall water splitting and 4-nitrophenol reductive removal. 2018 , 83, 23-30	7
717	Ultrafine Pt Nanoparticle-Decorated Pyrite-Type CoS ₂ Nanosheet Arrays Coated on Carbon Cloth as a Bifunctional Electrode for Overall Water Splitting. 2018 , 8, 1800935	217
716	Cost-Effective Vertical Carbon Nanosheets/Iron-Based Composites as Efficient Electrocatalysts for Water Splitting Reaction. 2018 , 30, 4762-4769	33
715	Highly active and dual-function self-supported multiphase NiS/Ni ₃ S ₂ /NF electrodes for overall water splitting. 2018 , 6, 14207-14214	64
714	Synergistic effect: Hierarchical Ni ₃ S ₂ @Co(OH) ₂ heterostructure as efficient bifunctional electrocatalyst for overall water splitting. 2018 , 457, 156-163	46
713	Efficient hydrogen evolution performance of phase-pure NiS electrocatalysts grown on fluorine-doped tin oxide-coated glass by facile chemical bath deposition. 2018 , 43, 13022-13031	9
712	Oxide/sulfide-based hybrid arrays as robust electrocatalysts for water splitting. 2018 , 47, 10273-10280	22
711	Facile Modification of Titania with Nickel Sulfide and Sulfate Species for the Photoreformation of Cellulose into Hydrogen. 2018 , 11, 2810-2817	22
710	Surface Sulfurization of NiCo-Layered Double Hydroxide Nanosheets Enable Superior and Durable Oxygen Evolution Electrocatalysis. 2018 , 1, 4040-4049	45

709	Boosting Electrocatalytic Hydrogen-Evolving Activity of Co/CoO Heterostructured Nanosheets via Coupling Photogenerated Carriers with Phototherapy. 2018 , 6, 11206-11210	19
708	Synthesis of MoS ₂ /Ni ₃ S ₂ heterostructure for efficient electrocatalytic hydrogen evolution reaction through optimizing the sulfur sources selection. 2018 , 459, 422-429	38
707	Hierarchical NiMo Phosphide Nanosheets Strongly Anchored on Carbon Nanotubes as Robust Electrocatalysts for Overall Water Splitting. 2018 , 10, 29647-29655	58
706	1D/1D Hierarchical Nickel Sulfide/Phosphide Nanostructures for Electrocatalytic Water Oxidation. 2018 , 3, 2021-2029	65
705	Self-Interconnected Porous Networks of NiCo Disulfide as Efficient Bifunctional Electrocatalysts for Overall Water Splitting. 2018 , 10, 27723-27733	51
704	Superhydrophilic Heteroporous MoS ₂ /Ni ₃ S ₂ for Highly Efficient Electrocatalytic Overall Water Splitting. 2018 , 1, 3929-3936	43
703	Cobalt Sulfide/Nickel Sulfide Heterostructure Directly Grown on Nickel Foam: An Efficient and Durable Electrocatalyst for Overall Water Splitting Application. 2018 , 10, 27712-27722	160
702	Engineering the Electronic Structure of MoS ₂ Nanorods by N and Mn Dopants for Ultra-Efficient Hydrogen Production. <i>ACS Catalysis</i> , 2018 , 8, 7585-7592	13.1 111
701	Strong Electronic Interaction in Dual-Cation-Incorporated NiSe Nanosheets with Lattice Distortion for Highly Efficient Overall Water Splitting. 2018 , 30, e1802121	255
700	Graphene wrapped self-assembled Ni _{0.85} Se-SnO ₂ microspheres as highly efficient and stable electrocatalyst for hydrogen evolution reaction. 2018 , 283, 1146-1153	15
699	Ultrafine cable-like WC/W ₂ C heterojunction nanowires covered by graphitic carbon towards highly efficient electrocatalytic hydrogen evolution. 2018 , 6, 15395-15403	52
698	S, N co-doped carbon nanotube-encapsulated core-shelled CoS ₂ @Co nanoparticles: efficient and stable bifunctional catalysts for overall water splitting. 2018 , 63, 1130-1140	156
697	Flame-like Ni(OH) ₂ strongly promotes the dissociation of water and can be used to produce an excellent hybrid electrocatalyst for the hydrogen evolution reaction in alkaline media. 2018 , 91, 66-70	20
696	Cross-linked trimetallic nanopetals for electrocatalytic water splitting. 2018 , 390, 224-233	35
695	Nickel Molybdenum Nitride Nanorods Grown on Ni Foam as Efficient and Stable Bifunctional Electrocatalysts for Overall Water Splitting. 2018 , 10, 30400-30408	50
694	3D Coral-Like NiS on Ni Foam as a Bifunctional Electrocatalyst for Overall Water Splitting. 2018 , 10, 31330-31339	39
693	Ternary Ni ₂ (1-x)Mo ₂ xP nanowire arrays toward efficient and stable hydrogen evolution electrocatalysis under large-current-density. 2018 , 53, 492-500	148
692	Anion-Induced Size Selection of NiMo ₂ C Supported on Nitrogen-Doped Carbon Nanotubes for Electrocatalytic Hydrogen Evolution. 2018 , 6, 11922-11929	25

691	Superaerophobic P-doped Ni(OH)/NiMoO hierarchical nanosheet arrays grown on Ni foam for electrocatalytic overall water splitting. 2018 , 47, 8787-8793		38
690	Multifunctional nanostructured electrocatalysts for energy conversion and storage: current status and perspectives. 2018 , 10, 11241-11280		177
689	Three-dimensional-networked Ni ₂ P/Ni ₃ S ₂ heteronanoflake arrays for highly enhanced electrochemical overall-water-splitting activity. 2018 , 51, 26-36		249
688	Metal-Organic Framework-Derived Nickel-Cobalt Sulfide on Ultrathin Mxene Nanosheets for Electrocatalytic Oxygen Evolution. 2018 , 10, 22311-22319		184
687	Self-Supported Earth-Abundant Nanoarrays as Efficient and Robust Electrocatalysts for Energy-Related Reactions. <i>ACS Catalysis</i> , 2018 , 8, 6707-6732	13.1	240
686	Layered double hydroxide-based core-shell nanoarrays for efficient electrochemical water splitting. 2018 , 12, 537-554		20
685	Boosting water oxidation electrocatalysts with surface engineered amorphous cobalt hydroxide nanoflakes. 2018 , 10, 12991-12996		46
684	Phosphorization engineering ameliorated the electrocatalytic activity for overall water splitting on NiS nanosheets. 2019 , 48, 13466-13471		21
683	Ultrathin MoS ₂ Nanosheets Vertically Grown on CoS ₂ Acicular Nanorod Arrays: A Synergistic Three-Dimensional Shell/Core Heterostructure for High-Efficiency Hydrogen Evolution at Full pH. 2019 , 2, 6751-6760		20
682	Dual Doping Induced Interfacial Engineering of Fe ₂ N/Fe ₃ N Hybrids with Favorable d-Band towards Efficient Overall Water Splitting. 2019 , 11, 6051-6060		60
681	P-Doped Iron-Nickel Sulfide Nanosheet Arrays for Highly Efficient Overall Water Splitting. 2019 , 11, 27667-27686		86
680	Electrodeposition of sulfur-engineered amorphous nickel hydroxides on MIL-53(Fe) nanosheets to accelerate the oxygen evolution reaction. 2019 , 11, 14785-14792		29
679	Ultrasonic-Assisted Synthesis of Amorphous Polyelemental Hollow Nanoparticles as Efficient and Stable Bifunctional Electrocatalysts for Overall Water Splitting. 2019 , 6, 1900586		8
678	Ni-Co-Mo-O nanosheets decorated with NiCo nanoparticles as advanced electrocatalysts for highly efficient hydrogen evolution. 2019 , 258, 117953		39
677	Co incorporated Ni ₃ S ₂ hierarchical nano/micro cactus for electrochemical water splitting. 2019 , 44, 21315-21323		23
676	MOF-derived cobalt oxides nanoparticles anchored on CoMoO ₄ as a highly active electrocatalyst for oxygen evolution reaction. 2019 , 806, 1097-1104		22
675	High-Efficiency Electrocatalytic Water Oxidation on Trimetal-Based Fe ₂ O ₃ /Ir Oxide. 2019 , 2, 5584-5590		4
674	Synthesis of Iron-Nickel Sulfide Porous Nanosheets via a Chemical Etching/Anion Exchange Method for Efficient Oxygen Evolution Reaction in Alkaline Media. 2019 , 6, 1900788		13

673	Synthesis of 3D flower-like nickel-molybdenum-sulfur microspheres as efficient and stable electrocatalyst for hydrogen and oxygen evolution reactions. 2019 , 320, 134614	15
672	110th Anniversary: A Total Water Splitting Electrocatalyst Based on Borate/Fe Co-Doping of Nickel Sulfide. 2019 , 58, 13053-13063	7
671	Formation of hierarchical Ni ₃ S ₂ nanohorn arrays driven by in-situ generation of VS ₄ nanocrystals for boosting alkaline water splitting. 2019 , 257, 117911	57
670	Scalable Synthesis of Bimetallic Phosphide Decorated in Carbon Nanotube Network as Multifunctional Electrocatalyst for Water Splitting. 2019 , 7, 13031-13040	28
669	Regulating the electron density of dual transition metal sulfide heterostructures for highly efficient hydrogen evolution in alkaline electrolytes. 2019 , 11, 14016-14023	18
668	Recent Progress on Surface Reconstruction of Earth-Abundant Electrocatalysts for Water Oxidation. 2019 , 15, e1901980	99
667	Nitrogen Atoms as Stabilizers and Promoters for Ru-Cluster-Catalyzed Alkaline Water Splitting. 2019 , 11, 4327-4333	9
666	Interface Engineering of an RGO/MoS/Pd 2D Heterostructure for Electrocatalytic Overall Water Splitting in Alkaline Medium. 2019 , 11, 42094-42103	26
665	Heterostructured Ni(OH) ₂ /Ni ₃ S ₂ Supported on Ni Foam as Highly Efficient and Durable Bifunctional Electrodes for Overall Water Electrolysis. 2019 , 33, 12052-12062	23
664	Controlled Synthesis of CuCo S @Ni(OH) Hybrid Nanorod Arrays for Water Splitting at an Ultralow Cell Voltage of 1.47 V. 2019 , 14, 3386-3396	4
663	Ni ₃ S ₂ @Co(OH) ₂ heterostructures grown on Ni foam as an efficient electrocatalyst for water oxidation. 2019 , 44, 22955-22961	11
662	A MoS ₂ -Co ₉ S ₈ -NC heterostructure as an efficient bifunctional electrocatalyst towards hydrogen and oxygen evolution reaction. 2019 , 327, 134942	22
661	Current Status of Self-Supported Catalysts for Robust and Efficient Water Splitting for Commercial Electrolyzer. 2019 , 11, 5898-5912	27
660	Designed formation of CoS ₂ nanoboxes with enhanced oxygen evolution reaction electrocatalytic properties. 2019 , 44, 31020-31028	9
659	Photon-Induced, Timescale, and Electrode Effects Critical for the in Situ X-ray Spectroscopic Analysis of Electrocatalysts: The Water Oxidation Case. 2019 , 123, 28533-28549	13
658	Experimental and Theoretical Understanding on Electrochemical Activation Processes of Nickel Selenide for Excellent Water-Splitting Performance: Comparing the Electrochemical Performances with MNiSe (M = Co, Cu, and V). 2019 , 7, 19257-19267	58
657	Carbon Layer Coated Ni ₃ S ₂ /MoS ₂ Nanohybrids as Efficient Bifunctional Electrocatalysts for Overall Water Splitting. 2019 , 6, 5603-5609	7
656	Efficient and Durable 3D Self-Supported Nitrogen-Doped Carbon-Coupled Nickel/Cobalt Phosphide Electrodes: Stoichiometric Ratio Regulated Phase- and Morphology-Dependent Overall Water Splitting Performance. 2019 , 29, 1906316	62

- 655 Synergism of Interface and Electronic Effects: Bifunctional N-Doped Ni S /N-Doped MoS Hetero-Nanowires for Efficient Electrocatalytic Overall Water Splitting. **2019**, 25, 16074 21
- 654 Controlled Synthesis of Ni-Doped MoS Hybrid Electrode for Synergistically Enhanced Water-Splitting Process. **2019**, 26, 4097 11
- 653 Synthesis and electrocatalytic activity of Ni_{0.85}Se/MoS₂ for hydrogen evolution reaction. **2019**, 44, 26109-26112 12
- 652 Crystal structure and tribological properties of molybdenum disulfide films prepared by magnetron sputtering technology. **2019**, 19, 1318-1324 8
- 651 Coupling NiSe₂-Ni₂P heterostructure nanowrinkles for highly efficient overall water splitting. **2019**, 377, 600-608 123
- 650 Synergistic effect of MoS and NiS nanosheets as an efficient electrocatalyst for hydrogen evolution reaction. **2019**, 556, 24-32 9
- 649 Interface engineering to enhance the oxygen evolution reaction under light irradiation. **2019**, 115, 103901 3
- 648 Callistemon-like Zn and S codoped CoP nanorod clusters as highly efficient electrocatalysts for neutral-pH overall water splitting. **2019**, 7, 22453-22462 51
- 647 Pulsed Laser Deposition of Nanostructured MoS/np-Mo//WO Hybrid Catalyst for Enhanced (Photo) Electrochemical Hydrogen Evolution. **2019**, 9, 8
- 646 Interface Engineering of MoS₂ for Electrocatalytic Performance Optimization for Hydrogen Generation via Urea Electrolysis. **2019**, 7, 16577-16584 46
- 645 Cu-Co-M arrays on Ni foam as monolithic structured catalysts for water splitting: effects of co-doped S-P. **2019**, 48, 1322-1331 16
- 644 CdS@Ni₃S₂ core-shell nanorod arrays on nickel foam: a multifunctional catalyst for efficient electrochemical catalytic, photoelectrochemical and photocatalytic H₂ production reaction. **2019**, 7, 2560-2574 56
- 643 Construction of hierarchical bundle-like CoNi layered double hydroxides for the efficient oxygen evolution reaction. **2019**, 96, 273-280 16
- 642 Bimetallic Organic-Framework-Derived Nanohybrids Cu_{0.9}Co_{2.1}S₄@MoS₂ for High-Performance Visible-Light-Catalytic Hydrogen Evolution Reaction. **2019**, 2, 1134-1148 31
- 641 CuS/Ni₃S₂ grown in situ from three-dimensional porous bimetallic foam for efficient oxygen evolution. **2019**, 6, 293-302 19
- 640 One-step construction of core/shell nanoarrays with a holey shell and exposed interfaces for overall water splitting. **2019**, 7, 1196-1205 33
- 639 Crossed NiCo₂S₄ Nanowires Supported on Nickel Foam as a Bifunctional Catalyst for Efficient Overall Water Splitting. **2019**, 4, 1180-1187 14
- 638 N-doped carbon coated NiCo₂S₄ hollow nanotube as bifunctional electrocatalyst for overall water splitting. **2019**, 145, 521-528 50

