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## Semiconducting materials for photoelectrochemical energy conversion

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1050	Visible-light-driven selective oxidation of benzyl alcohol and thioanisole by molecular ruthenium catalyst modified hematite. <b>2016</b> , 52, 9711-4		28
1049	Hetero-type dual photoanodes for unbiased solar water splitting with extended light harvesting. <b>2016</b> , 7, 13380		197
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864	Sulfone-containing covalent organic frameworks for photocatalytic hydrogen evolution from water. <b>2018</b> , 10, 1180-1189		526
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822	Chemical bath deposition synthesis of TiO <sub>2</sub> /Cu <sub>2</sub> O core/shell nanowire arrays with enhanced photoelectrochemical water splitting for H <sub>2</sub> evolution and photostability. <b>2018</b> , 43, 15907-15917	27
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816	CdS/Au/Ti/Pb(Mg <sub>1/3</sub> Nb <sub>2/3</sub> ) <sub>0.7</sub> Ti <sub>0.3</sub> O <sub>3</sub> photocatalysts and biphotocatalysts with ferroelectric polarization in single domain for efficient water splitting. <b>2018</b> , 238, 248-254	16
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563	One Step Synthesis of Tetragonal-CuBiO/Amorphous-BiFeO Heterojunction with Improved Charge Separation and Enhanced Photocatalytic Properties. <b>2020</b> , 10,	1
562	Thermal and spectroscopic characterization of sol-gel-synthesized doped lanthanum gallate. <b>2020</b> , 146, 1561	
561	Impact of chloride surface treatment on nano-porous GaN structure for enhanced water-splitting efficiency. <b>2020</b> , 532, 147465	8
560	Why Do We Use the Materials and Operating Conditions We Use for Heterogeneous (Photo)Electrochemical Water Splitting?. <b>2020</b> , 10, 11177-11234	36
559	Self-assembly synthesis of monodisperse BiVO <sub>4</sub> nanosphere via a hybrid strategy for photoelectrochemical water splitting. <b>2020</b> , 12, 5269-5275	1
558	Thermodynamic Investigation of Proton/Electron Interplay on the Pourbaix Diagram at the TiO <sub>2</sub> /Electrolyte Interface. <b>2020</b> , 124, 19003-19014	7
557	Nitrate Radical Facilitates Indirect Benzyl Alcohol Oxidation on Bismuth(III) Vanadate Photoelectrodes. <b>2020</b> , 7, 3776-3782	3
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554	Energy-Inexpensive Galvanic Deposition of BiOI on Electrodes and Its Conversion to 3D Porous BiVO <sub>4</sub> -Based Photoanode. <b>2020</b> , 124, 18930-18945	3
553	Spontaneous solar water splitting with decoupling of light absorption and electrocatalysis using silicon back-buried junction. <b>2020</b> , 11, 3930	24
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551	Dynamic charge transfer through Fermi level equilibration in the p-CuFe <sub>2</sub> O <sub>4</sub> /n-NiAl LDH interface towards photocatalytic application. <b>2020</b> , 10, 6285-6298	12
550	Can a PbCrO <sub>4</sub> Photoanode Perform as Well as Isoelectronic BiVO <sub>4</sub> ?. <b>2020</b> , 3, 8658-8666	3
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546	Extending lifetime of photoinduced charge carriers in CuO photocathode by Zn doping for photoelectrochemical water reduction. <b>2020</b> , 290, 121603	0
545	In situ approach to fabricate heterojunction p-n CuO/ZnO nanostructures for efficient photocatalytic reactions. <b>2020</b> , 44, 19742-19752	5
544	Nanoporous TaN electrochemical anodization followed by nitridation for solar water oxidation. <b>2020</b> , 49, 15023-15033	2
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542	Sol-gel synthesis of highly reproducible WO <sub>3</sub> photoanodes for solar water oxidation. <b>2020</b> , 63, 2261-2271	4
541	Highly efficient hydrogen evolution reaction, plasmon-enhanced by AuNP-L-TiO <sub>2</sub> NP photocatalysts. <b>2020</b> , 44, 16491-16500	1
540	A one-step synthesis of a TaN nanorod photoanode from Ta plates and NHCl powder for photoelectrochemical water oxidation. <b>2020</b> , 56, 11843-11846	2
