Laurent Pedesseau

List of Publications by Citations

84 papers	8,007 citations	28 h-index	89 g-index
98 ext. papers	9,250 ext. citations	7.1 avg, IF	6.03 L-index

#	Paper	IF	Citations
84	High-efficiency two-dimensional Ruddlesden-Popper perovskite solar cells. *Nature*, **2016**, 536, 312-6	50.4	2161
83	Importance of Spin□Orbit Coupling in Hybrid Organic/Inorganic Perovskites for Photovoltaic Applications. *Journal of Physical Chemistry Letters*, **2013**, 4, 2999-3005	6.4	853
82	Extremely efficient internal exciton dissociation through edge states in layered 2D perovskites. *Science*, **2017**, 355, 1288-1292	33.3	648
81	Hybrid Dion-Jacobson 2D Lead Iodide Perovskites. *Journal of the American Chemical Society*, **2018**, 140, 3775-3783	16.4	426
80	Analysis of Multivalley and Multibandgap Absorption and Enhancement of Free Carriers Related to Exciton Screening in Hybrid Perovskites. *Journal of Physical Chemistry C*, **2014**, 118, 11566-11572	3.8	404
79	Scaling law for excitons in 2D perovskite quantum wells. *Nature Communications*, **2018**, 9, 2254	17.4	372
78	Anharmonicity and Disorder in the Black Phases of Cesium Lead Iodide Used for Stable Inorganic Perovskite Solar Cells. *ACS Nano*, **2018**, 12, 3477-3486	16.7	359
77	Advances and Promises of Layered Halide Hybrid Perovskite Semiconductors. *ACS Nano*, **2016**, 10, 9776-9786	16.7	276
76	Rashba and Dresselhaus Effects in Hybrid Organic-Inorganic Perovskites: From Basics to Devices. *ACS Nano*, **2015**, 9, 11557-67	16.7	232
75	Polaron Stabilization by Cooperative Lattice Distortion and Cation Rotations in Hybrid Perovskite Materials. *Nano Letters*, **2016**, 16, 3809-16	11.5	203
74	Solid-State Physics Perspective on Hybrid Perovskite Semiconductors. *Journal of Physical Chemistry C*, **2015**, 119, 10161-10177	3.8	175
73	Understanding quantum confinement of charge carriers in layered 2D hybrid perovskites. *ChemPhysChem*, **2014**, 15, 3733-41	3.2	175
72	DFT and k □p modelling of the phase transitions of lead and tin halide perovskites for photovoltaic cells. *Physica Status Solidi - Rapid Research Letters*, **2014**, 8, 31-35	2.5	158
71	Structural and thermodynamic limits of layer thickness in 2D halide perovskites. *Proceedings of the National Academy of Sciences of the United States of America*, **2019**, 116, 58-66	11.5	152
70	Electronic model for self-assembled hybrid organic/perovskite semiconductors: Reverse band edge electronic states ordering and spin-orbit coupling. *Physical Review B*, **2012**, 86,	3.3	143
69	Quantum confinement and dielectric profiles of colloidal nanoplatelets of halide inorganic and hybrid organic-inorganic perovskites. *Nanoscale*, **2016**, 8, 6369-78	7.7	106
68	Composite Nature of Layered Hybrid Perovskites: Assessment on Quantum and Dielectric Confinements and Band Alignment. *ACS Nano*, **2018**, 12, 3321-3332	16.7	94

