

# Lionel Vayssieres

## List of Publications by Year in descending order

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104  
papers

11,935  
citations

101384

36  
h-index

82410

72  
g-index

111  
all docs

111  
docs citations

111  
times ranked

13681  
citing authors

#	ARTICLE	IF	CITATIONS
1	Growth of Arrayed Nanorods and Nanowires of ZnO from Aqueous Solutions. <i>Advanced Materials</i> , 2003, 15, 464-466.	11.1	2,569
2	Artificial photosynthesis for solar water-splitting. <i>Nature Photonics</i> , 2012, 6, 511-518.	15.6	1,790
3	Purpose-Built Anisotropic Metal Oxide Material: A 3D Highly Oriented Microrod Array of ZnO. <i>Journal of Physical Chemistry B</i> , 2001, 105, 3350-3352.	1.2	903
4	Three-Dimensional Array of Highly Oriented Crystalline ZnO Microtubes. <i>Chemistry of Materials</i> , 2001, 13, 4395-4398.	3.2	890
5	Hydrothermally grown oriented ZnO nanorod arrays for gas sensing applications. <i>Nanotechnology</i> , 2006, 17, 4995-4998.	1.3	636
6	Controlled Aqueous Chemical Growth of Oriented Three-Dimensional Crystalline Nanorod Arrays: Application to Iron(III) Oxides. <i>Chemistry of Materials</i> , 2001, 13, 233-235.	3.2	480
7	Photoelectrochemical Studies of Oriented Nanorod Thin Films of Hematite. <i>Journal of the Electrochemical Society</i> , 2000, 147, 2456.	1.3	454
8	Size Tailoring of Magnetite Particles Formed by Aqueous Precipitation: An Example of Thermodynamic Stability of Nanometric Oxide Particles. <i>Journal of Colloid and Interface Science</i> , 1998, 205, 205-212.	5.0	353
9	One-Dimensional Quantum-Confinement Effect in $\text{Fe}_2\text{O}_3$ Ultrafine Nanorod Arrays. <i>Advanced Materials</i> , 2005, 17, 2320-2323.	11.1	338
10	Aqueous photoelectrochemistry of hematite nanorod array. <i>Solar Energy Materials and Solar Cells</i> , 2002, 71, 231-243.	3.0	281
11	Highly Ordered $\text{SnO}_2$ Nanorod Arrays from Controlled Aqueous Growth. <i>Angewandte Chemie - International Edition</i> , 2004, 43, 3666-3670.	7.2	261
12	A perspective on solar-driven water splitting with all-oxide hetero-nanostructures. <i>Energy and Environmental Science</i> , 2011, 4, 3889.	15.6	219
13	On the design of advanced metal oxide nanomaterials. <i>International Journal of Nanotechnology</i> , 2004, 1, 1.	0.1	189
14	Electronic structure of nanostructured ZnO from x-ray absorption and emission spectroscopy and the local density approximation. <i>Physical Review B</i> , 2004, 70, .	1.1	180
15	Adsorption of bi-isonicotinic acid on rutile $\text{TiO}_2(110)$ . <i>Journal of Chemical Physics</i> , 1999, 110, 5913-5918.	1.2	165
16	A Place in the Sun for Artificial Photosynthesis?. <i>ACS Energy Letters</i> , 2016, 1, 121-135.	8.8	163
17	Nanostructured ZnO electrodes for photovoltaic applications. <i>Scripta Materialia</i> , 1999, 12, 487-490.	0.5	148
18	Titanium incorporation into hematite photoelectrodes: theoretical considerations and experimental observations. <i>Energy and Environmental Science</i> , 2014, 7, 3100-3121.	15.6	118

