Todd G Deutsch

List of Publications by Year
in descending order

93 papers	6,101 citations	117625 34 h-index	91884 69 g-index
102 all docs	102 docs citations	102 times ranked	7572 citing authors

#	Article	IF	Citations
1	Technical and economic feasibility of centralized facilities for solar hydrogen production via photocatalysis and photoelectrochemistry. Energy and Environmental Science, 2013, 6, 1983.	30.8	1,119
2	Accelerating materials development for photoelectrochemical hydrogen production: Standards for methods, definitions, and reporting protocols. Journal of Materials Research, 2010, 25, 3-16.	2.6	1,032
3	Cobalt-phosphate (Co-Pi) catalyst modified Mo-doped BiVO4 photoelectrodes for solar water oxidation. Energy and Environmental Science, 2011, 4, 5028.	30.8	505
4	Direct solar-to-hydrogen conversion via inverted metamorphic multi-junction semiconductor architectures. Nature Energy, 2017, 2, .	39.5	333
5	Nanoporous black silicon photocathode for H2 production by photoelectrochemical water splitting. Energy and Environmental Science, 2011, 4, 1690.	30.8	221
6	Sunlight absorption in water â€" efficiency and design implications for photoelectrochemical devices. Energy and Environmental Science, 2014, 7, 2951-2956.	30.8	174
7	Enhanced photoelectrochemical responses of ZnO films through Ga and N codoping. Applied Physics Letters, 2007, 91, .	3.3	144
8	BiVO4/CuWO4 heterojunction photoanodes for efficient solar driven water oxidation. Physical Chemistry Chemical Physics, 2013, 15, 3273.	2.8	140
9	A Robust, Scalable Platform for the Electrochemical Conversion of CO₂ to Formate: Identifying Pathways to Higher Energy Efficiencies. ACS Energy Letters, 2020, 5, 1825-1833.	17.4	126
10	Direct Water Splitting under Visible Light with Nanostructured Hematite and WO[sub 3] Photoanodes and a GaInP[sub 2] Photocathode. Journal of the Electrochemical Society, 2008, 155, F91.	2.9	121
11	Enhancement of photoelectrochemical response by aligned nanorods in ZnO thin films. Journal of Power Sources, 2008, 176, 387-392.	7.8	115
12	Printed assemblies of GaAs photoelectrodes with decoupled optical and reactive interfaces for unassisted solar water splitting. Nature Energy, 2017, 2, .	39.5	115
13	Synthesis of band-gap-reduced p-type ZnO films by Cu incorporation. Journal of Applied Physics, 2007, 102, .	2.5	114
14	Solar-to-hydrogen efficiency: shining light on photoelectrochemical device performance. Energy and Environmental Science, 2016, 9, 74-80.	30.8	102
15	Photoelectrochemical activity of as-grown, Î±-Fe₂O₃nanowire array electrodes for water splitting. Nanotechnology, 2012, 23, 194009.	2.6	95
16	IIIâˆ'V Nitride Epilayers for Photoelectrochemical Water Splitting:Â GaPN and GaAsPNâ€. Journal of Physical Chemistry B, 2006, 110, 25297-25307.	2.6	94
17	ZnO nanocoral structures for photoelectrochemical cells. Applied Physics Letters, 2008, 93, 163117.	3.3	92
18	Electrochemical deposition of copper oxide nanowires for photoelectrochemical applications. Journal of Materials Chemistry, 2010, 20, 6962.	6.7	91

