Jao van de Lagemaat

List of Publications by Year
in descending order

92 papers	10,181 citations	53660 45 h-index	51492 86 g-index
94 all docs	94 docs citations	94 times ranked	13655 citing authors

#	Article	IF	Citations
1	What Should We Make with CO2 and How Can We Make It?. Joule, 2018, 2, 825-832.	11.7	975
2	Electrons in nanostructured TiO2 solar cells: transport, recombination and photovoltaic properties. Coordination Chemistry Reviews, 2004, 248, 1165-1179.	9.5	766
3	Observation of a hot-phonon bottleneck in lead-iodide perovskites. Nature Photonics, 2016, 10, 53-59.	15.6	760
4	Standing Wave Enhancement of Red Absorbance and Photocurrent in Dye-Sensitized Titanium Dioxide Photoelectrodes Coupled to Photonic Crystals. Journal of the American Chemical Society, 2003, 125, 6306-6310.	6.6	564
5	Nonthermalized Electron Transport in Dye-Sensitized Nanocrystalline TiO2 Films:â€‰ Transient Photocurrent and Random-Walk Modeling Studies. Journal of Physical Chemistry B, 2001, 105, 11194-11205.	1.2	447
6	Plasmon-enhanced solar energy conversion in organic bulk heterojunction photovoltaics. Applied Physics Letters, 2008, 92, .	1.5	427
7	Transport-Limited Recombination of Photocarriers in Dye-Sensitized Nanocrystalline TiO2Solar Cells. Journal of Physical Chemistry B, 2003, 107, 11307-11315.	1.2	412
8	Dye-Sensitized TiO2Solar Cells:Â Structural and Photoelectrochemical Characterization of Nanocrystalline Electrodes Formed from the Hydrolysis of TiCl4. Journal of Physical Chemistry B, 1999, 103, 3308-3314.	1.2	355
9	Organic solar cells with carbon nanotubes replacing In2O3:Sn as the transparent electrode. Applied Physics Letters, 2006, 88, 233503.	1.5	354
10	Terawatt-scale photovoltaics: Transform global energy. Science, 2019, 364, 836-838.	6.0	320
11	Effect of a Coadsorbent on the Performance of Dye-Sensitized TiO2 Solar Cells:â€‰ Shielding versus Band-Edge Movement. Journal of Physical Chemistry B, 2005, 109, 23183-23189.	1.2	294
12	Carrier separation and transport in perovskite solar cells studied by nanometre-scale profiling of electrical potential. Nature Communications, 2015, 6, 8397.	5.8	205
13	Influence of Surface Area on Charge Transport and Recombination in Dye-Sensitized TiO2Solar Cellsâ€. Journal of Physical Chemistry B, 2006, 110, 25174-25180.	1.2	184
14	Spatial location of transport-limiting traps in TiO2 nanoparticle films in dye-sensitized solar cells. Applied Physics Letters, 2005, 87, 202106.	1.5	183
15	Substrate-controlled band positions in CH₃NH₃PbI₃perovskite films. Physical Chemistry Chemical Physics, 2014, 16, 22122-22130.	1.3	177
16	Do grain boundaries dominate non-radiative recombination in CH₃NH₃PbI₃ perovskite thin films?. Physical Chemistry Chemical Physics, 2017, 19, 5043-5050.	1.3	161
17	Strongly Photonic Macroporous Gallium Phosphide Networks. Science, 1999, 284, 141-143.	6.0	159
18	Relation between Particle Coordination Number and Porosity in Nanoparticle Films:Â Implications to Dye-Sensitized Solar Cells. Journal of Physical Chemistry B, 2001, 105, 12433-12436.	1.2	154