637	Hybridizing NiCo ₂ O ₄ and Amorphous Ni ₃ Co ₂ Layered Double Hydroxides with Remarkably Improved Activity toward Efficient Overall Water Splitting. 2019 , 7, 4784-4791	49
636	Constructing Earth-abundant 3D Nanoarrays for Efficient Overall Water Splitting [A Review]. 2019 , 11, 1550-1575	76
635	Identifying the Prevalence of Dysphagia among Patients Diagnosed with Unilateral Vocal Fold Immobility. 2019 , 160, 955-964	10
634	Fabrication of NiC/MoC/NiMoO Heterostructured Nanorod Arrays as Stable Bifunctional Electrocatalysts for Efficient Overall Water Splitting. 2019 , 14, 1013-1020	11
633	Ultrathin Graphitic Carbon Coated Molybdenum Phosphide as Noble-Metal-Free Electrocatalyst for Hydrogen Evolution. 2019 , 4, 846-852	2
632	Asymmetric electrodes with a transition metal disulfide heterostructure and amorphous bimetallic hydroxide for effective alkaline water electrolysis. 2019 , 7, 2895-2900	22
631	Fast sulfurization of nickel foam-supported nickel-cobalt carbonate hydroxide nanowire array at room temperature for hydrogen evolution electrocatalysis. 2019 , 318, 252-261	12
630	Self-Supported Ni/NiSP _x Microdendrite Structure for Highly Efficient and Stable Overall Water Splitting in Simulated Industrial Environment. 2019 , 7, 11778-11786	12
629	A CoMoO ₄ /Co ₂ Mo ₃ O ₈ heterostructure with valence-rich molybdenum for a high-performance hydrogen evolution reaction in alkaline solution. 2019 , 7, 16761-16769	29
628	Neutral-pH overall water splitting catalyzed efficiently by a hollow and porous structured ternary nickel sulfoselenide electrocatalyst. 2019 , 7, 16793-16802	43
627	Cobalt phosphide nanocage@ferric-zinc mixed-metal phosphide nanotube hierarchical nanocomposites for enhanced overall water splitting. 2019 , 40, 1085-1092	13
626	Hierarchical Nanoassembly of MoS/CoS/NiS/Ni as a Highly Efficient Electrocatalyst for Overall Water Splitting in a Wide pH Range. 2019 , 141, 10417-10430	359
625	Hydrothermally synthesized homogeneous Ni-Mo-S structures on Ni-foam cathodes for thermal batteries. 2019 , 55, 7300-7302	8
624	General Synthesis of Ultrathin Metal Borate Nanomeshes Enabled by 3D Bark-Like N-Doped Carbon for Electrocatalysis. 2019 , 9, 1901130	30
623	MoS ₂ -graphene-CuNi ₂ S ₄ nanocomposite an efficient electrocatalyst for the hydrogen evolution reaction. 2019 , 44, 16069-16078	13
622	Natural-Cellulose-Nanofibril-Tailored NiFe Nanoparticles for Efficient Oxygen Evolution Reaction. 2019 , 6, 3303-3310	5
621	Hierarchical CoP ₃ /NiMoO ₄ heterostructures on Ni foam as an efficient bifunctional electrocatalyst for overall water splitting. 2019 , 45, 17128-17136	22
620	Electrodeposited amorphous cobalt phosphosulfide on Ni foams for highly efficient overall water splitting. 2019 , 431, 182-188	31

619	Effect of Ion Diffusion in Cobalt Molybdenum Bimetallic Sulfide toward Electrocatalytic Water Splitting. 2019 , 11, 21634-21644	25
618	NiS/MoS ₂ hetero-nanosheet array electrocatalysts for efficient overall water splitting. 2019 , 3, 2056-2066	37
617	A Hybrid Electrocatalyst with a Coordinatively Unsaturated Metal-Organic Framework Shell and Hollow NiS/NiS Core for Oxygen Evolution Reaction Applications. 2019 , 11, 23180-23191	31
616	In-situ surface selective removal: An efficient way to prepare water oxidation catalyst. 2019 , 44, 14955-14967	10
615	Heterogenization of few-layer MoS ₂ with highly crystalline 3D Ni ₃ S ₂ nanoframes effectively synergizes the electrocatalytic hydrogen generation in alkaline medium. 2019 , 13, 85-92	18
614	Heterostructures in two-dimensional colloidal metal chalcogenides: Synthetic fundamentals and applications. 2019 , 12, 1750-1769	19
613	MoS ₂ nanosheets decorated Ni(OH) ₂ nanorod array for active overall water splitting. 2019 , 796, 86-92	35
612	Defect-Rich Heterogeneous MoS/NiS Nanosheets Electrocatalysts for Efficient Overall Water Splitting. 2019 , 6, 1900246	278
611	Photocatalytic Hydrogen Evolution Coupled with Efficient Selective Benzaldehyde Production from Benzyl Alcohol Aqueous Solution over ZnS-Ni _x S _y Composites. 2019 , 7, 10501-10508	36
610	Three-dimensional flower-like NiMnS on Ti mesh: a monolithic electrochemical platform for detecting glucose. 2019 , 43, 7866-7873	4
609	0D/3D MoS ₂ -NiS ₂ /N-doped graphene foam composite for efficient overall water splitting. 2019 , 254, 15-25	159
608	Interface-engineered atomically thin Ni ₃ S ₂ /MnO ₂ heterogeneous nanoarrays for efficient overall water splitting in alkaline media. 2019 , 254, 329-338	87
607	MoC _{1-x} Quantum Dots Encapsulated in Nitrogen-Doped Carbon for Hydrogen Evolution Reaction at All pH Values. 2019 , 7, 9637-9645	10
606	Reversible Zn-quinone battery with harvesting electrochemical neutralization energy. 2019 , 428, 37-43	14
605	Single Atoms and Clusters Based Nanomaterials for Hydrogen Evolution, Oxygen Evolution Reactions, and Full Water Splitting. 2019 , 9, 1900624	294
604	Co ₃ [Fe(CN) ₆] ₂ nanocube derived architecture of Co,Fe co-doped MoS ₂ nanosheets for efficient water electrolysis. 2019 , 309, 116-124	18
603	Anion-Modulated HER and OER Activities of 3D Ni-V-Based Interstitial Compound Heterojunctions for High-Efficiency and Stable Overall Water Splitting. 2019 , 31, e1901174	282
602	Freestanding and Hierarchically Structured Au-Dendrites/3D-Graphene Scaffold Supports Highly Active and Stable Ni ₃ S ₂ Electrocatalyst toward Overall Water Splitting. 2019 , 2, 3708-3716	20

601	Electrocatalytically driven fast removal of moisture by condensation of vapor and water splitting. 2019 , 61, 295-303	1
600	Thin Nickel Layer with Embedded WC Nanoparticles for Efficient Oxygen Evolution. 2019 , 2, 3452-3460	9
599	Semiconductor polymeric graphitic carbon nitride photocatalysts: the Holy grail for the photocatalytic hydrogen evolution reaction under visible light. 2019 , 12, 2080-2147	470
598	Highly conductive and metallic cobalt-nickel selenide nanorods supported on Ni foam as an efficient electrocatalyst for alkaline water splitting. 2019 , 11, 7959-7966	72
597	Electrodepositing Pd on NiFe layered double hydroxide for improved water electrolysis. 2019 , 3, 842-850	30
596	Tailoring 2D MoS ₂ heterointerfaces for promising oxygen reduction reaction electrocatalysis. 2019 , 7, 8785-8789	39
595	Carbon Nanotube-Supported MoSe Holey Flake:MoC Ball Hybrids for Bifunctional pH-Universal Water Splitting. 2019 , 13, 3162-3176	89
594	Hierarchical Heterostructured Mo ₂ C/Mo ₃ Co ₃ C Bouquet-like Nanowire Arrays: An Efficient Electrocatalyst for Hydrogen Evolution Reaction. 2019 , 7, 7294-7303	28
593	Intercalated Graphite between Ni Foam and Ni ₃ S ₂ Nanocrystals for the Activity Promotion in Overall Water Splitting. 2019 , 7, 1900063	6
592	Graphene-Quantum-Dots-induced facile growth of porous molybdenum doped Ni ₃ S ₂ nanoflakes as efficient bifunctional electrocatalyst for overall water splitting. 2019 , 304, 487-494	26
591	3D Metallic Ti@Ni Se with Triple Hierarchy as High-Efficiency Electrocatalyst for Overall Water Splitting. 2019 , 12, 2271-2277	17
590	Engineering Ni ³⁺ inside nickel selenide as efficient bifunctional oxygen electrocatalysts for Zn-air batteries. 2019 , 54, 9063-9074	6
589	A Highly Active and Robust CoP/CoS ₂ -Based Electrocatalyst Toward Overall Water Splitting. 2019 , 10, 253-261	11
588	Increased nucleation sites in nickel foam for the synthesis of MoP@Ni ₃ P/NF nanosheets for bifunctional water splitting. 2019 , 481, 1403-1411	28
587	Highly stable lithium-sulfur batteries based on p-n heterojunctions embedded on hollow sheath carbon propelling polysulfides conversion. 2019 , 7, 9230-9240	43
586	Metallic Mo ₂ C anchored pyrrolic-N induced N-CNTs/NiS ₂ for efficient overall water electrolysis. 2019 , 420, 108-117	55
585	Engineering Ternary Pyrite-Type CoPS Nanosheets with an Ultrathin Porous Structure for Efficient Electrocatalytic Water Splitting. 2019 , 6, 2852-2859	9
584	ZnO Colloidal Nanocrystal Clusters as Efficient and Durable Bifunctional Electrocatalysts For Full Water Splitting. 2019 , 5, 761-765	11

583	Co ₃ O ₄ /NiO bifunctional electrocatalyst for water splitting. 2019 , 306, 9-17	47
582	Interfacial nickel nitride/sulfide as a bifunctional electrode for highly efficient overall water/seawater electrolysis. 2019 , 7, 8117-8121	86
581	2D Free-Standing Nitrogen-Doped Ni-Ni S @Carbon Nanoplates Derived from Metal-Organic Frameworks for Enhanced Oxygen Evolution Reaction. 2019 , 15, e1900348	62
580	Interface Coupling of Ni ₂ S ₃ Layered Double Hydroxide Nanowires and Cobalt-Based Zeolite Organic Frameworks for Efficient Overall Water Splitting. 2019 , 7, 8255-8264	25
579	Pt embedded Ni ₃ Se ₂ @NiOOH core-shell dendrite-like nanoarrays on nickel as bifunctional electrocatalysts for overall water splitting. 2019 , 62, 1096-1104	28
578	Ni ₃ ZnCo _{0.7} nanodots decorating nitrogen-doped carbon nanotube arrays as a self-standing bifunctional electrocatalyst for water splitting. 2019 , 148, 496-503	36
577	Hierarchical hetero-Ni ₃ Se ₄ @NiFe LDH micro/nanosheets as efficient bifunctional electrocatalysts with superior stability for overall water splitting. 2019 , 4, 1132-1138	54
576	Tuning the coupling interface of ultrathin NiS@NiV-LDH heterogeneous nanosheet electrocatalysts for improved overall water splitting. 2019 , 11, 8855-8863	80
575	Self-supported core/shell Co ₃ O ₄ @Ni ₃ S ₂ nanowires for high-performance supercapacitors. 2019 , 311, 221-229	42
574	High catalytic performance of nickel foam supported Co ₂ P-Ni ₂ P for overall water splitting and its structural evolutions during hydrogen/oxygen evolution reactions in alkaline solutions. 2019 , 373, 81-92	49
573	Nanoarchitectonics for Transition-Metal-Sulfide-Based Electrocatalysts for Water Splitting. 2019 , 31, e1807134	613
572	Tree-Like NiS ₂ /MoS ₂ -RGO Nanocomposites as pH Universal Electrocatalysts for Hydrogen Evolution Reaction. 2019 , 149, 1197-1210	22
571	Interface Engineering of Co(OH)/Ag/FeP Hierarchical Superstructure as Efficient and Robust Electrocatalyst for Overall Water Splitting. 2019 , 11, 7936-7945	48
570	Ultrathin CoS nanosheets vertically aligned on N,S/rGO for low voltage electrolytic water in alkaline media. 2019 , 9, 1951	25
569	Metal-organic framework derived Co ₃ O ₄ /MoS ₂ heterostructure for efficient bifunctional electrocatalysts for oxygen evolution reaction and hydrogen evolution reaction. 2019 , 248, 202-210	191
568	Controllable synthesis of nickel sulfide nanocatalysts and their phase-dependent performance for overall water splitting. 2019 , 11, 5646-5654	90
567	Tungsten Carbide Hollow Microspheres with Robust and Stable Electrocatalytic Activity toward Hydrogen Evolution Reaction. 2019 , 4, 4185-4191	17
566	Tailorable surface sulfur chemistry of mesoporous Ni ₃ S ₂ particles for efficient oxygen evolution. 2019 , 7, 7548-7552	47

565	Highly efficient oxygen evolution electrocatalysts based on nanosheet-shaped CuS in situ grown on carbon cloth. 2019 , 45, 10664-10671	24
564	Tip-Welded Ternary FeCo ₂ S ₄ Nanotube Arrays on Carbon Cloth as Binder-Free Electrocatalysts for Highly Efficient Oxygen Evolution. 2019 , 7, 19426-19433	18
563	Construction of a MnCo ₂ O ₄ @Ni _y M _x (S and P) crosslinked network for efficient electrocatalytic water splitting. 2019 , 21, 7293-7302	7
562	Synergistic engineering of architecture and composition in NiCoMoO@CoMoO nanobrush arrays towards efficient overall water splitting electrocatalysis. 2019 , 11, 22820-22831	19
561	Hydrogen Evolution Catalytic Performance of Metal Doped MoS ₂ . 2019 , 1407, 012070	
560	Yolk-shell hierarchical catalyst with tremella-like molybdenum sulfide on transition metal (Co, Ni and Fe) sulfide for electrochemical water splitting. 2019 , 55, 14343-14346	11
559	Electronic modulation of composite electrocatalysts derived from layered NiFeMn triple hydroxide nanosheets for boosted overall water splitting. 2019 , 11, 20797-20808	17
558	Interface engineering: few-layer MoS ₂ coupled to a NiCo-sulfide nanosheet heterostructure as a bifunctional electrocatalyst for overall water splitting. 2019 , 7, 27594-27602	46
557	Hierarchical Amorphous Carbon-Coated Co/Co ₉ S ₈ Nanoparticles on MoS ₂ toward Synergetic Electrocatalytic Water Splitting. 2019 , 58, 23093-23098	5
556	Multiple modulations of pyrite nickel sulfides via metal heteroatom doping engineering for boosting alkaline and neutral hydrogen evolution. 2019 , 7, 25628-25640	40
555	Rationally design of monometallic NiO-Ni ₃ S ₂ /NF heteronanosheets as bifunctional electrocatalysts for overall water splitting. 2019 , 369, 345-351	62
554	[Mo ₃ S ₁₃] ₂ modified TiO ₂ coating on non-woven fabric for efficient photocatalytic mineralization of acetone. 2019 , 245, 190-196	17
553	Bundle-shaped cobalt/nickel selenides as advanced electrocatalysts for water oxidation. 2019 , 44, 2868-2876	17
552	Facile Dynamic Synthesis of Homodispersed Ni ₃ S ₂ Nanosheets as a High-Efficient Bifunctional Electrocatalyst for Water Splitting. 2019 , 11, 1320-1327	14
551	Mo-Doped Cu/Co Hybrid Oxide Nanoarrays: An Enhanced Electrocatalytic Performance for the Hydrogen Evolution Reaction. 2019 , 6, 1738-1744	14
550	Nitrogen-Doped Cu ₂ S/MoS ₂ Heterojunction Nanorod Arrays on Copper Foam for Efficient Hydrogen Evolution Reaction. 2019 , 11, 1354-1361	42
549	Hierarchical MoSe ₂ -CoSe ₂ nanotubes anchored on graphene nanosheets: A highly efficient and stable electrocatalyst for hydrogen evolution in alkaline medium. 2019 , 299, 197-205	47
548	Template-Driven Phase Selective Formation of Metallic 1T-MoS ₂ Nanoflowers for Hydrogen Evolution Reaction. 2019 , 7, 2008-2017	30

