Avner Rothschild

List of Publications by Year
in descending order

98
papers

8,925
citations

50170
46
h-index

40881
93
g-index

107
all docs

107
docs citations

107
times ranked

10831
citing authors

#	Article	IF	Citations
1	Probing the photoelectrochemical properties of hematite (Î±-Fe₂O₃) electrodes using hydrogen peroxide as a hole scavenger. Energy and Environmental Science, 2011, 4, 958-964.	15.6	933
2	Ultrasensitive Chemiresistors Based on Electrospun TiO2 Nanofibers. Nano Letters, 2006, 6, 2009-2013.	4.5	573
3	The effect of grain size on the sensitivity of nanocrystalline metal-oxide gas sensors. Journal of Applied Physics, 2004, 95, 6374-6380.	1.1	560
4	Identifying champion nanostructures for solar water-splitting. Nature Materials, 2013, 12, 842-849.	13.3	527
5	Photoelectrochemical water splitting in separate oxygen and hydrogen cells. Nature Materials, 2017, 16, 646-651.	13.3	418
6	Ultrasensitive and Highly Selective Gas Sensors Based on Electrospun SnO₂ Nanofibers Modified by Pd Loading. Advanced Functional Materials, 2010, 20, 4258-4264.	7.8	368
7	Selective Detection of Acetone and Hydrogen Sulfide for the Diagnosis of Diabetes and Halitosis Using SnO₂ Nanofibers Functionalized with Reduced Graphene Oxide Nanosheets. ACS Applied Materials & Interfaces, 2014, 6, 2588-2597.	4.0	347
8	Resonant light trapping in ultrathin films for water splitting. Nature Materials, 2013, 12, 158-164.	13.3	309
9	Decoupled hydrogen and oxygen evolution by a two-step electrochemicalâ€“chemical cycle for efficient overall water splitting. Nature Energy, 2019, 4, 786-795.	19.8	296
10	Advances and new directions in gas-sensing devices. Acta Materialia, 2013, 61, 974-1000.	3.8	282
11	Enhancement in the Performance of Ultrathin Hematite Photoanode for Water Splitting by an Oxide Underlayer. Advanced Materials, 2012, 24, 2699-2702.	11.1	271
12	Electronic Structure, Defect Chemistry, and Transport Properties of SrTi1-xFexO3-ySolid Solutions. Chemistry of Materials, 2006, 18, 3651-3659.	3.2	220
13	Hollow ZnO Nanofibers Fabricated Using Electrospun Polymer Templates and Their Electronic Transport Properties. ACS Nano, 2009, 3, 2623-2631.	7.3	208
14	Microsphere Templating as Means of Enhancing Surface Activity and Gas Sensitivity of CaCu3Ti4O12Thin Films. Nano Letters, 2006, 6, 193-198.	4.5	147
15	Thin-walled SnO₂nanotubes functionalized with Pt and Au catalysts via the protein templating route and their selective detection of acetone and hydrogen sulfide molecules. Nanoscale, 2015, 7, 16417-16426.	2.8	144
16	Sensing behavior of TiO2 thin films exposed to air at low temperatures. Sensors and Actuators B: Chemical, 2000, 67, 282-289.	4.0	138
17	Transpiration Driven Electrokinetic Power Generator. ACS Nano, 2019, 13, 12703-12709.	7.3	134
18	Empirical in operando analysis of the charge carrier dynamics in hematite photoanodes by PEIS, IMPS and IMVS. Physical Chemistry Chemical Physics, 2016, 18, 23438-23457.	1.3	131