#	Article	IF	Citations
19	Morphological and Photoelectrochemical Characterization of Coreâˆ’Shell Nanoparticle Films for Dye-Sensitized Solar Cells:Â Znâˆ’O Type Shell on SnO2and TiO2Cores. Langmuir, 2004, 20, 4246-4253.	1.6	150
20	Comparing the Fundamental Physics and Device Performance of Transparent, Conductive Nanostructured Networks with Conventional Transparent Conducting Oxides. Advanced Energy Materials, 2012, 2, 353-360.	10.2	140
21	A facile solvothermal growth of single crystal mixed halide perovskite CH₃NH₃Pb(Br_{1âˆ’x}Cl_x)₃. Chemical Communications, 2015, 51, 7820-7823.	2.2	135
22	Bulk heterojunction organic photovoltaic devices based on phenyl-cored thiophene dendrimers. Applied Physics Letters, 2006, 89, 103524.	1.5	130
23	Shape-Dependent Oriented Trapping and Scaffolding of Plasmonic Nanoparticles by Topological Defects for Self-Assembly of Colloidal Dimers in Liquid Crystals. Nano Letters, 2012, 12, 955-963.	4.5	130
24	Surface-plasmon enhanced transparent electrodes in organic photovoltaics. Applied Physics Letters, 2008, 92, 243304.	1.5	118
25	Carbon nanotube network electrodes enabling efficient organic solar cells without a hole transport layer. Applied Physics Letters, 2010, 96, .	1.5	118
26	Revisiting the Valence and Conduction Band Size Dependence of PbS Quantum Dot Thin Films. ACS Nano, 2016, 10, 3302-3311.	7.3	118
27	Reversibility, Dopant Desorption, and Tunneling in the Temperature-Dependent Conductivity of Type-Separated, Conductive Carbon Nanotube Networks. ACS Nano, 2008, 2, 1968-1976.	7.3	113
28	Two-dimensional skyrmions and other solitonic structures in confinement-frustrated chiral nematics. Physical Review E, 2014, 90, 012505.	0.8	109
29	Characteristics of Low-Temperature Annealed TiO2Films Deposited by Precipitation from Hydrolyzed TiCl4Solutions. Chemistry of Materials, 2002, 14, 1042-1047.	3.2	106
30	Temperature dependence of the electron diffusion coefficient in electrolyte-filledTiO2nanoparticle films: Evidence against multiple trapping in exponential conduction-band tails. Physical Review B, 2006, 73, .	1.1	100
31	Large polarization-dependent exciton optical Stark effect in lead iodide perovskites. Nature Communications, 2016, 7, 12613.	5.8	98
32	Single-wall carbon nanotube networks as a transparent back contact in CdTe solar cells. Applied Physics Letters, 2007, 90, 243503.	1.5	96
33	Determining the locus for photocarrier recombination in dye-sensitized solar cells. Applied Physics Letters, 2002, 80, 685-687.	1.5	86
34	Self-assembly and electrostriction of arrays and chains of hopfion particles in chiral liquid crystals. Nature Communications, 2015, 6, 6012.	5.8	83
35	Oxidatively Stable Nanoporous Silicon Photocathodes with Enhanced Onset Voltage for Photoelectrochemical Proton Reduction. Nano Letters, 2015, 15, 2517-2525.	4.5	80
36	Replacement of Transparent Conductive Oxides by Single-Wall Carbon Nanotubes in Cu(In,Ga)Se₂-Based Solar Cells. Journal of Physical Chemistry C, 2007, 111, 14045-14048.	1.5	76