547	MoS ₂ /NiS ₂ Yolk-Shell Microsphere-Based Electrodes for Overall Water Splitting and Asymmetric Supercapacitor. 2019 , 15, e1803639	134
546	Nanoporous CuCo ₂ O ₄ nanosheets as a highly efficient bifunctional electrode for supercapacitors and water oxidation catalysis. 2019 , 470, 360-367	55
545	Co/CoO _x nanoparticles inlaid onto nitrogen-doped carbon-graphene as a trifunctional electrocatalyst. 2019 , 296, 830-841	71
544	The synergistic effect of light irradiation and interface engineering of the Co(OH) ₂ /MoS ₂ heterostructure to realize the efficient alkaline hydrogen evolution reaction. 2019 , 299, 618-625	31
543	Co ₉ S ₈ /Ni ₃ S ₂ heterointerfaced nanotubes on Ni foam as highly efficient and flexible bifunctional electrodes for water splitting. 2019 , 299, 152-162	55
542	Carbon Dots Decorated Hierarchical NiCo ₂ S ₄ /Ni ₃ S ₂ Composite for Efficient Water Splitting. 2019 , 7, 2610-2618	34
541	Facile fabrication of a binary NiCo phosphide with hierarchical architecture for efficient hydrogen evolution reactions. 2019 , 44, 4188-4196	22
540	Salt-templated synthesis of Co ₉ S ₈ nanoparticles anchored on N, S co-doped carbon nanosheets towards high-performance water oxidation. 2019 , 835, 67-72	5
539	Helical cobalt borophosphates to master durable overall water-splitting. 2019 , 12, 988-999	138
538	Green synthesis of NiFe LDH/Ni foam at room temperature for highly efficient electrocatalytic oxygen evolution reaction. 2019 , 62, 681-689	40
537	Monolithic Ni _x My (M = OH, P, S, Se) nanosheets as efficient and stable electrocatalysts for overall water splitting. 2019 , 295, 148-156	15
536	Holey Ni-Cu phosphide nanosheets as a highly efficient and stable electrocatalyst for hydrogen evolution. 2019 , 243, 537-545	86
535	Hierarchical Cobalt Sulfide/Molybdenum Sulfide Heterostructure as Bifunctional Electrocatalyst towards Overall Water Splitting. 2019 , 6, 430-438	29
534	In situ hydrothermal growth of metallic Co ₉ S ₈ -Ni ₃ S ₂ nanoarrays on nickel foam as bifunctional electrocatalysts for hydrogen and oxygen evolution reactions. 2019 , 270, 398-406	36
533	Efficient bifunctional vanadium-doped Ni ₃ S ₂ nanorod array for overall water splitting. 2019 , 6, 443-450	39
532	Synergistically well-mixed MOFs grown on nickel foam as highly efficient durable bifunctional electrocatalysts for overall water splitting at high current densities. 2019 , 57, 1-13	127
531	When MoS ₂ meets FeOOH: A one-stone-two-birds heterostructure as a bifunctional electrocatalyst for efficient alkaline water splitting. 2019 , 244, 1004-1012	84
530	Hollow Ni ₂ Mo Chalcogenide Nanopetals as Bifunctional Electrocatalyst for Overall Water Splitting. 2019 , 7, 1622-1632	27

529	Heterogeneous cobalt phosphides nanoparticles anchored on carbon cloth realizing the efficient hydrogen generation reaction. 2019 , 44, 531-539	11
528	Bimetallic Ni ₂ -xCo _x P/N-doped carbon nanofibers: Solid-solution-alloy engineering toward efficient hydrogen evolution. 2019 , 244, 620-627	83
527	Structural Design and Electronic Modulation of Transition-Metal-Carbide Electrocatalysts toward Efficient Hydrogen Evolution. 2019 , 31, e1802880	267
526	CoNiSe ₂ heteronanorods decorated with layered-double-hydroxides for efficient hydrogen evolution. 2019 , 242, 132-139	132
525	Recent progress of mesoscience in design of electrocatalytic materials for hydrogen energy conversion. 2020 , 48, 19-33	8
524	One-step electrosynthesis of NiFe-NF electrodes for highly efficient overall water splitting. 2020 , 503, 144122	16
523	Morphology engineering of 3D nanostructure MMNS as bifunctional electrocatalysts towards high-efficient overall water splitting. 2020 , 502, 144147	11
522	Graphene layer encapsulated MoNi ₄ -NiMoO ₄ for electrocatalytic water splitting. 2020 , 504, 144390	16
521	Enhanced reduction of nitrate by noble metal-free electrocatalysis on P doped three-dimensional Co ₃ O ₄ cathode: Mechanism exploration from both experimental and DFT studies. 2020 , 382, 123034	85
520	3D hierarchical local heterojunction of MoS ₂ /FeS ₂ for enhanced microwave absorption. 2020 , 379, 122241	79
519	Redox bifunctional activities with optical gain of Ni ₃ S ₂ nanosheets edged with MoS ₂ for overall water splitting. 2020 , 268, 118435	62
518	Hatted 1T/2H-Phase MoS on Ni S Nanorods for Efficient Overall Water Splitting in Alkaline Media. 2020 , 26, 2034-2040	12
517	Molybdenum-based nanoparticles (Mo ₂ C, MoP and MoS ₂) coupled heteroatoms-doped carbon nanosheets for efficient hydrogen evolution reaction. 2020 , 263, 118352	81
516	Generating highly active Ni(HPO)(OH)/MnO catalyst for electrocatalytic hydrogen evolution reaction by electrochemical activation. 2020 , 560, 714-721	10
515	Highly dispersive bimetallic sulfides afforded by crystalline polyoxometalate-based coordination polymer precursors for efficient hydrogen evolution reaction. 2020 , 446, 227319	43
514	A highly active and durable electrocatalyst for large current density hydrogen evolution reaction. 2020 , 65, 123-130	31
513	Bimetal Networked Nanosheets CoxNi ₃ S ₂ as An Efficient Electrocatalyst for Hydrogen Evolution. 2020 , 12, 609-614	6
512	Recent Advances in Electrocatalytic Hydrogen Evolution Using Nanoparticles. 2020 , 120, 851-918	722

511	Three dimensional Ni ₃ S ₂ nanorod arrays as multifunctional electrodes for electrochemical energy storage and conversion applications. 2020 , 2, 478-488	7
510	Ce dopant significantly promotes the catalytic activity of Ni foam-supported Ni ₃ S ₂ electrocatalyst for alkaline oxygen evolution reaction. 2020 , 450, 227654	20
509	Amorphous CoFe(OH) _x hollow hierarchical structure: an efficient and durable electrocatalyst for oxygen evolution reaction. 2020 , 10, 215-221	24
508	Construction of hierarchical yolk-shell nanospheres organized by ultrafine Janus subunits for efficient overall water splitting. 2020 , 12, 2578-2586	6
507	Improving the HER activity of Ni ₃ FeN to convert the superior OER electrocatalyst to an efficient bifunctional electrocatalyst for overall water splitting by doping with molybdenum. 2020 , 333, 135488	20
506	Zeolitic imidazolate framework derived Co ₃ S ₄ hybridized MoS ₂ /Ni ₃ S ₂ heterointerface for electrochemical overall water splitting reactions. 2020 , 334, 135537	26
505	3D hierarchical CuS microflowers constructed on copper powders-filled nickel foam as advanced binder-free electrodes. 2020 , 821, 153437	12
504	Rich P vacancies modulate NiP/CuP interfaced nanosheets for electrocatalytic alkaline water splitting. 2020 , 564, 37-42	21
503	Highly reversible water splitting cell building from hierarchical 3D nickel manganese oxyphosphide nanosheets. 2020 , 69, 104432	44
502	Molybdenum Sulfide Nanosheets Coupled with Ni ₂ P Hollow Microspheres as an Efficient Electrocatalyst for Hydrogen Generation over a Wide pH Range Mediated by a 3D/2D Interface. 2020 , 7, 355-361	3
501	Effect of rGO on Fe ₂ O ₃ /TiO ₂ composite incorporated NiP coating for boosting hydrogen evolution reaction in alkaline solution. 2020 , 45, 2460-2477	22
500	Well-defined CoSe@MoSe hollow heterostructured nanocubes with enhanced dissociation kinetics for overall water splitting. 2020 , 12, 326-335	36
499	Fe _x Ni _y /CeO ₂ loaded on N-doped nanocarbon as an advanced bifunctional electrocatalyst for the overall water splitting. 2020 , 7, 470-476	17
498	Bifunctional CdS@Co ₉ S ₈ /Ni ₃ S ₂ catalyst for efficient electrocatalytic and photo-assisted electrocatalytic overall water splitting. 2020 , 8, 3083-3096	43
497	W doping dominated NiO/NiS interfaced nanosheets for highly efficient overall water splitting. 2020 , 562, 363-369	20
496	Earth-abundant transition-metal-based bifunctional catalysts for overall electrochemical water splitting: A review. 2020 , 819, 153346	115
495	Engineering vanadium phosphide by iron doping as bifunctional electrocatalyst for overall water splitting. 2020 , 333, 135531	16
494	Advanced catalysts for hydrogen evolution reaction based on MoS ₂ /NiCo ₂ S ₄ heterostructures in Alkaline Media. 2020 , 45, 1759-1768	12

493	Interfacial Electronic Modulation of Multishelled CoP Hollow Spheres via Surface Reconstruction for High-Efficient Hydrogen Evolution Reaction. 2020 , 3, 309-318	16
492	In Situ Crystallization of Active NiOOH/CoOOH Heterostructures with Hydroxide Ion Adsorption Sites on Velutipes-like CoSe/NiSe Nanorods as Catalysts for Oxygen Evolution and Cocatalysts for Methanol Oxidation. 2020 , 12, 686-697	40
491	3D Carbon Foam Supported Edge-Rich N-Doped MoS Nanoflakes for Enhanced Electrocatalytic Hydrogen Evolution. 2019 , 26, 4150	9
490	Interlaced rosette-like MoS ₂ /Ni ₃ S ₂ /NiFe-LDH grown on nickel foam: A bifunctional electrocatalyst for hydrogen production by urea-assisted electrolysis. 2020 , 45, 23-35	33
489	CoP nanowires coupled with CoMoP nanosheets as a highly efficient cooperative catalyst for hydrogen evolution reaction. 2020 , 68, 104332	105
488	Novel 2D hybrids composed of SnInS nanoplates on BiOBr nanosheets for enhanced photocatalytic applications. 2019 , 31, 105202	3
487	Immobilization of NiCo Nanoparticles into N-Doped Carbon Nanotube/Nanofiber Integrated Hierarchically Branched Architectures toward Efficient Overall Water Splitting. 2020 , 7, 1902371	51
486	Vertically aligned NiS ₂ /CoS ₂ /MoS ₂ nanosheet array as an efficient and low-cost electrocatalyst for hydrogen evolution reaction in alkaline media. 2020 , 65, 359-366	23
485	Plasma-Engineered MoP with nitrogen doping: Electron localization toward efficient alkaline hydrogen evolution. 2020 , 268, 118441	39
484	Chalcogenide nanocomposite electrodes grown by chemical etching of Ni-foam as electrocatalyst for efficient oxygen evolution reaction. 2020 , 44, 1233-1243	12
483	The Combination of MoS/WO and Its Adsorption Properties of Methylene Blue at Low Temperatures. 2019 , 25,	11
482	Hierarchical heterostructured nickel foam-supported Co ₃ S ₄ nanorod arrays embellished with edge-exposed MoS ₂ nanoflakes for enhanced alkaline hydrogen evolution reaction. 2020 , 18, 100513	15
481	Multi-dimensional collaboration promotes the catalytic performance of 1D MoO nanorods decorated with 2D NiS nanosheets for efficient water splitting. 2020 , 12, 21850-21856	13
480	Ultrathin MoS ₂ nanosheets in situ grown on rich defective Ni _{0.96} S as heterojunction bifunctional electrocatalysts for alkaline water electrolysis. 2020 , 45, 29929-29937	20
479	Iron nanoparticles loaded on nickel sulfide nanosheets: an efficient amorphous catalyst for water oxidation. 2020 , 4, 5498-5502	1
478	Nickel foam-supported Fe,Ni-Polyporphyrin microparticles: Efficient bifunctional catalysts for overall water splitting in alkaline media. 2020 , 45, 28860-28869	7
477	A critical review: 1D/2D nanostructured self-supported electrodes for electrochemical water splitting. 2020 , 474, 228621	38
476	Research progress and surface/interfacial regulation methods for electrophotocatalytic hydrogen production from water splitting. 2020 , 18, 100524	12

475	Synergistic antibacterial activity of streptomycin sulfate loaded PEG-MoS ₂ /rGO nanoflakes assisted with near-infrared. 2020 , 116, 111221	10
474	Highly improved electrocatalytic activity of NiS _x : Effects of Cr-doping and phase transition. 2020 , 267, 118721	34
473	Solid-State C-S Coupling in Nickel Organochalcogenide Frameworks as a Route to Hierarchical Structure Transfer to Binary Nanomaterials. 2020 , 59, 10835-10844	2
472	Hierarchical Highly Wrinkled Trimetallic NiFeCu Phosphide Nanosheets on Nanodendrite NiS/Ni Foam as an Efficient Electrocatalyst for the Oxygen Evolution Reaction. 2020 , 12, 36268-36276	23
471	FeNiS _x @MoS ₂ Heterostructure: A Bioinspired Nonprecious Electrocatalyst for the Hydrogen Evolution Reaction in Acidic and Basic Media. 2020 , 7, 3324-3335	7
470	Al-doped nickel sulfide nanosheet arrays as highly efficient bifunctional electrocatalysts for overall water splitting. 2020 , 12, 24244-24250	15
469	Increasing the active sites and intrinsic activity of transition metal chalcogenide electrocatalysts for enhanced water splitting. 2020 , 8, 25465-25498	36
468	Biodeposited Nano-CdS Drives the In Situ Growth of Highly Dispersed Sulfide Nanoparticles during Pyrolysis for Enhanced Oxygen Evolution Reaction. 2020 , 12, 54553-54562	8
467	Fabrication strategies of porous precious-metal-free bifunctional electrocatalysts for overall water splitting: Recent advances. 2020 , 6, 620-620	7
466	Aggregates of Ni/Ni(OH)/NiOOH Nanoworms on Carbon Cloth for Electrocatalytic Hydrogen Evolution. 2020 , 36, 14019-14030	7
465	Urea-assisted enhanced electrocatalytic activity of MoS ₂ /Ni ₃ S ₂ for overall water splitting. 2020 , 7, 3588-3597	14
464	High-performance bifunctional Fe-doped molybdenum oxide-based electrocatalysts with in situ grown epitaxial heterojunctions for overall water splitting. 2020 , 45, 24828-24839	14
463	Strategic Atomic Layer Deposition and Electrospinning of Cobalt Sulfide/Nitride Composite as Efficient Bifunctional Electrocatalysts for Overall Water Splitting. 2020 , 16, e2002432	23
462	A review on nickel cobalt sulphide and their hybrids: Earth abundant, pH stable electro-catalyst for hydrogen evolution reaction. 2020 , 45, 24518-24543	34
461	Synergistic Coupling of Ni Nanoparticles with Ni C Nanosheets for Highly Efficient Overall Water Splitting. 2020 , 16, e2001642	55
460	Microstructure Optimization of MoS ₂ /Sepiolite Nanocomposites via a Surfactant-Assisted Hydrothermal Strategy for High Efficiency Photocatalysis. 2020 , 2020, 1-7	3
459	Covalent 0D/2D Heterostructuring of Co ₉ S ₈ /MoS ₂ for Enhanced Hydrogen Evolution in All pH Electrolytes. 2020 , 30, 2002536	52
458	Superb Hydrogen Evolution by a Pt Nanoparticle-Decorated NiS Microrod Array. 2020 , 12, 39163-39169	23

