Frdric Laquai

List of Publications by Citations

187 papers	10,094 citations	51 h-index	94 g-index
208 ext. papers	11,864 ext. citations	12.1 avg, IF	6.26 L-index

#	Paper	IF	Citations
187	High-efficiency and air-stable P3HT-based polymer solar cells with a new non-fullerene acceptor. *Nature Communications*, **2016**, 7, 11585	17.4	903
186	Hybrid organic-inorganic inks flatten the energy landscape in colloidal quantum dot solids. *Nature Materials*, **2017**, 16, 258-263	27	432
185	17% Efficient Organic Solar Cells Based on Liquid Exfoliated WS as a Replacement for PEDOT:PSS. *Advanced Materials*, **2019**, 31, e1902965	24	384
184	Effect of morphology on ultrafast free carrier generation in polythiophene:fullerene organic solar cells. *Journal of the American Chemical Society*, **2010**, 132, 14866-76	16.4	339
183	Aggregation in a high-mobility n-type low-bandgap copolymer with implications on semicrystalline morphology. *Journal of the American Chemical Society*, **2012**, 134, 18303-17	16.4	329
182	A Universal Double-Side Passivation for High Open-Circuit Voltage in Perovskite Solar Cells: Role of Carbonyl Groups in Poly(methyl methacrylate). *Advanced Energy Materials*, **2018**, 8, 1801208	21.8	268
181	Ultrafast exciton dissociation followed by nongeminate charge recombination in PCDTBT:PCBM photovoltaic blends. *Journal of the American Chemical Society*, **2011**, 133, 9469-79	16.4	242
180	The Impact of Polymer Regioregularity on Charge Transport and Efficiency of P3HT:PCBM Photovoltaic Devices. *Advanced Functional Materials*, **2010**, 20, 2085-2092	15.6	207
179	Two-dimensional sandwich-type, graphene-based conjugated microporous polymers. *Angewandte Chemie - International Edition*, **2013**, 52, 9668-72	16.4	194
178	Generation of Triplet Excited States via Photoinduced Electron Transfer in meso-anthra-BODIPY: Fluorogenic Response toward Singlet Oxygen in Solution and in Vitro. *Journal of the American Chemical Society*, **2017**, 139, 6282-6285	16.4	179
177	Conjugated microporous polymers with dimensionality-controlled heterostructures for green energy devices. *Advanced Materials*, **2015**, 27, 3789-96	24	176
176	The effect of solvent additives on morphology and excited-state dynamics in PCPDTBT:PCBM photovoltaic blends. *Journal of the American Chemical Society*, **2012**, 134, 10569-83	16.4	174
175	Enhanced photocatalytic hydrogen evolution from organic semiconductor heterojunction nanoparticles. *Nature Materials*, **2020**, 19, 559-565	27	171
174	Polythiophene:Perylene Diimide Solar Cells the Impact of Alkyl-Substitution on the Photovoltaic Performance. *Advanced Energy Materials*, **2011**, 1, 297-302	21.8	163
173	Excitation energy transfer in organic materials: from fundamentals to optoelectronic devices. *Macromolecular Rapid Communications*, **2009**, 30, 1203-31	4.8	160
172	Perylene Tetracarboxydiimide as an Electron Acceptor in Organic Solar Cells: A Study of Charge Generation and Recombination. *Journal of Physical Chemistry C*, **2009**, 113, 21225-21232	3.8	134
171	Multifunctional two-photon active silica-coated Au@MnO Janus particles for selective dual functionalization and imaging. *Journal of the American Chemical Society*, **2014**, 136, 2473-83	16.4	133