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19	On the Solar to Hydrogen Conversion Efficiency of Photoelectrodes for Water Splitting. Journal of Physical Chemistry Letters, 2014, 5, 3330-3334.	2.1	128
20	Nanostructured metal oxide gas sensors prepared by electrospinning. Polymers for Advanced Technologies, 2011, 22, 318-325.	1.6	120
21	Systematic comparison of different dopants in thin film hematite (Î±-Fe₂O₃) photoanodes for solar water splitting. Journal of Materials Chemistry A, 2016, 4, 3091-3099.	5.2	112
22	Live cyanobacteria produce photocurrent and hydrogen using both the respiratory and photosynthetic systems. Nature Communications, 2018, 9, 2168.	5.8	104
23	Temperature-independent resistive oxygen sensors based on SrTi1â^’xFexO3â^’Î´ solid solutions. Sensors and Actuators B: Chemical, 2005, 108, 223-230.	4.0	102
24	Processing-Microstructure-Properties Correlation of Ultrasensitive Gas Sensors Produced by Electrospinning. Chemistry of Materials, 2009, 21, 9-11.	3.2	98
25	Selectivity enhancement of SnO2 nanofiber gas sensors by functionalization with Pt nanocatalysts and manipulation of the operation temperature. Sensors and Actuators B: Chemical, 2013, 188, 156-168.	4.0	95
26	Decoupled Photoelectrochemical Water Splitting System for Centralized Hydrogen Production. Joule, 2020, 4, 448-471.	11.7	91
27	Fabrication and gas sensing properties of hollow SnO2 hemispheres. Chemical Communications, 2009, , 4019.	2.2	85
28	The â€œRustâ€•Challenge: On the Correlations between Electronic Structure, Excited State Dynamics, and Photoelectrochemical Performance of Hematite Photoanodes for Solar Water Splitting. Advanced Materials, 2018, 30, e1706577.	11.1	83
29	Hybrid bio-photo-electro-chemical cells for solar water splitting. Nature Communications, 2016, 7, 12552.	5.8	74
30	Numerical computation of chemisorption isotherms for device modeling of semiconductor gas sensors. Sensors and Actuators B: Chemical, 2003, 93, 362-369.	4.0	73
31	Beating the Efficiency of Photovoltaics-Powered Electrolysis with Tandem Cell Photoelectrolysis. ACS Energy Letters, 2017, 2, 45-51.	8.8	73
32	High Solar Flux Concentration Water Splitting with Hematite (Î±â€•Fe₂O₃) Photoanodes. Advanced Energy Materials, 2016, 6, 1500817.	10.2	72
33	Quantitative evaluation of chemisorption processes on semiconductors. Journal of Applied Physics, 2002, 92, 7090-7097.	1.1	64
34	Electronic and transport properties of reduced and oxidized nanocrystalline TiO2 films. Applied Physics Letters, 2003, 82, 574-576.	1.5	64
35	Macroporous TiO2 thin film gas sensors obtained using colloidal templates. Sensors and Actuators B: Chemical, 2008, 130, 9-13.	4.0	61
36	Direct current bias effects on grain boundary Schottky barriers in CaCu3Ti4O12. Applied Physics Letters, 2006, 88, 072902.	1.5	60

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37	The electrical properties and stability of SrTi0.65Fe0.35O3â^’Î´ thin films for automotive oxygen sensor applications. Sensors and Actuators B: Chemical, 2005, 108, 231-237.	4.0	59
38	Heterogeneous Doping to Improve the Performance of Thin-Film Hematite Photoanodes for Solar Water Splitting. ACS Energy Letters, 2016, 1, 827-833.	8.8	59
39	Surface photovoltage spectroscopy study of reduced and oxidized nanocrystalline TiO2 films. Surface Science, 2003, 532-535, 456-460.	0.8	56
40	On the Relationship Between the Grain Size and Gas-Sensitivity of Chemo-Resistive Metal-Oxide Gas Sensors with Nanosized Grains. Journal of Electroceramics, 2004, 13, 697-701.	0.8	56
41	Thermally oxidized iron oxide nanoarchitectures for hydrogen production by solar-induced water splitting. International Journal of Hydrogen Energy, 2012, 37, 8102-8109.	3.8	54
42	Different Roles of Fe_{1â€“<i>x</i>}Ni_{<i>x</i>}OOH Cocatalyst on Hematite (Î±-Fe₂O₃) Photoanodes with Different Dopants. ACS Catalysis, 2018, 8, 2754-2759.	5.5	53
43	Gas sensors: New materials and processing approaches. Journal of Electroceramics, 2006, 17, 1005-1012.	0.8	52
44	Influence of Ti Doping Levels on the Photoelectrochemical Properties of Thin-Film Hematite (Î±-Fe₂O₃) Photoanodes. Journal of Physical Chemistry C, 2017, 121, 4206-4213.	1.5	51
45	Accurate determination of the charge transfer efficiency of photoanodes for solar water splitting. Physical Chemistry Chemical Physics, 2017, 19, 20383-20392.	1.3	49
46	Propagation Length of Antiferromagnetic Magnons Governed by Domain Configurations. Nano Letters, 2020, 20, 306-313.	4.5	48
47	Highly enhanced electrochemical performance of silicon-free platinumâ€“yttria stabilized zirconia interfaces. Journal of Electroceramics, 2009, 22, 428-435.	0.8	45
48	The Spatial Collection Efficiency of Charge Carriers in Photovoltaic and Photoelectrochemical Cells. Joule, 2018, 2, 210-224.	11.7	36
49	Effect of Orientation on Bulk and Surface Properties of Sn-doped Hematite (Î±-Fe₂O₃) Heteroepitaxial Thin Film Photoanodes. Journal of Physical Chemistry C, 2016, 120, 28961-28970.	1.5	35
50	High Performance Core/Shell Ni/Ni(OH)₂ Electrospun Nanofiber Anodes for Decoupled Water Splitting. Advanced Functional Materials, 2021, 31, 2008118.	7.8	32
51	Extraction of mobile charge carrier photogeneration yield spectrum of ultrathin-film metal oxide photoanodes for solar water splitting. Nature Materials, 2021, 20, 833-840.	13.3	32
52	Heteroepitaxial hematite photoanodes as a model system for solar water splitting. Journal of Materials Chemistry A, 2016, 4, 3052-3060.	5.2	30
53	Tunable gas sensing properties of p- and n-doped ZnO thin films. Sensors and Actuators B: Chemical, 2010, 148, 379-387.	4.0	29
54	Microstructure evolution of TiO2 gas sensors produced by electrospinning. Sensors and Actuators B: Chemical, 2012, 171-172, 118-126.	4.0	29