457	NiCoP/NiOOH nanoflowers loaded on ultrahigh porosity Co foam for hydrogen evolution reaction under large current density. 2020,	3
456	Synthesis of Ni ₃ S ₂ catalysts using various sulphur sources and their HER and OER performances. 2020, 22, 6517-6528	9
455	MoS ₂ Nanosheets Functionalized Multichannel Hollow Mo ₂ N/Carbon Nanofibers as a Robust Bifunctional Catalyst for Water Electrolysis. 2020, 8, 14179-14189	8
454	Ultrathin and porous γ -FeOOH modified Ni ₃ S ₂ 3D heterostructure nanosheets with excellent alkaline overall water splitting performance. 2020, 8, 21199-21207	25
453	Fe-doped Ni ₃ S ₂ nanoneedles directly grown on Ni foam as highly efficient bifunctional electrocatalysts for alkaline overall water splitting. 2020, 361, 137080	25
452	Uncovering the role of Ag in layer-alternating Ni ₃ S ₂ /Ag/Ni ₃ S ₂ as an electrocatalyst with enhanced OER performance. 2020, 7, 3627-3635	15
451	P-doped nickel sulfide nanosheet arrays for alkaline overall water splitting. 2020, 10, 7581-7590	6
450	Interface engineering of Ag-NiS heterostructures toward efficient alkaline hydrogen evolution. 2020, 12, 19333-19339	12
449	Constructing Ni ₃ S ₂ /NiS heterostructured nanosheets for efficient overall water splitting. 2020, 7, 4924-4929	1
448	Enhancing the water splitting performance decorating CoO nanoarrays with ruthenium doping and phosphorization.. 2020, 10, 27235-27241	3
447	Heterostructural Ni ₃ S ₂ /Fe ₅ Ni ₄ S ₈ hybrids for efficient electrocatalytic oxygen evolution. 2020, 55, 15963-15974	3
446	Boosting Hydrogen Evolution Reaction Activities of Three-Dimensional Flower-like Tungsten Carbonitride via Anion Regulation. 2020, 8, 14109-14116	9
445	Regulating the electronic structure of CoMoO microrod by phosphorus doping: an efficient electrocatalyst for the hydrogen evolution reaction. 2020, 49, 13152-13159	9
444	One-pot synthesis of Mn-Fe bimetallic oxide heterostructures as bifunctional electrodes for efficient overall water splitting. 2020, 12, 19992-20001	14
443	MoS ₂ /CoB with Se doping on carbon cloth to drive overall water-splitting in an alkaline electrolyte. 2020, 4, 5036-5041	14
442	Nickel-Iron Nitride-Nickel Sulfide Composites for Oxygen Evolution Electrocatalysis. 2020, 12, 41464-41470	17
441	Surface in situ self-reconstructing hierarchical structures derived from ferrous carbonate as efficient bifunctional iron-based catalysts for oxygen and hydrogen evolution reactions. 2020, 8, 18367-18375	7
440	Facile one-step deposition of Co ₃ O ₄ -MoS ₂ nanocomposites using a vacuum kinetic spray process for non-enzymatic H ₂ O ₂ sensing. 2020, 21, 100748	6

439	Nitrogen-Doped Hierarchical Heterostructured Aerophobic MoS _x /Ni ₃ S ₂ Nanowires by One-pot Synthesis: System Engineering and Synergistic Effect in Electrocatalysis of Hydrogen Evolution Reaction. 2020 ,	9
438	Three-Dimensional Transition Metal Phosphide Heteronanorods for Efficient Overall Water Splitting. 2020 , 13, 3718-3725	14
437	"Lewis Base-Hungry" Amorphous-Crystalline Nickel Borate-Nickel Sulfide Heterostructures by In Situ Structural Engineering as Effective Bifunctional Electrocatalysts toward Overall Water Splitting. 2020 , 12, 23896-23903	23
436	Sulfur vacancies promoting Fe-doped Ni ₃ S ₂ nanopyramid arrays as efficient bifunctional electrocatalysts for overall water splitting. 2020 , 4, 3326-3333	20
435	Composition Engineering-Triggered Bifunctionality of Free-Standing Coral-Like 1T-MoS ₂ for Highly Efficient Overall Water Splitting. 2020 , 8, 2000268	4
434	Facile synthesis of Co and Ce dual-doped Ni ₃ S ₂ nanosheets on Ni foam for enhanced oxygen evolution reaction. 2020 , 13, 2130-2135	32
433	Surface and interface engineering of noble-metal-free electrocatalysts for efficient overall water splitting. 2020 , 418, 213374	91
432	Heterostructured Inter-Doped Ruthenium-Cobalt Oxide Hollow Nanosheet Arrays for Highly Efficient Overall Water Splitting. 2020 , 132, 17372-17377	12
431	Heterostructured Inter-Doped Ruthenium-Cobalt Oxide Hollow Nanosheet Arrays for Highly Efficient Overall Water Splitting. 2020 , 59, 17219-17224	95
430	Amorphous NiWO ₄ nanoparticles boosting the alkaline hydrogen evolution performance of Ni ₃ S ₂ electrocatalysts. 2020 , 274, 119120	46
429	N-doped Ni-Mo based sulfides for high-efficiency and stable hydrogen evolution reaction. 2020 , 276, 119137	77
428	Defects engineering of bimetallic Ni-based catalysts for electrochemical energy conversion. 2020 , 418, 213372	19
427	Scalable solid-state synthesis of MoS ₂ /Ni ₃ S ₂ /graphene nanohybrids as bifunctional electrocatalysts for enhanced overall water splitting. 2020 , 1, 794-803	9
426	Anion-modulated nickel-based nanoheterostructures as high performance electrocatalysts for hydrogen evolution reaction. 2020 , 8, 12013-12027	5
425	Hierarchical nickel cobalt sulfide nanosheet arrays supported on CuO/Cu hybrid foams as a rationally designed core-shell dendrite electrocatalyst for an efficient oxygen evolution reaction. 2020 , 4, 4039-4045	5
424	Evaluation of electrochemical properties for water splitting by NiO nano-cubes synthesized using <i>Olea ferruginea</i> Royle. 2020 , 40, 100753	7
423	Self-grown one-dimensional nickel sulfo-selenide nanostructured electrocatalysts for water splitting reactions. 2020 , 45, 15904-15914	15
422	NiCo-LDHs derived NiCo ₂ S ₄ nanostructure coated by MoS ₂ nanosheets as high-efficiency bifunctional electrocatalysts for overall water splitting. 2020 , 397, 126065	7

4 ²¹	CoNiSe Nanostructures for Clean Energy Production. 2020 , 5, 14702-14710	8
4 ²⁰	Facile one-pot synthesis of binder-free nano/micro structured dendritic cobalt activated nickel sulfide: a highly efficient electrocatalyst for oxygen evolution reaction. 2020 , 45, 19304-19312	7
4 ¹⁹	Water Splitting: From Electrode to Green Energy System. 2020 , 12, 131	106
4 ¹⁸	CoreShell Dendritic Superstructural Catalysts by Design for Highly Efficient and Stable Electrochemical Oxygen Evolution Reaction. 2020 , 7, 2000777	5
4 ¹⁷	MoS ₂ /NiS heterostructure grown on Nickel Foam as highly efficient bifunctional electrocatalyst for overall water splitting. 2020 , 45, 17329-17338	7
4 ¹⁶	Recent Studies on Multifunctional Electrocatalysts for Fuel Cell by Various Nanomaterials. 2020 , 10, 621	3
4 ¹⁵	Dynamically controlled growth of CuMoD nanosheets for efficient electrocatalytic hydrogen evolution. 2020 , 8, 9337-9344	1
4 ¹⁴	Vermicular Ni ₃ S ₂ /Ni(OH) ₂ heterostructure supported on nickel foam as efficient electrocatalyst for hydrogen evolution reaction in alkaline solution. 2020 , 45, 11138-11147	16
4 ¹³	Recent advances of two-dimensional molybdenum disulfide based materials: Synthesis, modification and applications in energy conversion and storage. 2020 , 24, e00161	8
4 ¹²	NixFe _{1-x} B nanoparticle self-modified nanosheets as efficient bifunctional electrocatalysts for water splitting: experiments and theories. 2020 , 8, 7360-7367	13
4 ¹¹	Creating Competitive Active Sites on CNTs Walls by N-Doping and Sublayer Co ₄ N Encapsulating for Efficient Hydrogen Evolution Reaction. 2020 , 7, 2065-2072	2
4 ¹⁰	Superhydrophilic MoS ₂ /Ni ₃ S ₂ nanoflake heterostructures grown on 3D Ni foam as an efficient electrocatalyst for overall water splitting. 2020 , 31, 6607-6617	6
4 ⁰⁹	Low-Coordinate Step Atoms via Plasma-Assisted Calcinations to Enhance Electrochemical Reduction of Nitrogen to Ammonia. 2020 , 16, e2000421	18
4 ⁰⁸	Interface Engineering of Hierarchical Branched Mo-Doped Ni ₃ S ₂ /NixPy Hollow Heterostructure Nanorods for Efficient Overall Water Splitting. 2020 , 10, 1903891	225
4 ⁰⁷	In-situ growth of Ni nanoparticle-encapsulated N-doped carbon nanotubes on carbon nanorods for efficient hydrogen evolution electrocatalysis. 2020 , 13, 975-982	25
4 ⁰⁶	Molybdenum and Phosphorous Dual Doping in Cobalt Monolayer Interfacial Assembled Cobalt Nanowires for Efficient Overall Water Splitting. 2020 , 30, 2002533	52
4 ⁰⁵	One step in-situ synthesis of Ni ₃ S ₂ /Fe ₂ O ₃ /N-doped carbon composites on Ni foam as an efficient electrocatalyst for overall water splitting. 2020 , 527, 146918	13
4 ⁰⁴	Surface-Induced 2D/1D Heterostructured Growth of ReS/CoS for High-Performance Electrocatalysts. 2020 , 12, 33586-33594	12

403	MOF-Derived Sulfide-Based Electrocatalyst and Scaffold for Boosted Hydrogen Production. 2020 , 12, 33595-33602	32
402	MoS ₂ /NiS core-shell structures for improved electrocatalytic process of hydrogen evolution. 2020 , 472, 228497	14
401	Addressing the OER/HER imbalance by a redox transition-induced two-way electron injection in a bifunctional n-p-n electrode for excellent water splitting. 2020 , 8, 13218-13230	8
400	Facile synthesis of NiS ₂ /MoS ₂ heterostructured nanoflowers for enhanced overall water splitting performance. 2020 , 55, 13892-13904	9
399	Hierarchical CoMoS nanoflowers as efficient electrocatalyst for hydrogen evolution reaction in neutral media. 2020 , 844, 156108	7
398	Core-shell nanostructured electrocatalysts for water splitting. 2020 , 12, 15944-15969	38
397	A flower-like CoS/MoS heteronanoshet array as an active and stable electrocatalyst toward the hydrogen evolution reaction in alkaline media.. 2020 , 10, 8973-8981	10
396	Mo-Doped Zn, Co Zeolitic Imidazolate Framework-Derived CoS Quantum Dots and MoS Embedded in Three-Dimensional Nitrogen-Doped Carbon Nanoflake Arrays as an Efficient Trifunctional Electrocatalysts for the Oxygen Reduction Reaction, Oxygen Evolution Reaction, and Hydrogen Evolution Reaction. 2020 , 12, 10280-10290	33
395	3D Graphene-Based H ₂ -Production Photocatalyst and Electrocatalyst. 2020 , 10, 1903802	109
394	Ambient Growth of Hierarchical FeOOH/MXene as Enhanced Electrocatalyst for Oxygen Evolution Reaction. 2020 , 5, 1890-1895	19
393	1D/2D Cobalt-Based Nanohybrids as Electrocatalysts for Hydrogen Generation. 2020 , 30, 1908467	19
392	Highly efficient and stable Si photocathode with hierarchical MoS ₂ /Ni ₃ S ₂ catalyst for solar hydrogen production in alkaline media. 2020 , 71, 104631	33
391	Synthesis of Synergistic Nitrogen-Doped NiMoO ₄ /Ni ₃ N Heterostructure for Implementation of an Efficient Alkaline Electrocatalytic Hydrogen Evolution Reaction. 2020 , 3, 2440-2449	12
390	Three-dimensional (3D) hierarchical coral-like Mn-doped Ni ₂ P/Ni ₅ P ₄ /NF catalyst for efficient oxygen evolution. 2020 , 826, 154210	23
389	NiP/rGO/NF Nanosheets As a Bifunctional High-Performance Electrocatalyst for Water Splitting. 2020 , 13,	7
388	Vertically-aligned Pt-decorated MoS ₂ nanosheets coated on TiO ₂ nanotube arrays enable high-efficiency solar-light energy utilization for photocatalysis and self-cleaning SERS devices. 2020 , 71, 104579	54
387	Interlaced Pd-Ag nanowires rich in grain boundary defects for boosting oxygen reduction electrocatalysis. 2020 , 12, 5368-5373	12
386	Co-doped Ni ₃ S ₂ hierarchical nanoarrays derived from zeolitic imidazolate frameworks as bifunctional electrocatalysts for highly enhanced overall-water-splitting activity. 2020 , 827, 154299	17

385	Constructing MoS ₂ /g-C ₃ N ₄ heterojunction with enhanced oxygen evolution reaction activity: A theoretical insight. 2020 , 510, 145489	30
384	Solution-Phase Activation and Functionalization of Colloidal WS Nanosheets with Ni Single Atoms. 2020 , 14, 2238-2247	23
383	Hybrid NiS-MoS nanowire arrays as a pH-universal catalyst for accelerating the hydrogen evolution reaction. 2020 , 56, 2471-2474	18
382	Ultrathin Ni(0)-Embedded Ni(OH) Heterostructured Nanosheets with Enhanced Electrochemical Overall Water Splitting. 2020 , 32, e1906915	108
381	Recent Advances on the Use of Nickel Nano Layered Double Hydroxides as Green, and Efficient, Catalysts for Water Splitting. 2020 , 150, 1942-1956	13
380	Preparation of molybdenum phosphide nanoparticles/nitrogen-phosphorus co-doped carbon nanosheet composites for efficient hydrogen evolution reaction. 2020 , 284, 121182	7
379	Facile synthesis of CoSe nanoparticles encapsulated in N-doped carbon nanotubes-grafted N-doped carbon nanosheets for water splitting. 2020 , 337, 135685	14
378	Design, Synthesis and High HER Performances of 3D Ni/Mo Sulfide on Ni Foam. 2020 , 12, 1647-1652	9
377	Amorphous Ni-Fe-Mo Suboxides Coupled with Ni Network as Porous Nanoplate Array on Nickel Foam: A Highly Efficient and Durable Bifunctional Electrode for Overall Water Splitting. 2020 , 7, 1902034	50
376	In situ interfacial engineering of nickel tungsten carbide Janus structures for highly efficient overall water splitting. 2020 , 65, 640-650	22
375	Synergetic effect between MoS ₂ and N, S- doped reduced graphene oxide supported palladium nanoparticles for hydrogen evolution reaction. 2020 , 251, 123106	15
374	An Electrochemical Valorization Fuel Cell for Simultaneous Electroorganic and Hydrogen Fuel Syntheses. 2020 , 124, 11284-11292	2
373	Three-dimensional nanoflower-like hierarchical array of multifunctional copper cobaltate electrode as efficient electrocatalyst for oxygen evolution reaction and energy storage application. 2020 , 576, 476-485	23
372	Effect of cation substitution on the water splitting performance of spinel cobaltite MCo ₂ S ₄ (M = Ni, Cu and Co). 2020 , 45, 12012-12025	4
371	Facile fabrication of Ir/CNT/rGO nanocomposites with enhanced electrocatalytic performance for the hydrogen evolution reaction. 2020 , 4, 3288-3292	8
370	Nanoheterostructures of Partially Oxidized RuNi Alloy as Bifunctional Electrocatalysts for Overall Water Splitting. 2020 , 13, 2739-2744	9
369	Ultrathin-layered MoS ₂ hollow nanospheres decorating Ni ₃ S ₂ nanowires as high effective self-supporting electrode for hydrogen evolution reaction. 2020 , 45, 13149-13162	14
368	F dopants triggered active sites in bifunctional cobalt sulfide@nickel foam toward electrocatalytic overall water splitting in neutral and alkaline media: Experiments and theoretical calculations. 2020 , 385, 129-139	26