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37	Operation Mechanism of Perovskite Quantum Dot Solar Cells Probed by Impedance Spectroscopy. ACS Energy Letters, 2019, 4, 251-258.	8.8	73
38	Timeâ€ofâ€Flight Studies of Electronâ€Collection Kinetics in Polymer:Fullerene Bulkâ€Heterojunction Solar Cells. Advanced Functional Materials, 2011, 21, 2580-2586.	7.8	70
39	Perovskite Photovoltaics: The Path to a Printable Terawatt-Scale Technology. ACS Energy Letters, 2017, 2, 2540-2544.	8.8	64
40	Photon management for photovoltaics. MRS Bulletin, 2011, 36, 424-428.	1.7	63
41	Charge Generation in PbS Quantum Dot Solar Cells Characterized by Temperature-Dependent Steady-State Photoluminescence. ACS Nano, 2014, 8, 12814-12825.	7.3	59
42	Optical generation, templating, and polymerization of three-dimensional arrays of liquid-crystal defects decorated by plasmonic nanoparticles. Physical Review E, 2013, 87, .	0.8	58
43	Sharp exponential band tails in highly disordered lead sulfide quantum dot arrays. Physical Review B, 2012, 86, .	1.1	55
44	Enhancement of the lightâ€toâ€current conversion efficiency in an nâ€SiC/solution diode by porous etching. Applied Physics Letters, 1996, 69, 2246-2248.	1.5	54
45	Controlling the Optical Properties of Plasmonic Disordered Nanohole Silver Films. ACS Nano, 2010, 4, 615-624.	7.3	49
46	Effect of nonideal statistics on electron diffusion in sensitized nanocrystallineTiO2. Physical Review B, 2005, 71, .	1.1	45
47	Built-in Potential and Charge Distribution within Single Heterostructured Nanorods Measured by Scanning Kelvin Probe Microscopy. Nano Letters, 2013, 13, 1278-1284.	4.5	43
48	The Ultrafast Photophysics of Pentacene Coupled to Surface Plasmon Active Nanohole Films. Journal of Physical Chemistry C, 2009, 113, 6871-6877.	1.5	41
49	Precision printing and optical modeling of ultrathin SWCNT/C₆₀ heterojunction solar cells. Nanoscale, 2015, 7, 6556-6566.	2.8	40
50	Photoelectrochemical characterization of 6Hâ€“SiC. Journal of Applied Physics, 1998, 83, 6089-6095.	1.1	33
51	Imaging of Resonant Quenching of Surface Plasmons by Quantum Dots. Nano Letters, 2006, 6, 2833-2837.	4.5	33
52	Optical characterization of pristine poly(3â€hexyl thiophene) films. Journal of Polymer Science, Part B: Polymer Physics, 2011, 49, 186-194.	2.4	33
53	Experimental demonstration of photon upconversion via cooperative energy pooling. Nature Communications, 2017, 8, 14808.	5.8	33
54	Scanning Probe Characterization of Heterostructured Colloidal Nanomaterials. Chemical Reviews, 2015, 115, 8157-8181.	23.0	31

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55	Direct Measurements of Carrier Transport in Polycrystalline Methylammonium Lead Iodide Perovskite Films with Transient Grating Spectroscopy. Journal of Physical Chemistry Letters, 2018, 9, 5710-5717.	2.1	26
56	Dynamics of Photocatalytic Hydrogen Production in Aqueous Dispersions of Monolayer-Rich Tungsten Disulfide. ACS Energy Letters, 2018, 3, 2223-2229.	8.8	26
57	Unique interfacial thermodynamics of few-layer 2D MoS₂ for (photo)electrochemical catalysis. Energy and Environmental Science, 2019, 12, 1648-1656.	15.6	25
58	Temporal evolution of the electron diffusion coefficient in electrolyte-filled mesoporous nanocrystalline TiO2 films. Inorganica Chimica Acta, 2008, 361, 620-626.	1.2	24
59	Tuning and Switching a Plasmonic Quantum Dot â€œSandwichâ€•in a Nematic Line Defect. ACS Nano, 2018, 12, 2580-2590.	7.3	24
60	Dynamic Tuning of a Thin Film Electrocatalyst by Tensile Strain. Scientific Reports, 2019, 9, 15906.	1.6	21
61	Plasmonic Hot Hole Transfer in Gold Nanoparticle-Decorated Transition Metal Dichalcogenide Nanosheets. ACS Photonics, 2020, 7, 197-202.	3.2	21
62	Energy Pooling Upconversion in Organic Molecular Systems. Journal of Physical Chemistry A, 2015, 119, 4009-4016.	1.1	20
63	Semiconductor-to-Metal Transition in Rutile TiO₂ Induced by Tensile Strain. Chemistry of Materials, 2017, 29, 2173-2179.	3.2	19
64	Plasmonâ€“Exciton Interactions Probed Using Spatial Coentrapment of Nanoparticles by Topological Singularities. ACS Nano, 2015, 9, 12392-12400.	7.3	17
65	Silicon Photoelectrode Thermodynamics and Hydrogen Evolution Kinetics Measured by Intensity-Modulated High-Frequency Resistivity Impedance Spectroscopy. Journal of Physical Chemistry Letters, 2017, 8, 5253-5258.	2.1	16
66	Plasmon-Mediated Coherent Superposition of Discrete Excitons under Strong Excitonâ€“Plasmon Coupling in Few-Layer MoS₂ at Room Temperature. ACS Photonics, 2020, 7, 1129-1134.	3.2	15
67	Luminescence of quantum dots by coupling with nonradiative surface plasmon modes in a scanning tunneling microscope. Physical Review B, 2009, 80, .	1.1	13
68	Effect of fractal silver electrodes on charge collection and light distribution in semiconducting organic polymer films. Journal of Materials Chemistry A, 2014, 2, 16608-16616.	5.2	13
69	Einstein relation for electron diffusion on arrays of weakly coupled quantum dots. Physical Review B, 2005, 72, .	1.1	12
70	Nanoscale Imaging of Exciton Transport in Organic Photovoltaic Semiconductors by Tip-Enhanced Tunneling Luminescence. Nano Letters, 2009, 9, 3904-3908.	4.5	11
71	Coupling between a Molecular Charge-Transfer Exciton and Surface Plasmons in a Nanostructured Metal Grating. Journal of Physical Chemistry Letters, 2013, 4, 2658-2663.	2.1	11
72	Application of Single-Wall Carbon Nanotubes as Transparent Electrodes in Cu(In,Ga)Se2-Based Solar Cells. , 2006, , .		10