67	Decreasing the electronic confinement in layered perovskites through intercalation. *Chemical Science*, **2017**, 8, 1960-1968	9.4	85
66	Interplay of spin–orbit coupling and lattice distortion in metal substituted 3D tri-chloride hybrid perovskites. *Journal of Materials Chemistry A*, **2015**, 3, 9232-9240	13	80
65	Design of Electrode Materials for Lithium-Ion Batteries: The Example of Metal–Organic Frameworks. *Journal of Physical Chemistry C*, **2010**, 114, 9518-9527	3.8	75
64	Concept of Lattice Mismatch and Emergence of Surface States in Two-dimensional Hybrid Perovskite Quantum Wells. *Nano Letters*, **2018**, 18, 5603-5609	11.5	67
63	Electronic properties of 2D and 3D hybrid organic/inorganic perovskites for optoelectronic and photovoltaic applications. *Optical and Quantum Electronics*, **2014**, 46, 1225-1232	2.4	49
62	FeII/FeIII mixed-valence state induced by Li-insertion into the metal-organic-framework Mil53(Fe): A DFT+U study. *Journal of Power Sources*, **2011**, 196, 3426-3432	8.9	46
61	Negative Pressure Engineering with Large Cage Cations in 2D Halide Perovskites Causes Lattice Softening. *Journal of the American Chemical Society*, **2020**, 142, 11486-11496	16.4	41
60	Geometry Distortion and Small Polaron Binding Energy Changes with Ionic Substitution in Halide Perovskites. *Journal of Physical Chemistry Letters*, **2018**, 9, 7130-7136	6.4	41
59	Evaluation of InGaPN and GaAsPN materials lattice-matched to Si for multi-junction solar cells. *Journal of Applied Physics*, **2013**, 113, 123509	2.5	39
58	Charge carrier dynamics in two-dimensional hybrid perovskites: Dion–Jacobson vs. Ruddlesden–Popper phases. *Journal of Materials Chemistry A*, **2020**, 8, 22009-22022	13	39
57	Universal description of III-V/Si epitaxial growth processes. *Physical Review Materials*, **2018**, 2,	3.2	30
56	First-principles study of a sodium borosilicate glass-former. II. The glass state. *Physical Review B*, **2015**, 91,	3.3	28
55	Cation Alloying Delocalizes Polarons in Lead Halide Perovskites. *Journal of Physical Chemistry Letters*, **2019**, 10, 3516-3524	6.4	26
54	First-principles study of a sodium borosilicate glass-former. I. The liquid state. *Physical Review B*, **2015**, 91,	3.3	24
53	Electronic surface states and dielectric self-energy profiles in colloidal nanoscale platelets of CdSe. *Physical Chemistry Chemical Physics*, **2014**, 16, 25182-90	3.6	24
52	Density of States Broadening in CH3NH3PbI3 Hybrid Perovskites Understood from ab Initio Molecular Dynamics Simulations. *ACS Energy Letters*, **2018**, 3, 787-793	20.1	21
51	Semianalytical evaluation of linear and nonlinear piezoelectric potentials for quantum nanostructures with axial symmetry. *Applied Physics Letters*, **2007**, 91, 122112	3.4	21
50	On the entanglement of electrostriction and non-linear piezoelectricity in non-centrosymmetric materials. *Applied Physics Letters*, **2012**, 100, 031903	3.4	20