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19	Efficient photoelectrochemical water oxidation over cobalt-phosphate (Co-Pi) catalyst modified BiVO4/1D-WO3 heterojunction electrodes. Physical Chemistry Chemical Physics, 2013, 15, 14723.	2.8	83
20	Photoelectrochemical Properties of N-Incorporated ZnO Films Deposited by Reactive RF Magnetron Sputtering. Journal of the Electrochemical Society, 2007, 154, B956.	2.9	81
21	Molybdenum Disulfide as a Protection Layer and Catalyst for Gallium Indium Phosphide Solar Water Splitting Photocathodes. Journal of Physical Chemistry Letters, 2016, 7, 2044-2049.	4.6	74
22	Light induced water oxidation on cobalt-phosphate (Coâ€“Pi) catalyst modified semi-transparent, porous SiO2â€“BiVO4 electrodes. Physical Chemistry Chemical Physics, 2012, 14, 7032.	2.8	71
23	Carrier concentration tuning of bandgap-reduced p-type ZnO films by codoping of Cu and Ga for improving photoelectrochemical response. Journal of Applied Physics, 2008, 103, 073504.	2.5	65
24	Phosphonic Acid Modification of GaInP₂ Photocathodes Toward Unbiased Photoelectrochemical Water Splitting. ACS Applied Materials & Interfaces, 2015, 7, 11346-11350.	8.0	62
25	Employing Overlayers To Improve the Performance of Cu₂BaSnS₄ Thin Film based Photoelectrochemical Water Reduction Devices. Chemistry of Materials, 2017, 29, 916-920.	6.7	61
26	Ternary cobalt spinel oxides for solar driven hydrogen production: Theory and experiment. Energy and Environmental Science, 2009, 2, 774.	30.8	60
27	Practical challenges in the development of photoelectrochemical solar fuels production. Sustainable Energy and Fuels, 2020, 4, 985-995.	4.9	58
28	Synthesis and characterization of band gap-reduced ZnO:N and ZnO:(Al,N) films for photoelectrochemical water splitting. Journal of Materials Research, 2010, 25, 69-75.	2.6	56
29	Addressing the Stability Gap in Photoelectrochemistry: Molybdenum Disulfide Protective Catalysts for Tandem IIIâ€“V Unassisted Solar Water Splitting. ACS Energy Letters, 2020, 5, 2631-2640.	17.4	48
30	Influence of gas ambient on the synthesis of co-doped ZnO:(Al,N) films for photoelectrochemical water splitting. Journal of Power Sources, 2010, 195, 5801-5805.	7.8	47
31	High-Performance Bipolar Membrane Development for Improved Water Dissociation. ACS Applied Polymer Materials, 2020, 2, 4559-4569.	4.4	45
32	Amorphous silicon carbide photoelectrode for hydrogen production directly from water using sunlight. Philosophical Magazine, 2009, 89, 2723-2739.	1.6	42
33	High performance III-V photoelectrodes for solar water splitting via synergistically tailored structure and stoichiometry. Nature Communications, 2019, 10, 3388.	12.8	42
34	Photoelectrochemical Characterization and Durability Analysis of GaInPN Epilayers. Journal of the Electrochemical Society, 2008, 155, B903.	2.9	38
35	Titanium and magnesium Co-alloyed hematite thin films for photoelectrochemical water splitting. Journal of Applied Physics, 2012, 111, 073502.	2.5	30
36	New Visible Light Absorbing Materials for Solar Fuels, Ga(Sb_{<i>x</i>})N_{1â^'<i>x</i>}. Advanced Materials, 2014, 26, 2878-2882.	21.0	30