539	A Dual-Heterojunction Cu <sub>2</sub> O/CdS/ZnO Nanotube Array Photoanode for Highly Efficient Photoelectrochemical Solar-Driven Hydrogen Production with 2.8% Efficiency. <b>2020</b> , 124, 21968-21977	7
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535	Photoelectrocatalytic production of solar fuels with semiconductor oxides: materials, activity and modeling. <b>2020</b> , 56, 12272-12289	13
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532	Tuning Hole Accumulation of Metal Oxides Promotes the Oxygen Evolution Rate. <b>2020</b> , 10, 10427-10435	5
531	Conjugated Acetylenic Polymers Grafted Cuprous Oxide as an Efficient Z-Scheme Heterojunction for Photoelectrochemical Water Reduction. <b>2020</b> , 32, e2002486	15
530	Photoelectrochemical Water Splitting Using a Concentrated Solar Flux-Assisted LaFeO <sub>3</sub> Photocathode. <b>2020</b> , 3, 9002-9009	1

529	Atomic structure and electronic properties of hydrogenated X (=C, Si, Ge, and Sn) doped TiO <sub>2</sub> : A theoretical perspective. <b>2020</b> , 10, 115316	1
528	All-electrochemically synthesized tin and nickel oxide-modified hematite as photo-electrocatalyst anodes for solar-driven water splitting. <b>2020</b> , 391, 273-281	9
527	Cobalt Metal-Organic Framework Ultrathin Cocatalyst Overlayer for Improved Photoelectrochemical Activity of Ti-Doped Hematite. <b>2020</b> , 3, 4867-4876	11
526	Enhanced Photoelectrochemical Water Oxidation from CdTe Photoanodes Annealed with CdCl <sub>2</sub> . <b>2020</b> , 132, 13904-13910	3
525	Recent Advancement of p- and d-Block Elements, Single Atoms, and Graphene-Based Photoelectrochemical Electrodes for Water Splitting. <b>2020</b> , 10, 2000280	40
524	Enhanced Photoelectrochemical Water Oxidation from CdTe Photoanodes Annealed with CdCl <sub>2</sub> . <b>2020</b> , 59, 13800-13806	6
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519	Polymeric carbon nitrides and related metal-free materials for energy and environmental applications. <b>2020</b> , 8, 11075-11116	82
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517	Semi-biological approaches to solar-to-chemical conversion. <b>2020</b> , 49, 4926-4952	56
516	Structural and photoelectrochemical properties of SrTaO <sub>2</sub> N oxynitride thin films deposited by reactive magnetron sputtering. <b>2020</b> , 40, 6301-6308	1
515	Comprehensive Study of the Growth Mechanism and Photoelectrochemical Activity of a BiVO <sub>4</sub> /BiS Nanowire Composite. <b>2020</b> , 12, 39713-39719	17
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506	Better Charge Separation in CuO Nanowire Array Photocathodes: Micro-/Nanostructure Regulation for Photoelectrochemical Reaction. <b>2020</b> , 3, 6334-6343	6
505	Effective Visible Light Exploitation by Copper Molybdo-tungstate Photoanodes. <b>2020</b> , 3, 6956-6964	3
504	Multilayer WO <sub>3</sub> /BiVO <sub>4</sub> Photoanodes for Solar-Driven Water Splitting Prepared by RF-Plasma Sputtering. <b>2020</b> , 3, 105-115	4
503	Pure CuBi <sub>2</sub> O <sub>4</sub> Photoelectrodes with Increased Stability by Rapid Thermal Processing of Bi <sub>2</sub> O <sub>3</sub> /CuO Grown by Pulsed Laser Deposition. <b>2020</b> , 30, 1910832	24
502	Light-Addressable Electrodes for Dynamic and Flexible Addressing of Biological Systems and Electrochemical Reactions. <b>2020</b> , 20,	4
501	Functional Blocking Layer of Twisted Tungsten Oxide Nanorod Grown by Electrochemical Anodization for Photoelectrochemical Water Splitting. <b>2020</b> , 167, 066501	4
500	Characteristics of crystalline sputtered LaFeO thin films as photoelectrochemical water splitting photocathodes. <b>2020</b> , 12, 9653-9660	7
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487	Photo-excited Oxygen Reduction and Oxygen Evolution Reactions Enable a High-Performance Zn-Air Battery. <b>2020</b> , 132, 18297-18301	8
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482	Combinatorial screening yields discovery of 29 metal oxide photoanodes for solar fuel generation. <b>2020</b> , 8, 4239-4243	7