- 367 One-dimensional mesoporous inorganic nanostructures and their applications in energy, sensor, catalysis and adsorption. **2020**, 113, 100671 39
- 366 Sandwich-Structured Fe-Ni₂P/MoS_x/NF Bifunctional Electrocatalyst for Overall Water Splitting. **2020**, 7, 1901926 10
- 365 Highly efficient CoMoS heterostructure derived from vertically anchored Co₅Mo₁₀ polyoxometalate for electrocatalytic overall water splitting. **2020**, 394, 124849 28
- 364 3D Holey-Graphene Architecture Expedites Ion Transport Kinetics to Push the OER Performance. **2020**, 10, 2001005 22
- 363 Ultrafine carbon encapsulated NiRu alloys as bifunctional electrocatalysts for boosting overall water splitting: morphological and electronic modulation through minor Ru alloying. **2020**, 8, 9049-9057 23
- 362 The coupling of experiments with density functional theory in the studies of the electrochemical hydrogen evolution reaction. **2020**, 8, 8783-8812 15
- 361 Cobalt phosphide nanoparticles supported within network of N-doped carbon nanotubes as a multifunctional and scalable electrocatalyst for water splitting. **2021**, 52, 130-138 37
- 360 In-situ surface self-reconstruction in ternary transition metal dichalcogenide nanorod arrays enables efficient electrocatalytic oxygen evolution. **2021**, 55, 10-16 17
- 359 Construction of Co₃O₄/Fe₂O₃ nanosheets on nickel foam as efficient electrocatalyst for the oxygen evolution reaction. **2021**, 148, 109680 7
- 358 Morphologically controlled cobalt oxide nanoparticles for efficient oxygen evolution reaction. **2021**, 582, 322-332 22
- 357 A 3D multi-interface structure of coral-like Fe-Mo-S/Ni₃S₂@NF using for high-efficiency and stable overall water splitting. **2021**, 404, 126483 25
- 356 Abundant heterointerfaces in MOF-derived hollow CoS₂/MoS₂ nanosheet array electrocatalysts for overall water splitting. **2021**, 57, 99-108 17
- 355 N-doped CoP nanoparticles embedded in electrospun N-doped porous carbon nanofiber as high-efficiency oxygen evolution electrocatalysts. **2021**, 854, 156830 7
- 354 Hierarchical MoP/NiFeP hybrid hollow spheres as highly efficient bifunctional electrocatalysts for overall water splitting. **2021**, 5, 375-385 6
- 353 Bimetallic chalcogenide nanocrystallites as efficient electrocatalyst for overall water splitting. **2021**, 852, 156736 8
- 352 Sulfide@hydroxide core-shell nanostructure via a facile heating-electrodeposition method for enhanced electrochemical and photoelectrochemical water oxidation. **2021**, 58, 431-440 4
- 351 Facile synthesis of novel carbon dots@metal organic framework composite for remarkable and highly sustained oxygen evolution reaction. **2021**, 856, 158038 11
- 350 Nanosized Co₃O₄/MoS₂ heterostructure electrodes for improving the oxygen evolution reaction in an alkaline medium. **2021**, 853, 156946 14

349	Interface engineering of transitional metal sulfide/MoS ₂ heterostructure composites as effective electrocatalysts for water-splitting. 2021 , 9, 2070-2092	37
348	One-Pot Hydrothermal Synthesis of Ni ₃ S ₂ /MoS ₂ /FeOOH Hierarchical Microspheres on Ni Foam as a High-Efficiency and Durable Dual-Function Electrocatalyst for Overall Water Splitting. 2021 , 8, 665-674	5
347	Reduced titania nanorods and NiMoS catalysts for photoelectrocatalytic water treatment and hydrogen production coupled with desalination. 2021 , 284, 119745	12
346	Self-supported NiSe@NiFe layered double hydroxide bifunctional electrocatalyst for overall water splitting. 2021 , 587, 79-89	27
345	Optimization of specific capacitance and water splitting efficiency of N-enriched carbon by incorporating oxides of transition metals via an ancient chemical technique. 2021 , 880, 114929	1
344	Integrated transition metal and compounds with carbon nanomaterials for electrochemical water splitting. 2021 , 9, 3786-3827	33
343	Optimized performance of nickel in crystal-layered arrangement of NiFe ₂ O ₄ /rGO hybrid for high-performance oxygen evolution reaction. 2021 , 46, 2617-2629	19
342	Nanoconical active structures prepared by anodization and deoxidation of molybdenum foil and their activity origin. 2021 , 851, 156896	4
341	A branch-like Mo-doped Ni ₃ S ₂ nanoforest as a high-efficiency and durable catalyst for overall urea electrolysis. 2021 , 9, 3418-3426	29
340	MOFs derived NiFeP porous nanoflowers for boosted electrocatalytic water splitting. 2021 , 312, 110760	9
339	Tailoring Binding Abilities by Incorporating Oxophilic Transition Metals on 3D Nanostructured Ni Arrays for Accelerated Alkaline Hydrogen Evolution Reaction. 2021 , 143, 1399-1408	55
338	Self-supported bifunctional electrocatalysts with Ni nanoparticles encapsulated in vertical N-doped carbon nanotube for efficient overall water splitting. 2021 , 413, 127531	14
337	Advances in synthesis, properties and emerging applications of tin sulfides and its heterostructures. 2021 , 5, 516-556	13
336	Synthesis of transition metal sulfide nanostructures for water splitting. 2021 , 311-341	
335	Highly efficient electrocatalysts for overall water splitting: mesoporous CoS/MoS with hetero-interfaces. 2021 , 57, 4847-4850	14
334	Controllable synthesis of Cu-Ni-M (M = S, P and Se) hybrid nanoarrays for efficient water splitting reaction. 2021 , 50, 2964-2972	4
333	Atomic heterointerface engineering overcomes the activity limitation of electrocatalysts and promises highly-efficient alkaline water splitting.	34
332	Surface covalent sulfur enriching Ni active sites of Ni ₃ S ₂ nanoparticles for efficient oxygen evolution. 2021 , 45, 3210-3214	2

331	Formation of graphene encapsulated cobalt-iron phosphide nanoneedles as an attractive electrocatalyst for overall water splitting. 2021 , 11, 1814-1826	6
330	Ar plasma-assisted P-doped NiS with S vacancies for efficient electrocatalytic water splitting. 2021 , 50, 2007-2013	5
329	Self-supported NiS@NiP/MoS heterostructures on nickel foam for an outstanding oxygen evolution reaction and efficient overall water splitting. 2021 , 50, 15094-15102	9
328	Electrocatalytically inactive copper improves the water adsorption/dissociation on NiS for accelerated alkaline and neutral hydrogen evolution. 2021 , 13, 2456-2464	8
327	Tuning the interfacial electronic structure via Au clusters for boosting photocatalytic H ₂ evolution. 2021 , 9, 1759-1769	9
326	Controllable synthesis of self-templated hierarchical Ni ₃ S ₂ @N-doped carbon for enhanced oxygen evolution reaction. 2021 , 2, 3971-3980	2
325	Designing Zn-doped nickel sulfide catalysts with an optimized electronic structure for enhanced hydrogen evolution reaction. 2021 , 13, 10127-10132	10
324	Enhanced oxygen evolution catalytic activity of NiS ₂ by coupling with ferrous phosphite and phosphide. 2021 , 5, 1801-1808	0
323	Fe, Ni-codoped WO ₃ grown on nickel foam as a bifunctional electrocatalyst for boosted water splitting. 2021 , 50, 11604-11609	0
322	Electronic modulation and proton transfer by iron and borate co-doping for synergistically triggering the oxygen evolution reaction on a hollow NiO bipyramidal prism. 2021 , 13, 14156-14165	3
321	Investigation on nanostructured Cu-based electrocatalysts for improvising water splitting: a review. 2021 , 8, 234-272	45
320	Partial sulfur vacancies created by carbon-nitrogen deposition of MoS ₂ for high-performance overall electrocatalytic water splitting. 2021 , 13, 14506-14517	6
319	Constructing urchin-like NiS@NiB on Ni plate as a highly efficient bifunctional electrocatalyst for water splitting reaction. 2021 , 13, 17953-17960	0
318	Recent advances in transition-metal-sulfide-based bifunctional electrocatalysts for overall water splitting. 2021 , 9, 5320-5363	80
317	Molybdenum-Containing Metalloenzymes and Synthetic Catalysts for Conversion of Small Molecules. 2021 , 11, 217	1
316	Ambient Condition Alcohol Reforming to Hydrogen with Electricity Output. 2021 , 9, 3104-3111	2
315	Enhanced oxygen and hydrogen evolution reaction by zinc doping in cobalt-nickel sulfide heteronanorods. e202000038	1
314	Transferable Active Centers of Strongly Coupled MoS ₂ @Sulfur and Molybdenum Co-doped g-CN Heterostructure Electrocatalysts for Boosting Hydrogen Evolution Reaction in Both Acidic and Alkaline Media. 2021 , 60, 2604-2613	8

- 313 In-situ growth of FeCo Prussian-blue-analog nanocages on Ni(OH)₂/NF and the derivative electrocatalysts with hierarchical cage-on-sheet architectures for efficient water splitting. **2021**, 46, 8345-8355⁵
- 312 Electrochemically active surface area controls HER activity for Fe_xNi_{100-x} films in alkaline electrolyte. **2021**, 394, 104-112 12
- 311 Nanostructural CoMoS₂/NiCoS supported on reduced Graphene oxide as a high activity electrocatalyst for hydrogen evolution in alkaline media. **2021**, 46, 8567-8577 1
- 310 Transition metal-based electrocatalysts for overall water splitting. **2021**, 18
- 309 Unravelling the Origin of Enhanced Electrochemical Performance in CoSe₂/MoSe₂ Interfaces. **2021**, 13, 2017-2024 2
- 308 In situ growth of flower-like Cu₃BiS₃ on copper foam for electrocatalyzing hydrogen evolution reaction. **2021**, 27, 1645-1652 1
- 307 Pd²⁺-Mediated Surface Engineering of AgMnO₄ Nanorods as Advanced Bifunctional Electrocatalysts for Highly Efficient Water Electrolysis. *ACS Catalysis*, **2021**, 11, 3687-3703 13.1 4
- 306 Three-Dimensional Flower-like Fe, C-Doped-MoS₂/Ni₃S₂ Heterostructures Spheres for Accelerating Electrocatalytic Oxygen and Hydrogen Evolution. **2021**, 11, 340 2
- 305 Functionalization of Mn₂O₃/PdO/ZnO electrocatalyst using organic template with accentuated electrochemical potential toward water splitting. 1
- 304 Flower-like Fe-Co-M (M=S, O, P and Se) Nanosheet Arrays Grown on Nickel Foam as High-efficiency Bifunctional Electrocatalysts. **2021**, 16, 959-965 1
- 303 Insight into the influence of doped oxygen on active sites of molybdenum sulfide materials in hydrogen evolution reaction. **2021**, 46, 11721-11730 1
- 302 Noble metal-free electrocatalytic materials for water splitting in alkaline electrolyte. **2021**, 3, 100053 21
- 301 Ni₃Si₂@TiO₂ furs for supercapacitors with extremely high areal density and high cycleability. **2021**, 858, 157711 1
- 300 A highly efficient Fe-doped Ni₃S₂ electrocatalyst for overall water splitting. 1 9
- 299 Multi-interface collaboration of graphene cross-linked NiS-NiS₂-Ni₃S₄ polymorph foam towards robust hydrogen evolution in alkaline electrolyte. **2021**, 14, 4857 17
- 298 A novel synthesis of Ni₃S₂/NiO nanocomposites as sensing material: Design, generation mechanism and synergistic effect. **2021**, 296, 121984 2
- 297 Iron, manganese co-doped NiS nanoflowers in situ assembled by ultrathin nanosheets as a robust electrocatalyst for oxygen evolution reaction. **2021**, 588, 248-256 30
- 296 Constructing Ultrathin W-Doped NiFe Nanosheets via Facile Electrosynthesis as Bifunctional Electrocatalysts for Efficient Water Splitting. **2021**, 13, 20070-20080 12

295	Synthesis of 3D CoO nanowires supported NiFe layered double hydroxide using an atmospheric pressure microplasma for high-performance oxygen evolution reaction. 2021 , 410, 128366	17
294	Rationally Designed Ni/Ni ₃ S ₂ Interfaces for Efficient Overall Water Electrolysis. 2021 , 2, 2100078	10
293	Hornwort-like hollow porous MoO ₃ /NiF ₂ heterogeneous nanowires as high-performance electrocatalysts for efficient water oxidation. 2021 , 379, 138146	6
292	Engineering Oxygen Vacancies in Mesocrystalline CuO Nanosheets for Water Oxidation. 2021 , 4, 6135-6144	5
291	Inherent Oxygen Vacancies Boost Surface Reconstruction of Ultrathin Ni-Fe Layered-Double-Hydroxides toward Efficient Electrocatalytic Oxygen Evolution. 2021 , 9, 7390-7399	12
290	Recent progress on high-entropy materials for electrocatalytic water splitting applications. 2021 , 3, 161-180	11
289	Hierarchical Ni ₃ S ₄ @MoS ₂ nanocomposites as efficient electrocatalysts for hydrogen evolution reaction. 2021 ,	5
288	Difunctional hierarchical CoP QDs-MoS ₂ @Ni ₃ S ₂ /NF nanostructure as advanced electrocatalyst for water electrolysis. 2021 , 32, 16126-16138	0
287	One-step preparation of cobalt-doped NiS@MoS ₂ core-shell nanorods as bifunctional electrocatalyst for overall water splitting. 2021 , 377, 138051	10
286	Mn, N, P-tridoped bamboo-like carbon nanotubes decorated with ultrafine CoP/FeCo nanoparticles as bifunctional oxygen electrocatalyst for long-term rechargeable Zn-air battery. 2021 , 590, 330-340	28
285	Tuning the morphology and electron structure of metal-organic framework-74 as bifunctional electrocatalyst for OER and HER using bimetallic collaboration strategy. 2021 , 865, 158795	7
284	Advances in CoP electrocatalysts for water splitting. 2021 , 20, 100698	27
283	One-step synthesis of anionic S-substitution toward Ni ₂ P(S) nanowires on nickel foam for enhanced hydrogen evolution reaction. 2021 , 45, 16973-16983	0
282	Facile fabrication of flower-like CuS/MnCO ₃ microspheres clusters on nickel foam as an efficient bifunctional catalyst for overall water splitting. 2021 , 46, 19948-19961	3
281	Heterogeneous Bimetallic Mo-NiP _x /NiS _y as a Highly Efficient Electrocatalyst for Robust Overall Water Splitting. 2021 , 31, 2101532	32
280	Construction of sheet-on-sheet hierarchical MoS ₂ /NiS ₂ heterostructures as efficient bifunctional electrocatalysts for overall water splitting. 2021 , 385, 138438	11
279	NiCo layered double hydroxides derived Ni _{0.67} Co _{0.33} (PO ₃) ₂ as stable and efficient electrocatalysts for overall water splitting. 2021 , 869, 159311	4
278	Design of high-performance supercapacitor based on MoS ₂ /ZnCo ₂ O ₄ composite nanoelectrode. 2021 , 27, 4037-4045	0