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19	Purpose-built metal oxide nanomaterials. The emergence of a new generation of smart materials. Pure and Applied Chemistry, 2000, 72, 47-52.	0.9	111
20	Atomic-Scale Origin of Long-Term Stability and High Performance of GaN Nanowire Arrays for Photocatalytic Overall Pure Water Splitting. Advanced Materials, 2016, 28, 8388-8397.	11.1	106
21	Photoelectrochemical Properties of Nano- to Microstructured ZnO Electrodes. Journal of the Electrochemical Society, 2001, 148, A149.	1.3	96
22	Stability and Performance of Sulfide-, Nitride-, and Phosphide-Based Electrodes for Photocatalytic Solar Water Splitting. Journal of Physical Chemistry Letters, 2017, 8, 5228-5238.	2.1	92
23	Aqueous Chemical Route to Ferromagnetic 3-D Arrays of Iron Nanorods. Nano Letters, 2002, 2, 1393-1395.	4.5	90
24	Efficient Unassisted Overall Photocatalytic Seawater Splitting on GaN-Based Nanowire Arrays. Journal of Physical Chemistry C, 2018, 122, 13797-13802.	1.5	85
25	The electronic structure of the cis-bis(4,4'-dicarboxy-2,2'-bipyridine)-bis(isothiocyanato)ruthenium(II) complex and its ligand 2,2'-bipyridyl-4,4'-dicarboxylic acid studied with electron spectroscopy. Chemical Physics Letters, 1997, 274, 51-57.	1.2	83
26	Polarization-dependent soft-x-ray absorption of highly oriented ZnO microrod arrays. Journal of Physics Condensed Matter, 2002, 14, 6969-6974.	0.7	74
27	Electron Enrichment in 3d Transition Metal Oxide Hetero-Nanostructures. Nano Letters, 2011, 11, 3855-3861.	4.5	74
28	On the Effect of Nanoparticle Size on Water-Oxide Interfacial Chemistry. Journal of Physical Chemistry C, 2009, 113, 4733-4736.	1.5	58
29	Spontaneous photoelectric field-enhancement effect prompts the low cost hierarchical growth of highly ordered heteronanostructures for solar water splitting. Nano Research, 2016, 9, 1561-1569.	5.8	51
30	An aqueous solution approach to advanced metal oxide arrays on substrates. Applied Physics A: Materials Science and Processing, 2007, 89, 1-8.	1.1	49
31	Making of an Industry-Friendly Artificial Photosynthesis Device. ACS Energy Letters, 2018, 3, 2230-2231.	8.8	48
32	2-D Mesoparticulate Arrays of $\text{Cr}_2\text{O}_3$ . Journal of Physical Chemistry B, 2003, 107, 2623-2625.	1.2	46
33	On the Interfacial Electronic Structure Origin of Efficiency Enhancement in Hematite Photoanodes. Journal of Physical Chemistry C, 2012, 116, 22780-22785.	1.5	46
34	In Situ/Operando X-ray Spectroscopies for Advanced Investigation of Energy Materials. Chemistry - A European Journal, 2018, 24, 18356-18373.	1.7	43
35	Photoelectrochemical water oxidation at FTO   $\text{WO}_3$ @ $\text{CuWO}_4$ and FTO   $\text{WO}_3$ @ $\text{CuWO}_4$   $\text{BiVO}_4$ heterojunction systems: An IMPS analysis. Electrochimica Acta, 2019, 308, 317-327.	2.6	43
36	$\text{TiO}_2$ - $\text{SnO}_2$ interfacial electronic structure investigated by soft x-ray absorption spectroscopy. Physical Review B, 2012, 85, .	1.1	39

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37	On the thermodynamic stability of metal oxide nanoparticles in aqueous solutions. International Journal of Nanotechnology, 2005, 2, 411.	0.1	35
38	Advanced semiconductor nanostructures. Comptes Rendus Chimie, 2006, 9, 691-701.	0.2	34
39	X-ray absorption and emission spectroscopy of ZnO nanoparticle and highly oriented ZnO microrod arrays. Microelectronics Journal, 2006, 37, 686-689.	1.1	34
40	Size effect on the conduction band orbital character of anatase TiO <sub>2</sub> nanocrystals. Applied Physics Letters, 2011, 99, 183101.	1.5	32
41	Aqueous Chemical Growth of $\text{Fe}_2\text{O}_3/\text{Cr}_2\text{O}_3$ Nanocomposite Thin Films. Journal of Nanoscience and Nanotechnology, 2001, 1, 385-388.	0.9	31
42	Atomic-scale understanding of the electronic structure-crystal facets synergy of nanopyratidal CoPi/BiVO <sub>4</sub> hybrid photocatalyst for efficient solar water oxidation. Nano Energy, 2018, 53, 483-491.	8.2	31
43	On the Theoretical and Experimental Control of Defect Chemistry and Electrical and Photoelectrochemical Properties of Hematite Nanostructures. ACS Applied Materials & Interfaces, 2019, 11, 2031-2041.	4.0	29
44	Strategies to improve the photoelectrochemical performance of hematite nanorod-based photoanodes. APL Materials, 2020, 8, .	2.2	29
45	Light management in photoelectrochemical water splitting “from materials to device engineering. Journal of Materials Chemistry C, 2021, 9, 3726-3748.	2.7	19
46	On the orbital anisotropy in hematite nanorod-based photoanodes. Physical Chemistry Chemical Physics, 2013, 15, 13483.	1.3	18
47	On the relevance of understanding and controlling the locations of dopants in hematite photoanodes for low-cost water splitting. Applied Physics Letters, 2021, 119, .	1.5	16
48	Wet Chemistry of Spinel Iron oxide Particles. European Physical Journal Special Topics, 1997, 07, C1-573-C1-576.	0.2	15
49	Design of solar cell materials via soft X-ray spectroscopy. Journal of Electron Spectroscopy and Related Phenomena, 2013, 190, 2-11.	0.8	15
50	In Situ Electrical Characterization of Anatase TiO <sub>2</sub> Quantum Dots. Advanced Functional Materials, 2014, 24, 4952-4958.	7.8	14
51	Solution chemistry back-contact FTO/hematite interface engineering for efficient photocatalytic water oxidation. Chinese Journal of Catalysis, 2022, 43, 1247-1257.	6.9	14
52	Materials Science in the Developing World: Challenges and Perspectives for Africa. Advanced Materials, 2008, 20, 4627-4640.	11.1	13
53	Polarization-dependent soft-x-ray absorption of a highly oriented ZnO microrod-array. Journal of Physics Condensed Matter, 2005, 17, 235-240.	0.7	11
54	An intensity modulated photocurrent spectroscopy study of the role of titanium in thick hematite photoanodes. Applied Physics Letters, 2021, 119, .	1.5	11