170	Correlated Donor/Acceptor Crystal Orientation Controls Photocurrent Generation in All-Polymer Solar Cells. *Advanced Functional Materials*, **2014**, 24, 4068-4081	15.6	129
169	Synthesis and controlled self-assembly of covalently linked hexa-peri-hexabenzocoronene/perylene diimide dyads as models to study fundamental energy and electron transfer processes. *Journal of the American Chemical Society*, **2012**, 134, 5876-86	16.4	124
168	Effect of Nongeminate Recombination on Fill Factor in Polythiophene/Methanofullerene Organic Solar Cells. *Journal of Physical Chemistry Letters*, **2010**, 1, 3500-3505	6.4	119
167	Ferroelastic Fingerprints in Methylammonium Lead Iodide Perovskite. *Journal of Physical Chemistry C*, **2016**, 120, 5724-5731	3.8	118
166	17.1% Efficient Single-Junction Organic Solar Cells Enabled by n-Type Doping of the Bulk-Heterojunction. *Advanced Science*, **2020**, 7, 1903419	13.6	110
165	Intrinsic efficiency limits in low-bandgap non-fullerene acceptor organic solar cells. *Nature Materials*, **2021**, 20, 378-384	27	108
164	Key Parameters Requirements for Non-Fullerene-Based Organic Solar Cells with Power Conversion Efficiency >20. *Advanced Science*, **2019**, 6, 1802028	13.6	107
163	The Effect of Solvent Additive on the Charge Generation and Photovoltaic Performance of a Solution-Processed Small Molecule:Perylene Diimide Bulk Heterojunction Solar Cell. *Chemistry of Materials*, **2014**, 26, 4109-4118	9.6	93
162	Photo-generated carriers lose energy during extraction from polymer-fullerene solar cells. *Nature Communications*, **2015**, 6, 8778	17.4	89
161	Long-range exciton diffusion in molecular non-fullerene acceptors. *Nature Communications*, **2020**, 11, 5220	17.4	87
160	Bridge-Independent 2-(Benzo[c][1,2,5]thiadiazol-4-ylmethylene)malononitrile-Substituted Nonfullerene Acceptors for Efficient Bulk Heterojunction Solar Cells. *Chemistry of Materials*, **2016**, 28, 2200-2208	9.6	86
159	Monolayer Perovskite Bridges Enable Strong Quantum Dot Coupling for Efficient Solar Cells. *Joule*, **2020**, 4, 1542-1556	27.8	85
158	Hollow nanoporous covalent triazine frameworks via acid vapor-assisted solid phase synthesis for enhanced visible light photoactivity. *Journal of Materials Chemistry A*, **2016**, 4, 7555-7559	13	84
157	Self-assembly of carboxylic acid appended naphthalene diimide derivatives with tunable luminescent color and electrical conductivity. *Chemistry - A European Journal*, **2014**, 20, 760-71	4.8	80
156	Organization of Charge-Carrier Pathways for Organic Electronics. *Advanced Materials*, **2006**, 18, 2255-2259	14	75
155	A fluorescent, shape-persistent dendritic host with photoswitchable guest encapsulation and intramolecular energy transfer. *Journal of the American Chemical Society*, **2011**, 133, 11194-204	16.4	74
154	Progress in Poly (3-Hexylthiophene) Organic Solar Cells and the Influence of Its Molecular Weight on Device Performance. *Advanced Energy Materials*, **2018**, 8, 1801001	21.8	72
153	Tin Oxide Electron-Selective Layers for Efficient, Stable, and Scalable Perovskite Solar Cells. *Advanced Materials*, **2021**, 33, e2005504	24	70

152	Control of triplet state generation in heavy atom-free BODIPY-anthracene dyads by media polarity and structural factors. *Physical Chemistry Chemical Physics*, **2018**, 20, 8016-8031	3.6	69
151	Excited state tuning of bis(tridentate) ruthenium(II) polypyridine chromophores by push-pull effects and bite angle optimization: a comprehensive experimental and theoretical study. *Chemistry - A European Journal*, **2013**, 19, 13745-60	4.8	69
150	A heteroleptic push-pull substituted iron(II) bis(tridentate) complex with low-energy charge-transfer states. *Chemistry - A European Journal*, **2015**, 21, 704-14	4.8	69
149	A high gain and high charge carrier mobility indenofluorene-phenanthrene copolymer for light amplification and organic lasing. *Advanced Materials*, **2011**, 23, 894-7	24	68
148	Thieno[3,4-c]Pyrrole-4,6-Dione-Based Polymer Acceptors for High Open-Circuit Voltage All-Polymer Solar Cells. *Advanced Energy Materials*, **2017**, 7, 1602574	21.8	65
147	What determines the mobility of charge carriers in conjugated polymers?. *Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences*, **2007**, 365, 1473-87	3	65
146	Charge carrier transport and photogeneration in P3HT:PCBM photovoltaic blends. *Macromolecular Rapid Communications*, **2015**, 36, 1001-25	4.8	64
145	Polymer Main-Chain Substitution Effects on the Efficiency of Nonfullerene BHJ Solar Cells. *Advanced Energy Materials*, **2017**, 7, 1700834	21.8	64
144	Efficient upconversion fluorescence in a blue-emitting spirobifluorene-anthracene copolymer doped with low concentrations of Pt(II)octaethylporphyrin. *Journal of Chemical Physics*, **2005**, 123, 074902	3.9	64
143	Sub-ns triplet state formation by non-geminate recombination in PSBTBT:PC70BM and PCPDTBT:PC60BM organic solar cells. *Energy and Environmental Science*, **2015**, 8, 1511-1522	35.4	63
142	Interplay Between Side Chain Pattern, Polymer Aggregation, and Charge Carrier Dynamics in PBDTTPD:PCBM Bulk-Heterojunction Solar Cells. *Advanced Energy Materials*, **2015**, 5, 1401778	21.8	62
141	Switching off FRET in the hybrid assemblies of diblock copolymer micelles, quantum dots, and dyes by plasmonic nanoparticles. *ACS Nano*, **2012**, 6, 5051-9	16.7	60
140	Room-Temperature-Sputtered Nanocrystalline Nickel Oxide as Hole Transport Layer for p[illegible] Perovskite Solar Cells. *ACS Applied Energy Materials*, **2018**, 1, 6227-6233	6.1	57
139	Highly Efficient Electrocatalysts for Oxygen Reduction Reaction Based on 1D Ternary Doped Porous Carbons Derived from Carbon Nanotube Directed Conjugated Microporous Polymers. *Advanced Functional Materials*, **2016**, 26, 8255-8265	15.6	55
138	18.4 % Organic Solar Cells Using a High Ionization Energy Self-Assembled Monolayer as Hole-Extraction Interlayer. *ChemSusChem*, **2021**, 14, 3569-3578	8.3	54
137	Higher Mobility and Carrier Lifetimes in Solution-Processable Small-Molecule Ternary Solar Cells with 11% Efficiency. *Advanced Energy Materials*, **2019**, 9, 1802836	21.8	52
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135	Arrays of aligned supramolecular wires by macroscopic orientation of columnar discotic mesophases. *ACS Nano*, **2012**, 6, 9359-65	16.7	48