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37	Remarkable stability of unmodified GaAs photocathodes during hydrogen evolution in acidic electrolyte. Journal of Materials Chemistry A, 2016, 4, 2831-2836.	10.3	29
38	Synthesis and characterization of titanium-alloyed hematite thin films for photoelectrochemical water splitting. Journal of Applied Physics, 2011, 110, .	2.5	28
39	Covalent Surface Modification of Gallium Arsenide Photocathodes for Water Splitting in Highly Acidic Electrolyte. ChemSusChem, 2017, 10, 767-773.	6.8	27
40	Modeling Water Electrolysis in Bipolar Membranes. Journal of the Electrochemical Society, 2020, 167, 114502.	2.9	25
41	Interfacial engineering of gallium indium phosphide photoelectrodes for hydrogen evolution with precious metal and non-precious metal based catalysts. Journal of Materials Chemistry A, 2019, 7, 16821-16832.	10.3	24
42	Optimizing accuracy and efficacy in data-driven materials discovery for the solar production of hydrogen. Energy and Environmental Science, 2021, 14, 2335-2348.	30.8	23
43	UV-Vis Spectroscopy. SpringerBriefs in Energy, 2013, , 49-62.	0.3	22
44	Protection of GaInP₂ Photocathodes by Direct Photoelectrodeposition of MoS<i>_x</i> Thin Films. ACS Applied Materials & Interfaces, 2019, 11, 25115-25122.	8.0	18
45	Unassisted Water Splitting Using a GaSb x P (1â^' x) Photoanode. Advanced Energy Materials, 2018, 8, 1703247.	19.5	17
46	The stability of illuminated p-GaInP2 semiconductor photoelectrode. International Journal of Hydrogen Energy, 2012, 37, 14009-14014.	7.1	14
47	Photoelectrochemical water splitting using strain-balanced multiple quantum well photovoltaic cells. Sustainable Energy and Fuels, 2019, 3, 2837-2844.	4.9	14
48	Band gap reduction of ZnO for photoelectrochemical splitting of water. Proceedings of SPIE, 2007, , .	0.8	12
49	Flat-Band Potential Techniques. SpringerBriefs in Energy, 2013, , 63-85.	0.3	10
50	Incident Photon-to-Current Efficiency and Photocurrent Spectroscopy. SpringerBriefs in Energy, 2013, , 87-97.	0.3	9
51	Highly efficient and durable IIIâ€"V semiconductor-catalyst photocathodes <i>via</i> a transparent protection layer. Sustainable Energy and Fuels, 2020, 4, 1437-1442.	4.9	9
52	The effect of catholyte and catalyst layer binders on CO2 electroreduction selectivity. Chem Catalysis, 2022, 2, 400-421.	6.1	9
53	Direct Water Splitting Under Visible Light with a Nanostructured Photoanode and GaInP2 Photocathode. ECS Transactions, 2008, 6, 37-44.	0.5	8
54	Emergent Degradation Phenomena Demonstrated on Resilient, Flexible, and Scalable Integrated Photoelectrochemical Cells. Advanced Energy Materials, 2020, 10, 2002706.	19.5	8

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55	Reversible GaInP₂ Surface Passivation by Water Adsorption: A Model System for Ambient-Dependent Photoluminescence. Journal of Physical Chemistry C, 2016, 120, 4418-4422.	3.1	7
56	Understanding the Stability of Etched or Platinized p-GaInP Photocathodes for Solar-Driven H₂ Evolution. ACS Applied Materials & Interfaces, 2021, 13, 57350-57361.	8.0	6
57	Engineering Surface Architectures for Improved Durability in IIIâ€“V Photocathodes. ACS Applied Materials & Interfaces, 2022, 14, 20385-20392.	8.0	6
58	Long-Term Stability Metrics of Photoelectrochemical Water Splitting. Frontiers in Energy Research, 2022, 10, .	2.3	6
59	Novel Micropixelation Strategy to Stabilize Semiconductor Photoelectrodes for Solar Water Splitting Systems. Journal of Physical Chemistry C, 2012, 116, 19262-19267.	3.1	5
60	High-Throughput Experimental Study of Wurtzite Mn1â€“xZnxO Alloys for Water Splitting Applications. ACS Omega, 2019, 4, 7436-7447.	3.5	5
61	Development of a corrosion-resistant amorphous silicon carbide photoelectrode for solar-to-hydrogen photovoltaic/photoelectrochemical devices. , 2008, , .		4
62	Development of a hybrid photoelectrochemical (PEC) device with amorphous silicon carbide as the photoelectrode for water splitting. Materials Research Society Symposia Proceedings, 2009, 1171, 29.	0.1	4
63	Electronic structure study of N, O related defects in GaP for photoelectrochemical applications. Journal of Materials Chemistry A, 2013, 1, 8425.	10.3	4
64	Failure Modes of Platinized pn⁺-GaInP Photocathodes for Solar-Driven H₂ Evolution. ACS Applied Materials & Interfaces, 2022, 14, 26622-26630.	8.0	4
65	Surface modification of a-SiC photoelectrodes for photocurrent enhancement. , 2010, , .		3
66	Oxidation and characterization of AlInP under light-soaked, damp heat conditions. , 2010, , .		3
67	Virtual Special Issue on Catalysis at the U.S. Department of Energyâ€™s National Laboratories. ACS Catalysis, 2016, 6, 3227-3235.	11.2	2
68	Influence of support electrolytic in the electrodeposition of Cu Ga Se thin films. Superlattices and Microstructures, 2017, 101, 373-383.	3.1	2
69	PEC Characterization Flowchart. SpringerBriefs in Energy, 2013, , 45-47.	0.3	2
70	Experimental Considerations. SpringerBriefs in Energy, 2013, , 17-44.	0.3	2
71	Coaxial wires coax energy from water. Nature Catalysis, 2018, 1, 375-376.	34.4	1
72	Amorphous Silicon Carbide Photoelectrode for Hydrogen Production from Water using Sunlight. , 0, , .		0