49	Design of a lattice-matched III□V□N/Si photovoltaic tandem cell monolithically integrated on silicon substrate. *Optical and Quantum Electronics*, **2014**, 46, 1397-1403	2.4	19
48	Influence of Schottky contact on the C-V and J-V characteristics of HTM-free perovskite solar cells. *EPJ Photovoltaics*, **2017**, 8, 85501	0.7	16
47	Importance of Vacancies and Doping in the Hole-Transporting Nickel Oxide Interface with Halide Perovskites. *ACS Applied Materials & Interfaces*, **2020**, 12, 6633-6640	9.5	15
46	Computational analysis of hybrid perovskite on silicon 2-T tandem solar cells based on a Si tunnel junction. *Optical and Quantum Electronics*, **2018**, 50, 1	2.4	14
45	Density Functional Theory Simulations of Semiconductors for Photovoltaic Applications: Hybrid Organic-Inorganic Perovskites and III/V Heterostructures. *International Journal of Photoenergy*, **2014**, 2014, 1-11	2.1	14
44	Semianalytical model for simulation of electronic properties of narrow-gap strained semiconductor quantum nanostructures. *Physical Review B*, **2008**, 77,	3.3	14
43	Al4SiC4 wurtzite crystal: Structural, optoelectronic, elastic, and piezoelectric properties. *APL Materials*, **2015**, 3, 121101	5.7	13
42	Theoretical study of optical properties of anti phase domains in GaP. *Journal of Applied Physics*, **2014**, 115, 063502	2.5	13
41	Comment on "Density functional theory analysis of structural and electronic properties of orthorhombic perovskite CH3NH3PbI3" by Y. Wang et al., Phys. Chem. Chem. Phys., 2014, 16, 1424-1429. *Physical Chemistry Chemical Physics*, **2014**, 16, 8697-8	3.6	12
40	First-principles density functional theory study of strained wurtzite InP and InAs. *Journal Physics D: Applied Physics*, **2013**, 46, 505106	3	11
39	30-band k?p method for quantum semiconductor heterostructures. *Applied Physics Letters*, **2011**, 98, 251913	3.4	11
38	Theoretical study of highly strained InAs material from first-principles modelling: application to an ideal QD. *Journal Physics D: Applied Physics*, **2008**, 41, 165505	3	11
37	A Stress-Free and Textured GaP Template on Silicon for Solar Water Splitting. *Advanced Functional Materials*, **2018**, 28, 1801585	15.6	11
36	Strain-induced fundamental optical transition in (In,Ga)As/GaP quantum dots. *Applied Physics Letters*, **2014**, 104, 011908	3.4	9
35	Fully Inorganic Mixed Cation Lead Halide Perovskite Nanoparticles: A Study at the Atomic Level. *Chemistry of Materials*, **2020**, 32, 1467-1474	9.6	9
34	Monolithic Integration of Diluted-Nitride III□V-N Compounds on Silicon Substrates: Toward the III□V/Si Concentrated Photovoltaics. *Energy Harvesting and Systems*, **2014**, 1,	4.4	8
33	Theoretical insights into multibandgap hybrid perovskites for photovoltaic applications **2014**,		8
32	Mass and momentum interface equilibrium by molecular modeling. Simulating AFM adhesion between (120) gypsum faces in a saturated solution and consequences on gypsum cohesion. *Cement and Concrete Research*, **2008**, 38, 290-299	10.3	8