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55	Nanorods-Based Sensors. <i>Sensor Letters</i> , 2008, 6, 787-791.	0.4	10
56	Aqueous purpose-built nanostructured metal oxide thin films. <i>International Journal of Materials and Product Technology</i> , 2003, 18, 330.	0.1	9
57	On the aqueous stabilisation of crystalline metastable nanostructures. <i>International Journal of Nanotechnology</i> , 2007, 4, 750.	0.1	9
58	Electrochromic Properties of bis(phthalocyaninato)lutetium(III) Sensitized Nanostructured Anatase TiO <sub>2</sub> Thin Films. <i>Electrochemical and Solid-State Letters</i> , 1999, 2, 648.	2.2	8
59	Proton Insertion in Polycrystalline WO <sub>3</sub> Studied with Electron Spectroscopy and Semi-empirical Calculations. <i>Advances in Quantum Chemistry</i> , 2004, 47, 23-36.	0.4	8
60	Designing ordered nanoarrays from aqueous solutions. <i>Pure and Applied Chemistry</i> , 2006, 78, 1741-1747.	0.9	7
61	Engineering hematite/plasmonic nanoparticle interfaces for efficient photoelectrochemical water splitting. <i>Journal of Applied Physics</i> , 2020, 128, 063103.	1.1	7
62	Something new under the sun for ultra low-cost single-junction PhotoAnodes for highly efficient photocatalytic water splitting. <i>Solar Energy Materials and Solar Cells</i> , 2019, 201, 110083.	3.0	6
63	On electron loss lowering at hematite photoelectrode interfaces. <i>Journal of the American Ceramic Society</i> , 2023, 106, 79-92.	1.9	6
64	Multiple Orientation Relationships Among Nanocrystals of Manganese Oxides. <i>Microscopy and Microanalysis</i> , 2003, 9, 402-403.	0.2	5
65	On the fabrication of resistor-shaped ZnO nanowires. <i>Physica E: Low-Dimensional Systems and Nanostructures</i> , 2008, 40, 859-865.	1.3	5
66	On the Effect of Thermal Processing on Sn Diffusion and Efficiency Enhancement in Hematite/FTO Photoanodes. <i>ECS Journal of Solid State Science and Technology</i> , 2022, 11, 043001.	0.9	5
67	Solar Hydrogen Production by Photoelectrochemical Water Splitting: The Promise and Challenge. , 0, , 1-35.		4
68	Nanostructured Thin-Film WO <sub>3</sub> Photoanodes for Solar Water and Sea-Water Splitting. , 0, , 333-347.		4
69	Redox-inactive metal single-site molecular complexes: a new generation of electrocatalysts for oxygen evolution?. <i>Catalysis Science and Technology</i> , 2021, 11, 6411-6424.	2.1	4
70	Ordered Titanium Dioxide Nanotubular Arrays as Photoanodes for Hydrogen Generation. , 0, , 265-290.		3
71	Nanostructured Fe <sub>2</sub> O <sub>3</sub> in PEC Generation of Hydrogen. , 0, , 349-397.		3
72	Electronic Structure Study of Nanostructured Transition Metal Oxides Using Soft X-Ray Spectroscopy. , 0, , 123-142.		3