277	One-step electrodeposition synthesis of Ni/NiS _x @NF catalyst on nickel foam (NF) for hydrogen evolution reaction. 2021 , 511, 111694	2
276	Thermoelectric Driven Self-Powered Water Electrolyzer Using Nanostructured CuFeS ₂ Plates as Bifunctional Electrocatalyst. 2021 , 4, 7020-7029	8
275	Introducing a self-improving catalyst for hydrogen evolution and efficient catalyst for oxygen evolution reaction. 2021 , 334, 116511	1
274	Silver nanoparticles decorated Co-Mo nitride for efficient water splitting. 2021 , 553, 149440	13
273	In-situ Surface-selective Removal of Al Element from NiFeAl Ternary Nanowires for Large-current Oxygen Evolution Reaction. 2021 , 7, 1138	
272	Dual Modification Strategy of Nickel Sulfide as pH-Universal Catalysts for Hydrogen Production at Large Current Density. 2021 , 9, 10601-10610	6
271	Vacancies and phosphorus atoms assembled in amorphous urchin-like Co ₃ O ₄ for highly efficient overall water splitting. 2021 , 46, 24117-24127	0
270	Reutilizing Methane Reforming Spent Catalysts as Efficient Overall Water-Splitting Electrocatalysts. 2021 , 6, 21316-21326	4
269	Heterostructural MoO ₂ /MoC ₂ microspheres for efficient electrocatalytic hydrogen evolution. 2021 , 297, 129973	0
268	Transition metals decorated g-C ₃ N ₄ /N-doped carbon nanotube catalysts for water splitting: A review. 2021 , 895, 115510	12
267	Cleaner way for overall water splitting reaction by using palladium and cobalt based nanocomposites prepared from mixed metallosurfactants. 2021 , 556, 149769	1
266	(Ni _x Fe _y Co _{6-x-y})Mo ₆ C cuboids as outstanding bifunctional electrocatalysts for overall water splitting. 2021 , 290, 120049	21
265	Efficient electrocatalytic oxidation of water and glucose on dendritic-shaped multicomponent transition metals/spongy graphene composites. 2021 , 386, 138484	7
264	Recent Progress in the Development of Advanced Functionalized Electrodes for Oxygen Evolution Reaction: An Overview. 2021 , 14,	0
263	Vertically aligned MoS ₂ thin film catalysts with Fe-Ni sulfide nanoparticles by one-step sulfurization for efficient solar water reduction. 2021 , 418, 129369	8
262	Electronic structure modulation of nickel hydroxide and tungsten nanoparticles for fast structure transformation and enhanced oxygen evolution reaction activity. 2021 , 418, 129403	9
261	A hierarchical and branch-like NiCoS/NF material prepared by gradient electrodeposition method for oxygen evolution reaction. 2021 , 46, 36629-36629	1
260	Facile synthesis and self-assembling of transition metal phosphide nanosheets to microspheres as a high-performance electrocatalyst for full water splitting. 2021 , 875, 160049	10

259	Electronic modulation of NiS-PBA/CNT with boosted water oxidation performance realized by a rapid microwave-assisted in-situ partial sulfidation. 2021 , 420, 130481	5
258	Chrysanthemum-like FeS/NiS heterostructure nanoarray as a robust bifunctional electrocatalyst for overall water splitting. 2022 , 608, 536-548	4
257	Ni-MoO ₂ nanoparticles heterojunction loaded on stereotaxically-constructed graphene for high-efficiency overall water splitting. 2021 , 897, 115555	1
256	Self-Supported Electrocatalysts for Practical Water Electrolysis. 2021 , 11, 2102074	34
255	Heterostructured Mn ₃ O ₄ -2D material nanosheets: One-step vacuum kinetic spray deposition and non-enzymatic H ₂ O ₂ sensing. 2021 , 47, 35111-35111	1
254	Carbon-doped surface unsaturated sulfur enriched CoS ₂ @rGO aerogel pseudocapacitive anode and biomass-derived porous carbon cathode for advanced lithium-ion capacitors. 1	1
253	Promotion for Full Water Splitting toward Vanadium-Incorporated MoO ₂ /MoNi ₄ Hybrid Nanoarrays.	2
252	Sandwich structured Ni ₃ S ₂ -MoS ₂ -Ni ₃ S ₂ @Ni foam electrode as a stable bifunctional electrocatalyst for highly sustained overall seawater splitting. 2021 , 390, 138833	9
251	Ni ₃ N nanoparticles on porous nitrogen-doped carbon nanorods for nitrate electroreduction. 2021 , 430, 132666	4
250	Oxygen vacancy assisted low-temperature synthesis of P-doped Co ₃ O ₄ with enhanced activity towards oxygen evolution reaction. 2021 , 894, 162038	1
249	Material libraries for electrocatalytic overall water splitting. 2021 , 444, 214049	21
248	Hierarchical 2D/2D interface of nickel aluminum oxide and nickel aluminum layered double hydroxide nanoflowers: An efficient and robust electrocatalyt for overall water splitting. 2021 , 392, 139029	4
247	Ruthenium single atoms implanted continuous MoS ₂ -Mo ₂ C heterostructure for high-performance and stable water splitting. 2021 , 88, 106277	17
246	Self-supporting transition metal chalcogenides on metal substrates for catalytic water splitting. 2021 , 421, 129645	14
245	Iron-doped metal-organic framework with enhanced oxygen evolution reaction activity for overall water splitting. 2021 , 46, 34565-34573	1
244	Electrochemical aptasensor for sensitive detection of Cardiac troponin I based on CuNWs/MoS ₂ /rGO nanocomposite. 2021 , 169, 106598	8
243	Interface engineering of Ni _x S _y @MoS ₂ heterostructured nanorods as high-efficient electrocatalysts for water splitting. 2021 , 46, 35077-35087	3
242	Self-supporting NiFe LDH-MoS integrated electrode for highly efficient water splitting at the industrial electrolysis conditions. 2021 , 42, 1732-1741	13

241	Defect-enriched multistage skeleton morphology Ni-Fe-P-Ni ₃ S ₂ heterogeneous catalyst on Ni foam for efficient overall water splitting. 2021 , 424, 130390	7
240	Facile synthesis of P-doped NiCo ₂ S ₄ nanoneedles supported on Ni foam as highly efficient electrocatalysts for alkaline oxygen evolution reaction. 2021 , 396, 139236	5
239	Design and construction of 2D/2D sheet-on-sheet transition metal sulfide/phosphide heterostructure for efficient oxygen evolution reaction. 2021 , 565, 150510	5
238	High-efficient and durable overall water splitting performance by interfacial engineering of Fe-doped urchin-like Ni ₂ P/Ni ₃ S ₂ heterostructure. 2021 , 424, 130434	15
237	Nanostructured NiCoS@NiCoO-reduced graphene oxide as an efficient hydrogen evolution electrocatalyst in alkaline electrolyte. 2021 , 601, 570-580	6
236	Decoration of Ru/RuO hybrid nanoparticles on MoO plane as bifunctional electrocatalyst for overall water splitting. 2021 , 604, 508-516	3
235	High-valent Zirconium-doping modified Co ₃ O ₄ weave-like nanoarray boosts oxygen evolution reaction. 2021 , 886, 161172	6
234	Effect of heteroatom doping on the charge storage and operating voltage window of nickel-based sulfide composite electrodes in alkaline electrolytes. 2022 , 427, 130885	3
233	High valence state of Ni and Mo synergism in NiS ₂ -MoS ₂ hetero-nanorods catalyst with layered surface structure for urea electrocatalysis. 2022 , 66, 483-492	26
232	1 T-Phase Enriched P doped WS ₂ nanosphere for highly efficient electrochemical hydrogen evolution reaction. 2022 , 429, 132187	6
231	Tuning of crystal phase of nickel telluride nanosheets to construct superior electrocatalyst for hydrogen evolution. 2022 , 891, 161955	3
230	A facile one-pot room-temperature growth of self-supported ultrathin rhodium-iridium nanosheets as high-efficiency electrocatalysts for hydrogen evolution reaction. 2022 , 606, 1707-1714	42
229	Bimetallic copper nickel sulfide electrocatalyst by one step chemical bath deposition for efficient and stable overall water splitting applications. 2022 , 606, 101-112	4
228	Phosphorus doping and phosphates coating for nickel molybdate/nickel molybdate hydrate enabling efficient overall water splitting. 2022 , 606, 384-392	3
227	A generalizable strategy for constructing ultralight three-dimensional hierarchical network heterostructure as high-efficient microwave absorber. 2022 , 605, 13-22	38
226	A strategy for preparing high-efficiency and economical catalytic electrodes toward overall water splitting. 2021 , 13, 10624-10648	13
225	Hydrothermal combined with electrodeposition construction of a stable Co ₉ S ₈ /Ni ₃ S ₂ @NiFe-LDH heterostructure electrocatalyst for overall water splitting. 2021 , 5, 1429-1438	9
224	Hierarchically porous FeNi@FeNi layered double hydroxide nanostructures: one-step fast electrodeposition and highly efficient electrocatalytic performances for overall water splitting. 2021 , 50, 6306-6314	10

223	Interface enriched highly interlaced layered MoS/NiS nanocomposites for the photocatalytic degradation of rhodamine B dye.. 2021 , 11, 19283-19293	4
222	Greatly boosting electrochemical hydrogen evolution reaction over Ni ₃ S ₂ nanosheets rationally decorated by Ni ₃ Sn ₂ S ₂ quantum dots. 2020 , 267, 118675	38
221	The electrochemical overall water splitting promoted by MoS ₂ in coupled nickel/iron (oxy)hydride/molybdenum sulfide/graphene composite. 2020 , 397, 125454	15
220	Amorphous MoS ₂ nanosheets on MoO ₂ films/Mo foil as free-standing electrode for synergetic electrocatalytic hydrogen evolution reaction. 2020 , 45, 17422-17433	12
219	Metal-organic framework-derived M (M = Fe, Ni, Zn and Mo) doped Co ₉ S ₈ nanoarrays as efficient electrocatalyst for water splitting: The combination of theoretical calculation and experiment. 2020 , 383, 103-116	58
218	MoS quantum dots decorated ultrathin NiO nanosheets for overall water splitting. 2020 , 566, 411-418	19
217	The influence of pulse magnetic field intensity on the morphology and electrochemical properties of NiCoS alloys. 2020 , 403, 126406	4
216	Fabrication of a Three-Dimensional Bionic Si/TiO ₂ /MoS ₂ Photoelectrode for Efficient Solar Water Splitting. 2021 , 4, 730-736	15
215	On a Two-Dimensional MoS ₂ /Mo ₂ CT _x Hydrogen Evolution Catalyst Obtained by the Topotactic Sulfurization of Mo ₂ CT _x MXene. 2020 , 167, 124507	8
214	Incorporating Nb into MoSe ₂ Nanoflowers for Overall Electrocatalytic Water Splitting.	1
213	MOF-derived Zn _{1-x} Co _x Ni sulfides with hollow nanosword arrays for high-efficiency overall water and urea electrolysis. 2021 ,	1
212	Sintered Ni metal as a matrix of robust self-supporting electrode for ultra-stable hydrogen evolution. 2021 , 430, 133040	1
211	Graphene-like h-BN supported polyhedral NiS ₂ /NiS nanocrystals with excellent photocatalytic performance for removing rhodamine B and Cr(VI). 2021 , 15, 1537	0
210	A Facile Strategy to Create Electrocatalysts of Highly Dispersive Ni _{1-x} Mo _x Sulfide Nanosheets on Graphene by Derivation of Polyoxometalate Coordination Polymer for Advanced H ₂ Evolution.	0
209	Engineering the abundant heterointerfaces of integrated bimetallic sulfide-coupled 2D MOF-derived mesoporous CoS ₂ nanoarray hybrids for electrocatalytic water splitting. 2021 , 17, 100146	18
208	Boride-derived oxygen-evolution catalysts. 2021 , 12, 6089	11
207	Transition metal atom doped Ni ₃ S ₂ as efficient bifunctional electrocatalysts for overall water splitting: Design strategy from DFT studies. 2021 , 516, 111955	0
206	Hierarchical nickel-iron layered double hydroxide composite electrocatalyst for efficient oxygen evolution reaction. 2021 , 17, 100150	3

205	PtBh alloy catalysts for hydrogen generation developed by direct current/pulse current method. 1	1
204	NiSe2@FeSe Double-Shelled Hollow Polyhedrons as Superior Electrocatalysts for the Oxygen Evolution Reaction.	2
203	Interface engineering of Ni3Se2@FeOOH heterostructure nanoforests for highly-efficient overall water splitting. 2022 , 893, 162244	5
202	Controlled Synthesis of Cr-Co Se Nanoarrays for Water Splitting at an Ultralow Cell Voltage of 1.43 V. 2020 , 15, 1110-1117	1
201	Zeolitic Imidazolate Framework-67-Derived P-Doped Hollow Porous CoO as a Photocatalyst for Hydrogen Production from Water. 2021 , 13, 50996-51007	6
200	In Situ Construction of Nickel Sulfide Nano-Heterostructures for Highly Efficient Overall Urea Electrolysis.	2
199	Nanostructured Composite Catalyst for Electrochemical Water Splitting: Significantly Improved for Hydrogen Evolution Reaction. 2020 , 18, 842-852	
198	A fast microfluidic liquid layer induced construction of scaled-up oxyhydroxide based electrocatalysts for alkaline water splitting.	12
197	Self-supported tremella-like MoS2-AB particles on nickel foam as bifunctional electrocatalysts for overall water splitting. 2022 , 92, 106707	2
196	Core-shell structured MoS2/Ni9S8 electrocatalysts for high performance hydrogen and oxygen evolution reactions. 2022 , 146, 111626	4
195	A Pacman-Like Titanium-Doped Cobalt Sulfide Hollow Superstructure for Electrocatalytic Oxygen Evolution. 2021 , e2103106	1
194	Ga doped Ni3S2 ultrathin nanosheet arrays supported on Ti3C2-MXene/Ni foam: An efficient and stable 3D electrocatalyst for oxygen evolution reaction. 2021 ,	0
193	Design heterostructure of NiS-NiS2 on NiFe Layered Double Hydroxide with Mo doping for efficient overall water splitting. 2021 , 100906	4
192	One-step mechanical exfoliation and deposition of layered materials (graphite, MoS2, and BN) by vacuum-kinetic spray process. 2021 , 196, 110732	1
191	Preparation of Practical High-Performance Electrodes for Acidic and Alkaline Media Water Electrolysis. 2021 ,	1
190	Atomically Dispersed Selenium Sites on Nitrogen-doped Carbon for Efficient Electrocatalytic Oxygen Reduction.	
189	Cu2S/Ni3S2 ultrathin nanosheets on Ni foam as a highly efficient electrocatalyst for oxygen evolution reaction. 2021 ,	0
188	Solar remediation of wastewater and saline water with concurrent production of value-added chemicals. 2021 , 10, 106919	2