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55	Tailoring the gas sensing properties of ZnO thin films through oxygen nonstoichiometry. Applied Physics Letters, 2008, 93, .	1.5	28
56	Rigorous substrate cleaning process for reproducible thin film hematite (Î±-Fe₂O₃) photoanodes. Journal of Materials Research, 2016, 31, 1565-1573.	1.2	28
57	Photosynthetic Membranes of Synechocystis or Plants Convert Sunlight to Photocurrent through Different Pathways due to Different Architectures. PLoS ONE, 2015, 10, e0122616.	1.1	26
58	Effect of Doping and Excitation Wavelength on Charge Carrier Dynamics in Hematite by Timeâ€Resolved Microwave and Terahertz Photoconductivity. Advanced Functional Materials, 2020, 30, 1901590.	7.8	25
59	Memory diodes with nonzero crossing. Applied Physics Letters, 2013, 102, .	1.5	23
60	The Photosystem II D1-K238E mutation enhances electrical current production using cyanobacterial thylakoid membranes in a bio-photoelectrochemical cell. Photosynthesis Research, 2015, 126, 161-169.	1.6	23
61	Defect Segregation and Its Effect on the Photoelectrochemical Properties of Ti-Doped Hematite Photoanodes for Solar Water Splitting. Chemistry of Materials, 2020, 32, 1031-1040.	3.2	23
62	Two-site H2O2 photo-oxidation on haematite photoanodes. Nature Communications, 2018, 9, 4060.	5.8	22
63	Wasted photons: photogeneration yield and charge carrier collection efficiency of hematite photoanodes for photoelectrochemical water splitting. Energy and Environmental Science, 2021, 14, 4584-4598.	15.6	22
64	Empirical Analysis of the Photoelectrochemical Impedance Response of Hematite Photoanodes for Water Photo-oxidation. Journal of Physical Chemistry Letters, 2018, 9, 1466-1472.	2.1	19
65	Implementing Strong Interference in Ultrathin Film Top Absorbers for Tandem Solar Cells. ACS Photonics, 2018, 5, 5068-5078.	3.2	19
66	Structural sensitivity of the spin Hall magnetoresistance in antiferromagnetic thin films. Physical Review B, 2020, 102, .	1.1	19
67	Defect chemistry of<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:mi>p</mml:mi><mml:mi>n</mml:mi></mml:mrow></mml:math>junctions in complex oxides. Physical Review B, 2010, 82, .	1.1	17
68	Fibrous TiO2 gas sensors produced by electrospinning. Journal of Electroceramics, 2015, 35, 148-159.	0.8	16
69	Nano Gold Rush: On the Origin of the Photocurrent Enhancement in Hematite Photoanodes Decorated with Gold Nanoparticles. Journal of Physical Chemistry C, 2016, 120, 15042-15051.	1.5	15
70	Magnetic states at the surface of <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:mi>Î±</mml:mi><mml:mtext>â^’</mml:mtext><mml:msub>< mathvariant="normal">O</mml:mi><mml:mn>3</mml:mn></mml:msub></mml:mrow></mml:math> thin films doped with Ti, Zn, or Sn. Physical Review B, 2017, 96, .	1.1	15
71	Wavelength Dependent Photocurrent of Hematite Photoanodes: Reassessing the Hole Collection Length. Journal of Physical Chemistry C, 2017, 121, 28287-28292.	1.5	15
72	Low Temperature Reoxidation Mechanism in Nanocrystalline TiO[sub 2â^’Î] Thin Films. Journal of the Electrochemical Society, 2001, 148, H85.	1.3	14