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73	Photo-Electrochemical Hydrogen Generation from Inverted Metamorphic Multijunction III-Vs. , 2017, , .		0
74	Water Splitting: Emergent Degradation Phenomena Demonstrated on Resilient, Flexible, and Scalable Integrated Photoelectrochemical Cells (Adv. Energy Mater. 48/2020). Advanced Energy Materials, 2020, 10, 2070197.	19.5	0
75	(Invited) Photo-Electrochemical Hydrogen Production Systems Using III-V Semiconductors: Challenges in Scaling-up from an Electrode to a Device. ECS Meeting Abstracts, 2021, MA2021-01, 1241-1241.	0.0	0
76	(Photo)electrochemical Characterization of Doped ZnO Electrodes. ECS Meeting Abstracts, 2009, , .	0.0	0
77	Stability Testing. SpringerBriefs in Energy, 2013, , 115-118.	0.3	0
78	Bipolar Membrane Development for Reversible Fuel Cells. ECS Meeting Abstracts, 2019, , .	0.0	0
79	Towards Efficient Electrocatalytic Conversion of CO2 to Formate Via Novel Electrolyzer Configurations. ECS Meeting Abstracts, 2019, , .	0.0	0
80	Solar-to-Hydrogen Efficiency: Shining Light on Photoelectrochemical Device Performance. ECS Meeting Abstracts, 2019, , .	0.0	0
81	(Invited) HydroGEN PEC Supernode: Emergent Degradation Mechanisms with Integration and Scale up of PEC Devices. ECS Meeting Abstracts, 2019, , .	0.0	0
82	Bipolar Membrane Development for Fuel Cells and Electrolyzers. ECS Meeting Abstracts, 2019, , .	0.0	0
83	(Invited) Electrocatalytic Reduction of CO2in Gas-Phase Electrolyzers: Moving Towards a Relevant Use of CO2. ECS Meeting Abstracts, 2019, , .	0.0	0
84	Modeling of a Gas-Phase, Bipolar Membrane CO2 Electrolyzer. ECS Meeting Abstracts, 2019, , .	0.0	0
85	CO2electrolyzer Development: Preliminary Results from a Bipolar-Membrane-Based Flow Cell for Electrocatalytic Reduction of Carbon Dioxide. ECS Meeting Abstracts, 2019, , .	0.0	0
86	Photoelectrochemical Water Splitting Using Multiple Quantum Well Photovoltaic Devices. ECS Meeting Abstracts, 2019, , .	0.0	0
87	Hydrogen PEC Supernode: Emergent Degradation Mechanisms with Integration and Scale up of PEC Devices. ECS Meeting Abstracts, 2019, , .	0.0	0
88	Electrocatalytic Reduction of Carbon Dioxide at a Triple Phase Boundary in Flow Reactors. , 0, , .		0
89	Photo-Electrochemical Hydrogen Production Systems using III-V Semiconductors: Challenges in Scaling-up from an Electrode to a Device. , 0, , .		0
90	(Invited) Enabling Scalable CO/CO2 Reduction. ECS Meeting Abstracts, 2021, MA2021-02, 816-816.	0.0	0

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91	Crosscutting Multiscale Modeling of Electrolysis Cells for Accelerating Materials R&D. ECS Meeting Abstracts, 2021, MA2021-02, 1350-1350.	0.0	0
92	Photo-Electrochemical Hydrogen Production Systems using III-V Semiconductors: Challenges in Scaling-up from an Electrode to a Device. , 0, , .		0
93	Electrocatalytic Reduction of Carbon Dioxide at a Triple Phase Boundary in Flow Reactors. , 0, , .		0