31	Ab initio calculations of polarization, piezoelectric constants, and elastic constants of InAs and InP in the wurtzite phase. *Journal of Experimental and Theoretical Physics*, **2015**, 121, 246-249	1	7
30	Theoretical insights into hybrid perovskites for photovoltaic applications **2016**,		6
29	Dielectric properties of hybrid perovskites and drift-diffusion modeling of perovskite cells **2016**,		6
28	Vibrational properties of 2H-PbI2 semiconductors studied via Density Functional Theory calculations. *Thin Solid Films*, **2013**, 541, 9-11	2.2	5
27	Epitaxial III-V/Si Vertical Heterostructures with Hybrid 2D-Semimetal/Semiconductor Ambipolar and Photoactive Properties. *Advanced Science*, **2021**, e2101661	13.6	5
26	Multiscale in modelling and validation for solar photovoltaics. *EPJ Photovoltaics*, **2018**, 9, 10	0.7	5
25	Al4SiC4 vibrational properties: density functional theory calculations compared to Raman and infrared spectroscopy measurements. *Journal of Raman Spectroscopy*, **2017**, 48, 891-896	2.3	4
24	Shape transition in InAs nanostructures formed by Stranski-Krastanow growth mode on InP (001) substrate. *Applied Physics Letters*, **2019**, 114, 173102	3.4	4
23	Vibrational properties of SrCu2O2 studied via Density Functional Theory calculations and compared to Raman and infrared spectroscopy measurements. *Thin Solid Films*, **2013**, 541, 113-116	2.2	4
22	Theoretical and experimental studies of (In,Ga)As/GaP quantum dots. *Nanoscale Research Letters*, **2012**, 7, 643	5	4
21	First-principles calculations of band offsets and polarization effects at InAs/InP interfaces. *Journal Physics D: Applied Physics*, **2015**, 48, 355105	3	3
20	Raman investigation of GaP□i interfaces grown by molecular beam epitaxy. *Thin Solid Films*, **2013**, 541, 72-75	2.2	3
19	Atomic Calculations Applied to Semiconductor Hetero Structures. *AIP Conference Proceedings*, **2007** ,	0	3
18	Phases, periphases, and interphases equilibrium by molecular modeling. I. Mass equilibrium by the semianalytical stochastic perturbations method and application to a solution between (120) gypsum faces. *Journal of Chemical Physics*, **2004**, 121, 12511-22	3.9	3
17	Partial stresses in heterogeneous media by a direct statistical approach. *Comptes Rendus - Mecanique*, **2004**, 332, 305-312	2.1	3
16	Nonadiabatic molecular dynamics analysis of hybrid Dion□acobson 2D leads iodide perovskites. *Applied Physics Letters*, **2021**, 119, 201102	3.4	3
15	Strong Electron-Phonon Interaction in 2D Vertical Homovalent III-V Singularities. *ACS Nano*, **2020**, 14, 13127-13136	16.7	3
14	Dangling Octahedra Enable Edge States in 2D Lead Halide Perovskites.. *Advanced Materials*, **2022**, e2201666	24	3

13	A new approach to modelling Kelvin probe force microscopy of hetero-structures in the dark and under illumination. *Optical and Quantum Electronics*, **2018**, 50, 1	2.4	2
12	Theoretical studies of Rashba and Dresselhaus effects in hybrid organic-inorganic perovskites for optoelectronic applications **2016**,		2
11	Light emitting diodes on silicon substrates: preliminary results. *Physica Status Solidi C: Current Topics in Solid State Physics*, **2009**, 6, 2212-2216		2
10	InAs QDs on InP: polarization insensitive SOA and non-radiative Auger processes. *Optical and Quantum Electronics*, **2008**, 40, 1233-1238	2.4	2
9	A study of the strain distribution by scanning X-ray diffraction on GaP/Si for III□V monolithic integration on silicon. *Journal of Applied Crystallography*, **2019**, 52, 809-815	3.8	2
8	Detrimental effects of ion migration in the perovskite and hole transport layers on the efficiency of inverted perovskite solar cells. *Journal of Photonics for Energy*, **2020**, 10, 1	1.2	2
7	Electronic structure and stability of Cs2TiX6 and Cs2ZrX6 (X = Br, I) vacancy ordered double perovskites. *Applied Physics Letters*, **2021**, 119, 181903	3.4	2
6	Chapter 7:Electronic Properties of Metal Halide Perovskites. *RSC Energy and Environment Series*, **2016**, 202-233	0.6	2
5	Non-linear electro-elastic coupling in non-centrosymmetric materials. *Journal of Physics: Conference Series*, **2012**, 367, 012005	0.3	1
4	Anharmonicity and Disorder in the Black Phases of CsPbI3 used for Stable Inorganic Perovskite Solar Cells **2018**,		1
3	Non-linear electro-elastic coupling in highly strained zinc-blende compounds: InGaP/GaP [111] quantum wells. *Physica Status Solidi (B): Basic Research*, **2013**, 250, 765-768	1.3	
2	Polarization Insensibility of Columnar Quantum Dot Structure Emitting at : A Theoretical Study. *Research Letters in Physics*, **2008**, 2008, 1-4		
1	From k□p to atomic calculations applied to semiconductor heterostructures. *Journal of Physics: Conference Series*, **2008**, 107, 012009	0.3	