187	Controlled high-density interface engineering of Fe ₃ O ₄ -FeS nanoarray for efficient hydrogen evolution. 2021 , 68, 96-96	2
186	Atomically Dispersed Selenium Sites on Nitrogen-Doped Carbon for Efficient Electrocatalytic Oxygen Reduction. 2021 ,	13
185	Synthesis of MoS ₂ /CoSe ₂ -x hybrids as electrocatalysts for hydrogen evolution reaction. 1	
184	Applications of 1D Mesoporous Inorganic Nanomaterials in Electrocatalysis. 2022 , 175-182	
183	Binder-free Fe-doped NiCoO/NiS hollow heterostructure nanotubes for highly efficient overall water splitting. 2021 ,	2
182	2D Bismuth nanosheet arrays as efficient alkaline hydrogen evolution electrocatalysts. 2021 , 45, 22758-22766	2
181	Strategies and perspectives of tailored SnS ₂ photocatalyst for solar driven energy applications. 2022 , 231, 546-565	3
180	Synergistically coupling of Co/Mo ₂ C/Co ₆ Mo ₆ C ₂ @C electrocatalyst for overall water splitting: The role of carbon precursors in structural engineering and catalytic activity. 2022 , 579, 152148	4
179	Amorphous-crystalline heterostructure for simulated practical water splitting at high-current density. 2022 , 431, 134247	7
178	Evaluating Electrocatalytic Activity of Metal-Substituted Hafnium Diboride (Hf _{1-x} TM _x B ₂ ; TM = Ni and Co) Toward Water Splitting.	
177	Local Photothermal Effect Enabling Ni Bi S Nanoarray Efficient Water Electrolysis at Large Current Density.. 2022 , e2106868	0
176	CO bubble-assisted in-situ construction of mesoporous Co-doped Cu(OH)CO nanosheets as advanced electrodes towards fast and highly efficient electrochemical reduction of nitrate to N in wastewater.. 2022 , 430, 128351	0
175	Competitive Coordination-Oriented Monodispersed Ruthenium Sites in Conductive MOF/LDH Heteronanotree Catalysts for Efficient Overall Water Splitting in Alkaline Media.. 2022 , e2107488	13
174	The controlled synthesis of nitrogen and iron co-doped NiS@NiP heterostructures for the oxygen evolution reaction and urea oxidation reaction.. 2022 ,	0
173	Formation of carnation-like ZIF-9 nanostructure to achieve superior electrocatalytic oxygen evolution.. 2022 ,	0
172	Polyaniline grafted mesoporous zinc sulfide nanoparticles for hydrogen evolution reaction. 2022 , 47, 6067-6077	4
171	Interfacial Engineering to Construct Antioxidative Pd ₄ S/Pd ₃ P _{0.95} Heterostructure for Robust Hydrogen Production at High Current Density. 2103511	5
170	Nitrogen-induced interfacial electronic structure of NiS ₂ /CoS ₂ with optimized water and hydrogen binding abilities for efficient alkaline hydrogen evolution electrocatalysis. 2022 , 10, 719-725	6

169	Modulating the Electronic Structure of Nickel Sulfide Electrocatalysts by Chlorine Doping toward Highly Efficient Alkaline Hydrogen Evolution.. 2022 ,	4
168	Heterostructures of NiFe LDH hierarchically assembled on MoS ₂ nanosheets as high-efficiency electrocatalysts for overall water splitting. 2022 ,	5
167	Swapping Catalytic Active Sites from Cationic Ni to Anionic S in Nickel Sulfide Enables More Efficient Alkaline Hydrogen Generation. 2103359	8
166	Cu ₂ O/CeO ₂ Photoelectrochemical Water Splitting: A Nanocomposite with an Efficient Interfacial Transmission Path under the Co-action of p-n Heterojunction and Micro-mesocrystals.. 2021 ,	
165	Low full-cell voltage driven high-current-density selective paired formate electrosynthesis. 2022 , 10, 1329-1335	2
164	Advanced MoS ₂ nanocomposite materials for the synthesis of valuable pharmaceuticals. 2022 ,	
163	One-Step Synthesis of Heterostructural MoS ₂ -(FeNi) ₉ S ₈ on NiBe Foam Synergistically Boosting for Efficient Fresh/Seawater Electrolysis.	4
162	Bimetallic-metal organic framework-derived Ni ₃ S ₂ /MoS ₂ hollow spheres as bifunctional electrocatalyst for highly efficient and stable overall water splitting. 2022 , 47, 8165-8176	1
161	Regulating the Local Spin State and Band Structure in Ni ₃ S ₂ Nanosheet for Improved Oxygen Evolution Activity. 2112832	19
160	Fe _x Ni _(1-x) coatings electrodeposited from choline chloride-urea mixture: Magnetic and electrocatalytic properties for water electrolysis. 2022 , 279, 125738	1
159	Mechanistic investigation of rapid catalytic degradation of tetracycline using CoFe ₂ O ₄ @MoS ₂ by activation of peroxymonosulfate. 2022 , 287, 120525	5
158	Controlled moderate sulfidation-fabricated hierarchical heterogeneous nickel sulfides-based electrocatalyst with tripartite Mo doping for efficient oxygen evolution. 2022 , 68, 780-788	0
157	Electrodeposition of NiFe-layered double hydroxide layer on sulfur-modified nickel molybdate nanorods for highly efficient seawater splitting.. 2022 , 613, 349-358	3
156	One-step in-situ sprouting high-performance NiCoS _x Se _y bifunctional catalysts for water electrolysis at low cell voltages and high current densities. 2022 , 435, 134859	3
155	Design of hydrangea-type Co/Mo bimetal MOFs and MOF-derived Co/Mo ₂ C embedded carbon composites for highly efficient oxygen evolution reaction. 2022 , 435, 134815	5
154	Superaerophobic/Superhydrophilic Surfaces as Advanced Electrocatalyst for Hydrogen Evolution Reaction: A Comprehensive Review.	6
153	Evaluating electrocatalytic activity of metal-substituted hafnium diboride (Hf ₁ -TMB ₂ ; TM = Ni and Co) toward water splitting. 2022 , 905, 164148	1
152	Tungsten-Nickel Alloy Boosts Alkaline Hydrogen Evolution Reaction. 2021 , 125, 27185-27191	1

- 151 Interface Engineering of Ultrathin Hierarchical P-Doped MoS₂/Ni₃S₂ Heterostructure on Nickel Foam for Efficient Water Splitting.
- 150 NiS/MoS₂ Complex Grown on Carbon Paper as Bifunctional Electrocatalyst for Full Water Splitting.
- 149 MoS₂/Ni₃S₂/Reduced Graphene Oxide Nanostructure as an Electrocatalyst for Alcohol Fuel Cells. **2022**, 5, 3361-3373 4
- 148 Facile Synthesis of FeOOH/Ni₃S₂ Nanosheet Arrays on Nickel Foam via Chemical Immersion toward Electrocatalytic Water Splitting. **2022**, 7,
- 147 Facile route to achieve MoSe₂-Ni₃Se₂ on nickel foam as efficient dual functional electrocatalysts for overall water splitting. 1
- 146 Bimetallic Multi-Level Layered Co-NiOOH/Ni S @NF Nanosheet for Hydrogen Evolution Reaction in Alkaline Medium.. **2022**, e2106904 5
- 145 Nanoscale Heterogeneities of Non-Noble Iron-Based Metallic Glasses toward Efficient Water Oxidation at Industrial-Level Current Densities.. **2022**, 2
- 144 Polar Layered Intermetallic LaCoP as a Water Oxidation Electrocatalyst.. **2022**, 0
- 143 MoSe₂/SnS Nanoheterostructures for Water Splitting. **2022**, 5, 4293-4304 3
- 142 A nano-spherical structure Ni₃S₂/Ni(OH)₂ electrocatalyst prepared by one-step fast electrodeposition for efficient and durable water splitting. **2022**, 0
- 141 Electrochemical hydrogen generation technology: Challenges in electrodes materials for a sustainable energy. 1
- 140 Hydrogen Spillover-Bridged Volmer/Tafel Processes Enabling Ampere-Level Current Density Alkaline Hydrogen Evolution Reaction under Low Overpotential.. **2022**, 24
- 139 Dimensionality-Dependent MoS₂ toward Efficient Photocatalytic Hydrogen Evolution: From Synthesis to Modifications in Doping, Surface and Heterojunction Engineering. **2022**, 100191 0
- 138 (Fe, Ni)₂S@MoS₂/Ni₂S hollow heterostructure nanocubes for high-performance alkaline water electrolysis. **2022**, 47, 11143-11152 1
- 137 Hierarchical Coralline-like (NiCo)₂S@MoS Nanowire Arrays to Accelerate H Release for an Efficient Hydrogen Evolution Reaction.. **2022**, 1
- 136 Hierarchical flower-like CoS₂-MoS₂ heterostructure spheres as efficient bifunctional electrocatalyst for overall water splitting. **2022**, 47, 12629-12641 1
- 135 Deposition of Cu on Ni₃S₂ nanomembranes with simply spontaneous replacement reaction for enhanced hydrogen evolution reaction. **2022**, 911, 116214
- 134 MOF-Derived Co_{1-x}V_xS_y Nanosheets as a Highly Efficient Electrocatalyst for Water Splitting.

133	Ternary Copper Molybdenum Sulfide (Cu ₂ MoS ₄) nanoparticles anchored on PANI/rGO as electrocatalysts for Oxygen Evolution Reaction (OER).	0
132	Facile synthesis and efficient electrochemical water splitting of bifunctional nanostructured Ni-based layered double hydroxide/sulfide composite. 2022 , 164880	0
131	Designing highly efficient 3D porous Ni-Fe sulfide nanosheets based catalyst for the overall water splitting through component regulation.. 2022 , 616, 422-432	0
130	Electrocatalytic study of carbon dots/ Nickel iron layered double hydroxide composite for oxygen evolution reaction in alkaline medium. 2022 , 320, 123947	1
129	NiS nanostrips@FeNi-NiFeO nanoparticles embedded in N-doped carbon microsphere: An improved electrocatalyst for oxygen evolution reaction.. 2022 , 617, 1-10	1
128	Interfacial engineering regulated by CeO to boost efficiently alkaline overall water splitting and acidic hydrogen evolution reaction. 2022 , 120, 129-138	1
127	Gradient-Structuring Manipulation in Ni ₃ S ₂ Layer Boosts Solar Hydrogen Production of Si Photocathode in Alkaline Media. 2022 , 12, 2102865	2
126	Designing Nanoporous Coral-Like Pt Nanowires Architecture for Methanol and Ammonia Oxidation Reactions. 2022 , 32, 2110702	3
125	Preparation of Double-Layer Crossed Silver Nanowire Film and Its Application to OLED. 2022 , 12, 26	0
124	Carbon Dots as New Building Blocks for Electrochemical Energy Storage and Electrocatalysis. 2022 , 12, 2103426	13
123	Surface Atomic Decoration of a Manganite to a Modulable Oxygen Evolution Reaction.. 2021 , 13, 61267-61274	1
122	Nitrogen-Doped Carbon and MoS ₂ Nanosheets Grown on Co _{1-x} S Nanorods for Hydrogen and Oxygen Evolution. 2021 , 4, 14178-14187	0
121	Designing Self-Supported Electrocatalysts for Electrochemical Water Splitting: Surface/Interface Engineering toward Enhanced Electrocatalytic Performance. 2021 ,	8
120	Surface engineering strategies for MoS ₂ towards electrochemical hydrogen evolution.. 2022 ,	0
119	Hierarchical nanoassembly of Ni/MoS ₂ @Ni ₁₂ P ₅ /Zn ₂ P ₂ achieved by a plasma assisted phosphorization with highly improved electrocatalytic activity for overall water splitting. 2022 , 140392	1
118	Ni(OH) ₂ nanoparticles decorated on 1T phase MoS ₂ basal plane for efficient water splitting. 2022 , 593, 153408	2
117	Creating low coordination atoms on MoS ₂ /NiS ₂ heterostructure toward modulating the adsorption of oxygenated intermediates in lithium-oxygen batteries. 2022 , 442, 136311	1
116	Superhydrophilic/Superaerophobic Hierarchical NiP@MoO/Co()MoO Core-Shell Array Electrocatalysts for Efficient Hydrogen Production at Large Current Densities.. 2022 ,	3

115	The Identified Intrinsic Active Sites for Efficient and Stable Bi-functional Catalyst N-MoS ₂ /Ni ₃ S ₂ /NiS: Mo-N Structure and Ni-S Structure on Heterogeneous Interface Synergistically Enhance Water Splitting.	2
114	Boosting Electrocatalytic Activity of NiSe ₂ Nanosheets by Anion-Cation Dual-Doping for Highly Efficient Hydrogen Evolution Reaction.	
113	Modulating the intrinsic electrocatalytic activity of copper sulfide by silver doping for electrocatalytic overall water splitting..	1
112	Successional Heterostructure MoS ₂ -Ni ₃ S ₂ Nanospheres Based on 3D Nano-porous Ni: An Efficient Electrocatalyst for Overall Water Splitting. 2022 , 165243	0
111	Synthesis of hierarchically porous Ni foam-supported heazlewoodite Ni ₃ S ₂ nanorod electrocatalysts for highly efficient oxygen evolution reaction. 2022 , 914, 165305	3
110	Heterogeneous FeNi ₂ S ₄ /Ni ₃ S ₄ nanoparticles embedded CNT networks for efficient and stable water oxidation. 2022 , 914, 165327	1
109	Efficient FeCoNiCuPd thin-film electrocatalyst for alkaline oxygen and hydrogen evolution reactions. 2022 , 313, 121472	5
108	Nickel sulfide-oxide heterostructured electrocatalysts: Bi-functionality for overall water splitting and in-situ reconstruction.. 2022 , 622, 728-737	3
107	In Situ Formed Edge-Rich Ni ₃ S ₂ -NiOOH Heterojunctions for Oxygen Evolution Reaction.	2
106	Electrochemical properties of MoS ₂ @Ni ₃ S ₂ -rGO ternary nanocomposite as a promising cathode for Ni/Zn batteries and catalyst towards hydrogen evolution reaction. 2022 ,	2
105	ReviewRecent Developments in the Applications of 2D Transition Metal Dichalcogenides as Electrocatalysts in the Generation of Hydrogen for Renewable Energy Conversion.	2
104	Intrinsic Catalytic Activity for the Alkaline Hydrogen Evolution of Layer-Expanded MoS ₂ Functionalized with Nanoscale Ni and Co Sulfides. 2022 , 10, 7117-7133	1
103	Coupling Fe ₃ C Nanoparticles and N-Doping on Wood-Derived Carbon to Construct Reversible Cathode for Zn/Air Batteries. 2202014	2
102	3D Self-Supported NiS ₂ /Ti ₃ C ₂ T _x -CC Composite Electrode for High-Performance Flexible Supercapacitors. 2022 , 226, 172-184	
101	Synergic Effect of Fe-Doping and Ni ₃ S ₂ /Mns Heterointerface to Boost Efficient Oxygen Evolution Reaction.	
100	Tuning the d-band center of Ni ₂ O ₄ with Nb ₂ O ₅ to optimize the Volmer step for hydrazine oxidation-assisted hydrogen production.	1
99	Ru@Ni ₃ S ₂ nanorod arrays as highly efficient electrocatalysts for the alkaline hydrogen evolution reaction.	1
98	High-efficiency oxygen evolution catalyzed by Sn _{1-x} O _{1-x} Ni phosphide with oriented crystal phases.	0