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73	Folding photons. Nature Photonics, 2012, 6, 278-280.	15.6	10
74	Fast Current Blinking in Individual PbS and CdSe Quantum Dots. Nano Letters, 2013, 13, 2338-2345.	4.5	10
75	Liquid Crystalline Order and Electric Switching of Upconversion Luminescence in Colloidal Nanorod Suspensions. Advanced Optical Materials, 2019, 7, 1900041.	3.6	10
76	Activation Energy Spectra: Insights into Transport Limitations of Organic Semiconductors and Photovoltaic Cells. Advanced Functional Materials, 2012, 22, 1087-1091.	7.8	6
77	Integrated optical and electrical modeling of plasmon-enhanced thin film photovoltaics: A case-study on organic devices. Journal of Applied Physics, 2014, 116, 114510.	1.1	6
78	Optically and elastically assembled plasmonic nanoantennae for spatially resolved characterization of chemical composition in soft matter systems using surface enhanced spontaneous and stimulated Raman scattering. Journal of Applied Physics, 2014, 116, 063511.	1.1	6
79	Integrating nanostructured electrodes in organic photovoltaic devices for enhancing near-infrared photoresponse. Organic Electronics, 2016, 39, 59-63.	1.4	6
80	Ultrastrong Coupling Leads to Slowed Cooling of Hot Excitons in Few-Layer Transition-Metal Dichalcogenides. Journal of Physical Chemistry C, 2022, 126, 8710-8719.	1.5	6
81	Excited-State Processes in First-Generation Phenyl-Cored Thiophene Dendrimers. Journal of Physical Chemistry A, 2011, 115, 2515-2522.	1.1	5
82	Field-dependent charge carrier dynamics in GaN: Excitonic effects. Applied Physics Letters, 2004, 85, 958-960.	1.5	4
83	Plasmon excitations in scanning tunneling microscopy: Simultaneous imaging of modes with different localizations coupled at the tip. Applied Physics Letters, 2007, 90, 193109.	1.5	4
84	Control of quantum dot emission by colloidal plasmonic pyramids in a liquid crystal. Optics Express, 2020, 28, 5459.	1.7	3
85	Single-Wall Carbon Nanotubes as Transparent Electrodes for Photovoltaics. , 2006, , .		2
86	Annealing effects on surface-plasmon-enhanced bulk heterojunction organic photovoltaics. Proceedings of SPIE, 2007, , .	0.8	1
87	Surface plasmon enhanced infrared absorption in the sensitized polymer solar cell. , 2014, , .		1
88	Effects of local environment on the ultra-fast carrier dynamics of photo-excited 2D transition metal dichalcogenides. , 2018, , .		1
89	Diffusion-Limited Recombination in Dye-Sensitized TiO_2 Solar Cells. Materials Research Society Symposia Proceedings, 2003, 789, 150.	0.1	0
90	Efficient Organic Excitonic Solar Cells with Carbon Nanotubes Replacing In_2O_3:Sn as the Transparent Electrode. , 2006, , .		0

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91	Comprehensive device modeling of plasmon-enhanced and optical field-dependent photocurrent generation in organic bulk heterojunctions. , 2014, , .		0
92	Plasmonic Structures for Solar Energy Harvesting. , 2016, , 3294-3302.		0