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73	High Temperature Electrolysis of CO₂for Fuel Production. Journal of the Electrochemical Society, 2016, 163, F79-F87.	1.3	13
74	The mechanism of grain growth at general grain boundaries in SrTiO3. Scripta Materialia, 2020, 188, 206-211.	2.6	13
75	Negative differential resistance and hysteresis in Au/MoO_{3â^'Î´}/Au devices. RSC Advances, 2017, 7, 38059-38068.	1.7	12
76	Film Flip and Transfer Process to Enhance Light Harvesting in Ultrathin Absorber Films on Specular Backâ€Reflectors. Advanced Materials, 2018, 30, 1802781.	11.1	12
77	An insulating doped antiferromagnet with low magnetic symmetry as a room temperature spin conduit. Applied Physics Letters, 2020, 117, .	1.5	12
78	Titanium oxide thin film gas sensors. Physica Scripta, 2007, T129, 157-159.	1.2	10
79	Epitaxial growth of Nb-doped SrTiO3 films by pulsed laser deposition. Applied Surface Science, 2012, 258, 9496-9500.	3.1	10
80	In-situ high resolution transmission electron microscopy observation of silicon nanocrystal nucleation in a SiO2 bilayered matrix. Applied Physics Letters, 2014, 105, 053116.	1.5	9
81	Operando X-ray Absorption Spectroscopy (XAS) Observation of Photoinduced Oxidation in FeNi (Oxy)hydroxide Overlayers on Hematite (Î±-Fe₂O₃) Photoanodes for Solar Water Splitting. Langmuir, 2020, 36, 11564-11572.	1.6	9
82	Carbon-cloth-supported nickel hydroxide anodes for electrochemicalâ€"thermally-activated chemical (E-TAC) water splitting. Journal of Materials Chemistry A, 2022, 10, 726-739.	5.2	9
83	Parallel water photo-oxidation reaction pathways in hematite photoanodes: implications for solar fuel production. Energy and Environmental Science, 2022, 15, 2445-2459.	15.6	9
84	Title is missing!. Journal of Materials Science, 2001, 9, 157-162.	1.2	8
85	Parallel Band and Hopping Electron Transport in SrTiO₃. Advanced Electronic Materials, 2016, 2, 1500368.	2.6	8
86	Schottky barrier height switching in thin metal oxide films studied in diode and solar cell device configurations. Journal of Applied Physics, 2015, 118, .	1.1	6
87	Considerations for the Accurate Measurement of Incident Photon to Current Efficiency in Photoelectrochemical Cells. Frontiers in Energy Research, 2022, 9, .	1.2	6
88	In situ sonochemical hydrolysis and deposition of composite layers of ionic liquid entrapped in colloidal silica network and their application as sensors for various gases. Ultrasonics Sonochemistry, 2010, 17, 726-729.	3.8	5
89	Resolving Bulk and Grain Boundary Transport Properties of TiO₂ Thin Films Enabled by Laserâ€Induced Anisotropic Morphology. Advanced Materials, 2011, 23, 3266-3271.	11.1	5
90	Separation of light confinement and absorption sites for enhancing solar water splitting. Journal of Materials Chemistry A, 2016, 4, 3043-3051.	5.2	4

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91	New electrolyzer principles: decoupled water splitting. , 2022, , 407-454.		4
92	Oxygen transport in epitaxial SrTiO₃/SrTi_{1â€‰â^’â€‰<i>x</i>}Fe_{<i>x</i>} multilayer stacks. Journal of Sensors and Sensor Systems, 2017, 6, 107-119.	0.6	3
93	Defect chemical modeling of Pd/ZnO Schottky junctions. Solid State Ionics, 2013, 233, 80-86.	1.3	2
94	Electronic excitations of Î±â^'Fe2O3 heteroepitaxial films measured by resonant inelastic x-ray scattering at the Fe L edge. Physical Review B, 2022, 105, .	1.1	2
95	Electrospun nanostructured TiO<inf>2</inf> gas sensors. , 2008, , .		1
96	Magnon transport in the presence of antisymmetric exchange in a weak antiferromagnet. Journal of Magnetism and Magnetic Materials, 2022, 543, 168631.	1.0	1
97	External Quantum Efficiency Spectra of BiVO₄ Thin Film Photoanodes under Bias Illumination. Journal of the Electrochemical Society, 2022, 169, 046513.	1.3	1
98	(Invited) Reflections on Rust: Iron Oxide Photoelectrodes for Solar Energy Conversion and Storage. ECS Meeting Abstracts, 2017, , .	0.0	0