97	FeNiCo trimetallic oxide hierarchical nanospheres as high-performance bifunctional electrocatalysts for water electrolysis.	0
96	Effective controlling of Ni ₃ S ₂ /MoS ₂ porous hollow spheres on Ni foam by non-ionic surfactant micelles for oxygen evolution reaction.	0
95	Fluorine-anion engineering endows superior bifunctional activity of nickel sulfide/phosphide heterostructure for overall water splitting. 2022 , 625, 576-584	1
94	Graphene oxide-based materials in electrocatalysis. 2022 , 189-238	
93	Controllable Synthesis of Ultrathin Defect-Rich LDH Nanoarrays Coupled with MOF-Derived Co-NC Microarrays for Efficient Overall Water Splitting. 2107739	5
92	Fabrication of Nanocluster-Aggregated Dense Ce ₂ (MoO ₄) ₃ Microspherical Architectures for High-Voltage Energy Storage and High Catalytic Energy Conversion Applications.	0
91	Nitrogen-Doped CobaltMolybdenum Sulfide Hybrid Heterojunctions as Active Electrocatalysts for Producing Hydrogen in Alkaline Media.	1
90	Space-Confined One-Step Growth of 2D MoO ₂ /MoS ₂ Vertical Heterostructures for Superior Hydrogen Evolution in Alkaline Electrolytes. 2201051	2
89	Modulation of morphology and electronic structure on MoS ₂ -based electrocatalysts for water splitting.	2
88	MottSchottky heterostructure induce the interfacial electron redistribution of MoS ₂ for boosting pH-universal hydrogen evolution with Pt-like activity. 2022 , 101, 107563	2
87	Electric-Field-Treated Ni/Co ₃ O ₄ Film as High-Performance Bifunctional Electrocatalysts for Efficient Overall Water Splitting. 2022 , 14,	3
86	Hierarchical Ni Modified PW ₁₂ Clusters In Situ Integrated on Ni Foam for Efficient Alkaline Hydrogen Evolution.	0
85	Recent progress on the long-term stability of hydrogen evolution reaction electrocatalysts.	6
84	Self-Derivation and Surface Reconstruction of Fe-Doped Ni ₃ S ₂ Electrode Realizing High-Efficient and Stable Overall Water and Urea Electrolysis. 2201913	5
83	Synergic effect of Fe-doping and Ni ₃ S ₂ /MnS heterointerface to boost efficient oxygen evolution reaction. 2022 , 141088	1
82	Surface engineering of TiO ₂ @SrTiO ₃ heterojunction with Ni ₂ S ₃ for efficient visible-light-driven photoelectrochemical cathodic protection. 2022 , 166861	
81	Surface-Induced Engineering: Formation of Induced Surface P(□)Co/Ni(□)-O(□)Based on NickelCobalt-Layered Double Hydroxide Nanoflowers for Photocatalytic Hydrogen Evolution.	0
80	Application of heteroatom doping strategy in electrolyzed water catalytic materials. 2022 , 921, 116679	0

- 79 Construction of MoS₂/NiFe-Ni foam p-n heterojunction as photoanode for tetracycline degradation and simultaneous cathodic hydrogen evolution. **2022**, 10, 108437 ○
- 78 Ultrafast detection of ammonia at room temperature and subsequent electrochemical water splitting via the ionic liquid templated nano nickel oxide. **2022**, 290, 126537
- 77 NiS/MoS₂ complex grown on carbon paper as a bifunctional electrocatalyst for full water splitting. **2022**, 926, 166870 ○
- 76 The charge transport double-channel structure facilitating Fe₅Ni₄S₈/Ni₃S₂ nanoarray for efficient and stable overall water splitting. **2022**, 604, 154473 ○
- 75 MoS₂/Ni₃S₂ Schottky heterojunction regulating local charge distribution for efficient urea oxidation and hydrogen evolution. **2022**, 628, 446-455 1
- 74 Anion dependency of spinel type cobalt catalysts for efficient overall water splitting in an acid medium. **2023**, 451, 138471 3
- 73 Vertically Aligned W(Mo)S₂/N-W(Mo)C Photoelectrocatalysis for Hydrogen Evolution in Acidic Solutions. ○
- 72 Synergistic catalysis of graphitic carbon nitride supported bimetallic sulfide nanostructures for efficient oxygen generation. **2022**, 58, 9202-9205 ○
- 71 Interface Engineering of Hierarchical NiCoP/NiCoS_x Heterostructure Arrays for Efficient Alkaline Hydrogen Evolution at Large Current Density. ○
- 70 Epitaxial growth of cactus-like heterojunction with perfect interface for efficient photoelectrochemical water splitting. **2023**, 452, 139406 ○
- 69 Utilizing the cross-linked effect and reconstruction strategy of phytic acid to build Fe-Co-Ni trimetallic amorphous carbon-matrix compounds as efficient oxygen evolution catalyst. **2023**, 629, 1003-1014 ○
- 68 Science and engineering for non-noble-metal-based electrocatalysts to boost their ORR performance: A critical review. **2023**, 474, 214854 1
- 67 Amorphized core-shell NiFeMo electrode for efficient bifunctional water splitting. **2023**, 607, 154803 ○
- 66 Inverted-design for highly-active hydrogen evolution electrocatalyst of MoS₂@Ni₃S₂ core-shell via unlocking the potential of Mo. **2022**, ○
- 65 Coupling Interface Construction of Ni(OH)₂/MoS₂ Composite Electrode for Efficient Alkaline Oxygen Evolution Reaction. **2022**, 12, 966 1
- 64 Recent Development of Nickel-Based Electrocatalysts for Urea Electrolysis in Alkaline Solution. **2022**, 12, 2970 ○
- 63 Investigation of Electrocatalytic behavior of mesoporous strontium selenide nanowires for hydrogen evolution reaction. ○
- 62 The Core/shell Structure P-doped MoS₂@Ni₃S₂ Nanorods Array for High Current Density Hydrogen Evolution in Alkaline and Acidic Electrolyte. ○

61	Two-dimensional double transition metal carbides as superior bifunctional electrocatalysts for overall water splitting. 2022 , 141257	0
60	Electrical and Structural Optimization of Nickel Sulfide Nano-Flower by Mn Modulation as Robust Bifunctional Electrocatalyst for Overall Water Splitting.	0
59	Green Synthesis of Hybrid Papain/Ni ₃ (PO ₄) ₂ Rods Electrocatalyst for Enhanced Oxygen Evolution Reaction.	0
58	Research progress of 1T-MoS ₂ in electrocatalytic hydrogen evolution. 2022 ,	0
57	Emerging noble metal-free Mo-based bifunctional catalysts for electrochemical energy conversion.	0
56	Advances in nonprecious metal catalysts for efficient water oxidation in alkaline media.	0
55	Attractive Electron Delocalization Behavior of FeCoMoPB Amorphous Nanoplates for Highly Efficient Alkaline Water Oxidation. 2204135	0
54	Cobalt Sulfide Nanoparticles Encapsulated in Carbon Nanotube-Grafted Carbon Nanofibers as Catalysts for Oxygen Evolution.	0
53	Innovative Strategies for Overall Water Splitting Using Nanostructured Transition Metal Electrocatalysts. 2023 , 6,	3
52	Directly growth of highly uniform MnSMoS ₂ on carbon cloth for advanced H ₂ evolution electrocatalyst in different pH electrolytes. 2022 ,	0
51	Advanced Two-Dimensional Materials for Green Hydrogen Generation: Strategies toward Corrosion Resistance Seawater Electrolysis-Review and Future Perspectives.	1
50	Ceria-Promoted Reconstruction of Ni-Based Electrocatalysts toward Efficient Oxygen Evolution. 13951-13960	2
49	In-situ growth of hierarchical trifunctional Co ₄ S ₃ /Ni ₃ S ₂ @MoS ₂ core-shell nanosheet array on nickel foam for overall water splitting and supercapacitor. 2022 ,	0
48	Application of in situ/operando characterization techniques in heterostructure catalysts toward water electrolysis.	0
47	vs-NiS ₂ /NiS Heterostructures Achieving Ultralow Overpotential in Alkaline Hydrogen Evolution.	0
46	Nest-like Ag-doped NiMoO ₄ /NF with rich oxygen vacancies as robust catalysts for highly efficient oxygen evolution. 2022 ,	0
45	Modulating interfacial charge distribution of NiSe nanoarrays with NiFe-LDH nanosheets for boosting oxygen evolution reaction. 2023 , 332, 126227	3
44	Hetero-structured NiMoO ₄ /Ni ₃ S ₄ /MoS ₂ pompons decorated nickel foam electrode for high-efficient urea and urine electrolysis. 2023 , 608, 155166	0

- 43 Boosting electrocatalytic activity of NiSe₂ nanosheets by anion-cation dual-doping for highly efficient hydrogen evolution reaction. **2023**, 933, 167793 ○
- 42 Ultrathin NiCo-LDH regulated by CuNiCo trimetallic spinel sulfides as highly active and stable electrocatalysts for overall water splitting. ○
- 41 Modulating Surface Electron Density of Heterointerface with Bio-Inspired Light-Trapping Nano-Structure to Boost Kinetics of Overall Water Splitting. 2205431 ○
- 40 Graphene-templated growth of MoS₂/Ni₃S₂ heterostructures as efficient electrocatalysts for overall water splitting. **2022**, 130550 ○
- 39 The construction of highly active bifunctional electrocatalyst of VS₄/Ni₃S₂ heterostructure for electrochemical water splitting. **2022**, 116979 ○
- 38 Chrysanthemum-like spinel nanomaterials assembled with bundled nanowires as an efficient catalyst for the oxygen evolution reaction. **2022**, 7, 310-318 ○
- 37 Recent progress on design and applications of transition metal chalcogenide-associated electrocatalysts for the overall water splitting. **2023**, 44, 7-49 ○
- 36 DFT calculation screened CoCu and CoFe dual-atom catalysts with remarkable hydrogen evolution reaction activity. **2023**, 324, 122244 ○
- 35 Mesoporous Strontium Hydroxide Hydrate as a Nanostructure-Dependent Electrocatalyst for Hydrogen Evolution Reaction. **2022**, 5, 18188-18198 ○
- 34 Engineering Single-Atom Sites into Pore-Confined Nanospaces of Porphyrinic Metal-Organic Frameworks for the Highly Efficient Photocatalytic Hydrogen Evolution Reaction. **2022**, 144, 22747-22758 ○
- 33 Hierarchical Flower-like NiFeSbP Electrocatalyst toward Efficient and Stable Urea-Assisted Electrolytic Hydrogen Production. **2022**, 5, 15689-15700 ○
- 32 Morphology evolution regulation of dual-doped S, Fe-NiMoO₄ microrods based on precipitation-dissolution equilibrium for oxygen evolution. **2022**, 126769 ○
- 31 Recent progress in non-noble metal-based electrocatalysts for urea-assisted electrochemical hydrogen production. **2022**, ○
- 30 Mo modified Co₃O₄ nanosheets array by a rapid quenching strategy for efficient oxygen evolution electrocatalysis. 9, ○
- 29 Controlled synthesis of NiCoM (M=P, S, Se, O)/Ni₃S₂/MoS₂ hybrid material as environmentally friendly water splitting catalyst. **2022**, ○
- 28 Defect-Rich MoS₂/CoS₂ Supported on In Situ Formed Graphene Layers for Efficient Overall Water Splitting. ○
- 27 Ni₃S₂@MoS₂@Ni₃Si₂ Seaweed-like Hybrid Structures In-situ Grown on Ni Foam as Efficient Bifunctional Electrocatalysts. ○
- 26 MoS₂/NiFeS₂ heterostructure as a highly efficient electrocatalyst for overall water splitting at high current densities. **2023**, ○

- 25 SnO₂@MoS₂ heterostructures grown on nickel foam as highly efficient bifunctional electrocatalyst for overall water splitting in alkaline media. **2023**, 938, 168678 ○
- 24 Co₃NiO₂ supported on reduced graphene oxide as a highly active and stable photocatalyst for hydrogen generation. **2023**, 338, 127232 ○
- 23 Facile hydrothermal synthesis of combined MoSe₂/PS nanostructures on nickel foam with superior electrocatalytic properties for hydrogen evolution reaction. **2022**, ○
- 22 Co_xMo_yNi_zO_w microrods grown on Ni foam for large-current-density alkaline hydrogen evolution with ultralow overpotential. **2023**, 123870 ○
- 21 Co-deposition of Co/Ni alloy catalysts from an ethylene glycol system for the hydrogen evolution reaction. **2023**, 13, 8901-8914 ○
- 20 Role of nanocomposites in hydrogen production. **2023**, 149-173 ○
- 19 Cd doped Ni₃S₂ nanosheet arrays grown on nickel foam as highly efficient and robust bifunctional electrocatalysts for alkaline overall water splitting. **2023**, 170072 ○
- 18 In-situ growth of 3D hierarchical FeOOH/Ni₃S₂ heterostructure as high performance electrocatalyst for overall water splitting. **2023**, 639, 24-32 ○
- 17 Construction of flower-like nanoassembly P-doped MOF-derived MoS₂/Co₉S₈ grown on hexagonal microporous aluminosilicate framework for overall water splitting in alkaline media. **2023**, 346, 128299 ○
- 16 Tiny Ni₃S₂ boosting MoS₂ hydrogen evolution in alkali by enlarging coupling boundaries and stimulating basal plane. **2023**, 642, 479-487 ○
- 15 One-pot synthesis of carbon-supported MoO₂ nanoparticles for efficient oxygen evolution reaction. **2023**, 298, 127432 ○
- 14 Vertically aligned W(Mo)S₂/N-W(Mo)C-based light-assisted electrocatalysis for hydrogen evolution in acidic solutions. **2023**, 42, 1535-1544 ○
- 13 Mechanistic insight into hydrothermally prepared molybdenum-based electrocatalyst for overall water splitting. **2023**, 445, 142050 ○
- 12 Metal sulfide enhanced metal-organic framework nanoarrays for electrocatalytic oxidation of 5-hydroxymethylfurfural to 2,5-furandicarboxylic acid. **2023**, 11, 6375-6383 ○
- 11 Anchoring Ni₃S₂/Cr(OH)₃ hybrid nanospheres on Ti₃C₂@NF dual substrates for efficient urea electrolysis by ion exchange. ○
- 10 Recent advances and future prospects on Ni₃S₂-Based electrocatalysts for efficient alkaline water electrolysis. **2023**, ○
- 9 Morphology Regulated Hierarchical Rods-, Buds-, and Sheets-like CoMoO₄ for Electrocatalytic Oxygen Evolution Reaction. **2023**, 16, 2441 ○
- 8 Nanosheet-assembled MoS₂/Ni₃S₂ microspheres for flexible energy storage devices. ○

- 7 In Situ Construction of Cobalt-Doped High-Dispersive Heazlewoodite for Efficient Oxygen Evolution. **2023**, 37, 5441-5447 ○
- 6 Modulating the Electronic Structure of Co in Co₃O₄/MoS₂ for Effective Oxygen Evolution Reaction. **2023**, 37, 6025-6035 ○
- 5 Phase transition in V-doped cobalt hydroxide for efficient oxygen evolution and urea oxidation reaction. **2023**, ○
- 4 In situ construction of WNi_{1-x}M_xNi LDH (M = Se, S, or P) with heterostructure as highly efficient electrocatalyst for overall water splitting and urea oxidation reaction. ○
- 3 Photogenerated Carrier-Assisted Electrocatalysts for Efficient Water Splitting. **2023**, 13, 712 ○
- 2 Honeycomb structured Co₃Ni₂Mo alloy deposits prepared from ethylene glycol systems and used as highly active and durable electrocatalysts for HER. **2023**, 953, 170190 ○
- 1 Nickel sulfide-based electrocatalysts for overall water splitting. **2023**, ○