481	Suppression of Point Defects for Band Edge Engineering in a Semiconducting Photocatalyst. <b>2020</b> , 11, 1708-1713	5
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478	Assessment of a W:BiVO-CuBiOTandem Photoelectrochemical Cell for Overall Solar Water Splitting. <b>2020</b> , 12, 13959-13970	24
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476	From Geometry to Activity: A Quantitative Analysis of WO <sub>3</sub> /Si Micropillar Arrays for Photoelectrochemical Water Splitting. <b>2020</b> , 30, 1909157	12

475	Recent Advances of Ferro-, Piezo-, and Pyroelectric Nanomaterials for Catalytic Applications. <b>2020</b> , 3, 1063-1079	101
474	CuO photocathodes with band-tail states assisted hole transport for standalone solar water splitting. <b>2020</b> , 11, 318	70
473	Tailored NiFe Catalyst on Silicon Photoanode for Efficient Photoelectrochemical Water Oxidation. <b>2020</b> , 124, 2844-2850	13
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471	Enhanced solar hydrogen generation using Cu <sub>2</sub> Cu <sub>2</sub> O integrated polypyrrole nanofibers as heterostructured catalysts. <b>2020</b> , 45, 6159-6173	22
470	Band gap engineering of Ce-doped anatase TiO through solid solubility mechanisms and new defect equilibria formalism. <b>2020</b> , 12, 4916-4934	23
469	Luminescence Amplification at BiVO <sub>4</sub> Photoanodes by Photoinduced Electrochemiluminescence. <b>2020</b> , 132, 15269-15272	4
468	Hexagonally ordered microbowl arrays decorated with ultrathin CuInS <sub>2</sub> nanosheets for enhanced photoelectrochemical performance. <b>2020</b> , 51, 134-142	7
467	Rational design of 1D/2D heterostructured photocatalyst for energy and environmental applications. <b>2020</b> , 395, 125030	75
466	Enhancing hydrogen evolution by photoelectrocatalysis of water splitting over a CdS flowers-loaded TiO <sub>2</sub> nanotube array film on the Ti foil substrate. <b>2020</b> , 46, 17606-17613	20
465	Photo/Bio-Electrochemical Systems for Environmental Remediation and Energy Harvesting. <b>2020</b> , 13, 3391-3403	5
464	P-type Ni(OH) <sub>2</sub> nanoparticles sensitize CdS nanorod array photoanode to prolong charge carrier lifetime and highly improve bias-free visible-light-driven H <sub>2</sub> evolution. <b>2020</b> , 271, 118945	17
463	Europium and terbium lanthanide ions co-doping in TiO <sub>2</sub> photoanode to synchronously improve light-harvesting and open-circuit voltage for high-efficiency dye-sensitized solar cells. <b>2020</b> , 202, 227-237	17
462	Combined Experimental and Theoretical Investigations of n-Type BiFeO <sub>3</sub> for Use as a Photoanode in a Photoelectrochemical Cell. <b>2020</b> , 32, 3262-3270	15
461	Mitigating voltage losses in photoelectrochemical cell scale-up. <b>2020</b> , 4, 2734-2740	12
460	Ferrites: emerging light absorbers for solar water splitting. <b>2020</b> , 8, 9447-9482	26
459	Efficient visible-light-driven water splitting performance of sulfidation-free, solution processed Cu <sub>2</sub> MgSnS <sub>4</sub> thin films: Role of post-drying temperature. <b>2020</b> , 203, 284-295	9
458	Luminescence Amplification at BiVO Photoanodes by Photoinduced Electrochemiluminescence. <b>2020</b> , 59, 15157-15160	8

457	Establishing best practices to model the electronic structure of CuFeO <sub>2</sub> from first principles. <b>2020</b> , 101,	6
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455	Oxygen Atom Transfer as an Alternative Pathway for Oxygen-Oxygen Bond Formation. <b>2020</b> , 59, 5966-5974	6
454	Grain Boundaries Limit the Charge Carrier Transport in Pulsed Laser Deposited BiWO <sub>4</sub> Thin Film Photoabsorbers. <b>2020</b> , 3, 4320-4330	15
453	Enhanced water oxidation performances of birnessite and magnetic birnessite nanocomposites by transition metal ion doping. <b>2020</b> , 4, 3157-3166	18
452	High photoelectrochemical performance of reduced graphene oxide wrapped, CdS functionalized, TiO <sub>2</sub> multi-leg nanotubes. <b>2020</b> , 31, 275701	7