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73	Purpose-Built Anisotropic Metal Oxide Nanomaterials. Materials Research Society Symposia Proceedings, 2000, 635, C7.8.1.	0.1	2
74	Photoelectrocatalyst Discovery Using High-Throughput Methods and Combinatorial Chemistry. , 0, , 399-458.		2
75	Nanoparticle-Assembled Catalysts for Photochemical Water Splitting. , 0, , 507-521.		2
76	Effects of Metal-Ion Doping, Removal and Exchange on Photocatalytic Activity of Metal Oxides and Nitrides for Overall Water Splitting. , 0, , 559-588.		2
77	Solar Thermal and Efficient Solar Thermal/Electrochemical Photo Hydrogen Generation. , 0, , 641-664.		2
78	3D Highly Oriented Nanoparticulate and Microparticulate Array of Metal Oxide Materials. Materials Research Society Symposia Proceedings, 2001, 704, 1031.	0.1	1
79	One-dimensional confinement effect in hematite quantum rod arrays. , 2006, , .		1
80	Local structural properties and growth mechanism of ZnO nanostructures. , 2008, , .		1
81	Rational chemical design of metal oxide nanorod-based materials and devices for gas sensing applications. , 2008, , .		1
82	Metal oxide rods and dots-based structures and devices: cost-effective fabrication and surface chemistry control. Materials Research Society Symposia Proceedings, 2009, 1209, 1.	0.1	1
83	Electrodeposition of Nanostructured ZnO Films and Their Photoelectrochemical Properties. , 0, , 291-331.		1
84	Quantum-Confined Visible-Light-Active Metal-Oxide Nanostructures for Direct Solar-to-Hydrogen Generation. , 0, , 523-558.		1
85	Supramolecular Complexes as Photoinitiated Electron Collectors: Applications in Solar Hydrogen Production. , 0, , 589-620.		1
86	Novel Monolithic Reactors for Solar Thermochemical Water Splitting. , 0, , 621-639.		1
87	Photocatalytic Reactions on Model Single Crystal TiO <sub>2</sub> Surfaces. , 0, , 77-89.		1
88	Fundamental Reactions on Rutile TiO <sub>2</sub> (110) Model Photocatalysts Studied by High-Resolution Scanning Tunneling Microscopy. , 0, , 91-122.		1
89	Fourier-Transform Infrared and Raman Spectroscopy of Pure and Doped TiO <sub>2</sub> Photocatalysts. , 0, , 189-238.		1
90	Synchrotron-based spectroscopy for solar energy conversion. Proceedings of SPIE, 2015, , .	0.8	1

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91	Interaction of Polyoxometalates and Nanoparticles with Collector Surfaces – Focus on the Use of Streaming Current Measurements at Flat Surfaces. <i>Colloids and Interfaces</i> , 2020, 4, 39.	0.9	1
92	3-D Nanoengineering of Metal Oxides and Oxyhydroxides by Aqueous Chemical Growth. <i>Materials Research Society Symposia Proceedings</i> , 2002, 739, 8101.	0.1	0
93	Water-oxide interfacial control and nanomaterials design. , 2005, 5929, 20.		0
94	Hierarchical Design of Metal Oxide Multi-Dimensional Arrays from Solutions. <i>Materials Research Society Symposia Proceedings</i> , 2005, 901, 1.	0.1	0
95	On Aqueous Interfacial Thermodynamics and the Design of Metal-Oxide Nanostructures. , 2006, , 49-78.		0
96	Multidimensional Nanostructures for Solar Water Splitting: Synthesis, Properties, and Applications. , 0, , 459-505.		0
97	Modeling and Simulation of Photocatalytic Reactions at TiO <sub>2</sub> Surfaces. , 0, , 37-75.		0
98	X-ray and Electron Spectroscopy Studies of Oxide Semiconductors for Photoelectrochemical Hydrogen Production. , 0, , 143-161.		0
99	Applications of X-Ray Transient Absorption Spectroscopy in Photocatalysis for Hydrogen Generation. , 0, , 163-187.		0
100	Interfacial Electron Transfer Reactions in CdS Quantum Dot Sensitized TiO <sub>2</sub> Nanocrystalline Electrodes. , 0, , 239-264.		0
101	Quantum rods and dots-based structures & devices: Low cost aqueous synthesis and bandgap engineering for solar hydrogen and solar cells applications. <i>Materials Research Society Symposia Proceedings</i> , 2011, 1318, 1.	0.1	0
102	(Invited) Characterization of Charge Transfer and Recombination Processes at Metal Oxide Semiconductors for Solar Water Splitting. <i>ECS Meeting Abstracts</i> , 2021, MA2021-01, 1251-1251.	0.0	0
103	Improvement Strategies for Photoelectrochemical Water Splitting at n-Type Oxide Semiconductors: A Case Study of WO <sub>3</sub> -Based Systems. <i>ECS Meeting Abstracts</i> , 2020, MA2020-02, 3882-3882.	0.0	0
104	Design, Fabrication and Electronic Structure of Oriented Metal Oxide Nanorod-Arrays. , 0, , 187-193.		0