451	Controlling phase fraction and crystal orientation via thermal oxidation of iron foils for enhanced photoelectrochemical performance. <b>2021</b> , 361, 117-123	1
450	High-performance bulky crystalline copper bismuthate photocathode for enhanced solar water splitting. <b>2021</b> , 80, 105568	5
449	Green-gradient multi-shell CuInSe <sub>2</sub> /(CuInSexS <sub>1-x</sub> ) <sub>5</sub> /CuInS <sub>2</sub> quantum dots for photo-electrochemical hydrogen generation. <b>2021</b> , 280, 119402	21
448	Dissymmetric interface design of SnO/TiO <sub>2</sub> side-by-side bi-component nanofibers as photoanodes for dye sensitized solar cells: Facilitated electron transport and enhanced carrier separation. <b>2021</b> , 583, 24-32	7
447	High-performance and stable inverted perovskite solar cells using low-temperature solution-processed CuNbO <sub>x</sub> hole transport layer. <b>2021</b> , 483, 229194	6
446	Charge accumulation kinetics in multi-redox molecular catalysts immobilised on TiO <sub>2</sub> . <b>2020</b> , 12, 946-959	6
445	Molten-based defect engineering polymeric carbon nitride quantum dots with enhanced hole extraction: An efficient photoelectrochemical cell for water oxidation. <b>2021</b> , 173, 339-349	4
444	Synergic effect of ZnO nanostructures and cobalt phosphate co-catalyst on photoelectrochemical properties of GaN. <b>2021</b> , 260, 124141	4
443	Highly Uniform, Self-Assembled AlGaIn Nanowires for Self-Powered Solar-Blind Photodetector with Fast-Response Speed and High Responsivity. <b>2021</b> , 9, 2000893	36
442	Elucidating the role of surface states of BiVO <sub>4</sub> with Mo doping and a CoOOH co-catalyst for photoelectrochemical water splitting. <b>2021</b> , 483, 229080	18
441	Mo-doping induced crystal orientation reconstruction and oxygen vacancy on BiVO <sub>4</sub> homojunction for enhanced solar-driven water splitting. <b>2021</b> , 421, 127796	9
440	Semiconductor photothermal materials enabling efficient solar steam generation toward desalination and wastewater treatment. <b>2021</b> , 500, 114853	39

439	Solar energy harvesting with ferroelectric materials. <b>2021</b> , 43-84	1
438	Bifunctional Perovskite-BiVO <sub>4</sub> Tandem Devices for Uninterrupted Solar and Electrocatalytic Water Splitting Cycles. <b>2021</b> , 31, 2008182	14
437	Pt/AlGa <sub>N</sub> Nanoarchitecture: Toward High Responsivity, Self-Powered Ultraviolet-Sensitive Photodetection. <b>2021</b> , 21, 120-129	55
436	A facile strategy for fabricating particle-on-flower Au-Cu <sub>3</sub> BiS <sub>3</sub> nanostructures for enhanced photoelectrocatalytic activity in water splitting. <b>2021</b> , 45, 1231-1239	1
435	Modulating photoelectrochemical water splitting performance by constructing a type-II heterojunction between g-C <sub>3</sub> N <sub>4</sub> and BiOI. <b>2021</b> , 45, 2010-2018	15
434	Structural, optoelectronic and photo-thermoelectric properties of crystalline alloy CuAl <sub>x</sub> Fe <sub>1-x</sub> O <sub>2</sub> delafossite oxide materials. <b>2021</b> , 857, 157613	3
433	Au@SiO <sub>2</sub> @Au core-shell-shell nanoparticles for enhancing photocatalytic activity of hematite. <b>2021</b> , 19, 100576	1
432	A Novel Visible-Light-Responsive Semiconductor ScTaO <sub>4</sub> N x for Photocatalytic Oxygen and Hydrogen Evolution Reactions. <b>2021</b> , 13, 180-184	2
431	Catalysis based on ferroelectrics: controllable chemical reaction with boosted efficiency. <b>2021</b> , 13, 7096-7107	8
430	Indirect bandgap, optoelectronic properties, and photoelectrochemical characteristics of high-purity TaN photoelectrodes. <b>2021</b> , 9, 20653-20663	2
429	Rationalizing the promotional effect of Mn oxides in benzene combustion using an O 2p-band center descriptor. <b>2021</b> , 57, 4942-4945	0
428	Electrochemically probing exciton transport in monolayers of two-dimensional semiconductors.. <b>2021</b> ,	4
427	Photoelectrochemical oxidation of water and degradation of pollutants using simple Bi-based metal oxide semiconductors under visible light irradiation. <b>2021</b> , 279-303	
426	An efficient and stable solar flow battery enabled by a single-junction GaAs photoelectrode. <b>2021</b> , 12, 156	5
425	Surface Reconstruction-Associated Partially Amorphized Bismuth Oxychloride for Boosted Photocatalytic Water Oxidation. <b>2021</b> , 13, 5088-5098	6
424	Effects of applied voltage on water at a gold electrode interface from molecular dynamics. <b>2021</b> , 12, 5865-5873	11
423	A hybrid bulk-heterojunction photoanode for direct solar-to-chemical conversion. <b>2021</b> , 14, 3141-3151	3
422	Metal oxide catalysts for photoelectrochemical water splitting. <b>2021</b> , 105-138	1

421	Custom plating of nanoscale semiconductor/catalyst junctions for photoelectrochemical water splitting. <b>2021</b> , 13, 1997-2004	1
420	Role of oxygen vacancy in metal oxide based photoelectrochemical water splitting. <b>2021</b> , 3, e12075	14
419	Nanomaterials for Water Splitting: A Greener Approach to Generate Hydrogen. <b>2021</b> , 1201-1220	1
418	Solar-driven valorisation of glycerol on BiVO <sub>4</sub> photoanodes: effect of co-catalyst and reaction media on reaction selectivity. <b>2021</b> , 9, 6252-6260	6
417	Overcoming Phase-Purity Challenges in Complex Metal Oxide Photoelectrodes: A Case Study of CuBi <sub>2</sub> O <sub>4</sub> . <b>2021</b> , 11, 2003474	9
416	Linking in situ charge accumulation to electronic structure in doped SrTiO reveals design principles for hydrogen-evolving photocatalysts. <b>2021</b> , 20, 511-517	24
415	Stand-Alone Photoelectrochemical Energy Conversions. <b>2021</b> , 5, 2000517	0
414	Directly visualizing carrier transport and recombination at individual defects within 2D semiconductors. <b>2021</b> , 12, 5102-5112	9
413	Doping-Induced Charge Localization Suppresses Electron-Hole Recombination in Copper Zinc Tin Sulfide: Quantum Dynamics Combined with Deep Neural Networks Analysis. <b>2021</b> , 12, 835-842	9
412	Efficiency gains for thermally coupled solar hydrogen production in extreme cold.	3
411	Interfacial Oxide Formation Limits the Photovoltage of BiVO <sub>4</sub> /NiO <sub>x</sub> Photoanodes Prepared by Pulsed Laser Deposition. <b>2021</b> , 11, 2003183	11
410	Magnetic, Electrical, and Optical Properties of Ferrites. <b>2021</b> , 25-47	
409	TiO <sub>2</sub> -based materials for photocatalytic hydrogen production. <b>2021</b> , 211-240	
408	The impact of surface composition on the interfacial energetics and photoelectrochemical properties of BiVO <sub>4</sub> . <b>2021</b> , 6, 287-294	37
407	Mediated Growth of Carbon Nitride Films via Spray-Coated Seeding Layers for Photoelectrochemical Applications. 2100005	2
406	Recent Advances on Conductive 2D Covalent Organic Frameworks. <b>2021</b> , 17, e2006043	18
405	TiO <sub>2</sub> Photocatalysis for the Transformation of Aromatic Water Pollutants into Fuels. <b>2021</b> , 11, 317	14
404	Enhanced solar-driven photocatalytic performance of a ternary composite of SnO quantum dots//AgVO nanoribbons//g-CN nanosheets (0D/1D/2D) structures for hydrogen production and dye degradation. <b>2021</b> , 28, 31585-31595	7

403	Composition effects come to the surface. <b>2021</b> , 6, 217-218	1
402	A Review of Inorganic Photoelectrode Developments and Reactor Scale-Up Challenges for Solar Hydrogen Production. <b>2021</b> , 11, 2003286	20
401	Highly Efficient Surface Charge Transfer in Fe <sub>2</sub> TiO <sub>5</sub> Epitaxial Thin Film Photoanodes. <b>2021</b> , 4, 2098-2106	3
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220	Vertically Aligned Graphene-Analogous Low-Dimensional Materials: A Review on Emerging Trends, Recent Developments, and Future Perspectives. 2101959	2
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215	Photoelectrochemical energy storage materials: design principles and functional devices towards direct solar to electrochemical energy storage.. <b>2022</b> ,	14
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