134	Boron-Ehitrogen-based conjugated porous polymers with multi-functions. *Journal of Materials Chemistry A*, **2013**, 1, 13878	13	48
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127	Impact of polymorphism on the optoelectronic properties of a low-bandgap semiconducting polymer. *Nature Communications*, **2019**, 10, 2867	17.4	43
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125	Comparative study of hole transport in polyspirobifluorene polymers measured by the charge-generation layer time-of-flight technique. *Journal of Applied Physics*, **2006**, 99, 023712	2.5	42
124	Amplified Spontaneous Emission of Poly(ladder-type phenylene)s The Influence of Photophysical Properties on ASE Thresholds. *Advanced Functional Materials*, **2008**, 18, 3265-3275	15.6	41
123	Ultrafast Terahertz Photoconductivity of Photovoltaic Polymer-Fullerene Blends: A Comparative Study Correlated with Photovoltaic Device Performance. *Journal of Physical Chemistry Letters*, **2014** , 5, 3662-8	6.4	40
122	Molecular Doping of the Hole-Transporting Layer for Efficient, Single-Step-Deposited Colloidal Quantum Dot Photovoltaics. *ACS Energy Letters*, **2017**, 2, 1952-1959	20.1	39
121	Improved Morphology and Efficiency of nip Planar Perovskite Solar Cells by Processing with Glycol Ether Additives. *ACS Energy Letters*, **2017**, 2, 1960-1968	20.1	39
120	Room-temperature nondispersive hole transport in a discotic liquid crystal. *Applied Physics Letters*, **2006**, 89, 252103	3.4	39
119	Sensitized intrinsic phosphorescence from a poly(phenylene-vinylene) derivative. *Chemical Physics Letters*, **2003**, 375, 286-291	2.5	39
118	Terminal group engineering for small-molecule donors boosts the performance of nonfullerene organic solar cells. *Journal of Materials Chemistry A*, **2019**, 7, 2541-2546	13	38
117	Impact of Nonfullerene Acceptor Core Structure on the Photophysics and Efficiency of Polymer Solar Cells. *ACS Energy Letters*, **2018**, 3, 802-811	20.1	38

116	Solvent Vapor Annealing-Mediated Crystallization Directs Charge Generation, Recombination and Extraction in BHJ Solar Cells. *Chemistry of Materials*, **2018**, 30, 789-798	9.6	37
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114	Cooperative supramolecular polymerization of an amine-substituted naphthalene-diimide and its impact on excited state photophysical properties. *Chemical Science*, **2016**, 7, 1115-1120	9.4	37
113	Effect of Charge Transfer in Magnetic-Plasmonic x (M = Mn, Fe) Heterodimers on the Kinetics of Nanocrystal Formation. *Chemistry of Materials*, **2015**, 27, 4877-4884	9.6	37
112	Trap-Free Hot Carrier Relaxation in Lead Halide Perovskite Films. *Journal of Physical Chemistry C*, **2017**, 121, 11201-11206	3.8	36
111	Mesostructured Fullerene Electrodes for Highly Efficient n Perovskite Solar Cells. *ACS Energy Letters*, **2016**, 1, 1049-1056	20.1	35
110	Quantum-size-tuned heterostructures enable efficient and stable inverted perovskite solar cells. *Nature Photonics*,	33.9	35
109	Mixed Domains Enhance Charge Generation and Extraction in Bulk-Heterojunction Solar Cells with Small-Molecule Donors. *Advanced Energy Materials*, **2018**, 8, 1702941	21.8	34
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107	Molecular triangles: synthesis, self-assembly, and blue emission of cyclo-7,10-tris-triphenylenyl macrocycles. *Chemistry - an Asian Journal*, **2011**, 6, 3001-10	4.5	31
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103	Photophysical Properties of a Series of Poly(ladder-type phenylene)s. *Advanced Functional Materials*, **2007**, 17, 3231-3240	15.6	30
102	Comparative study of conventional and hybrid blocking layers for solid-state dye-sensitized solar cells. *Physical Chemistry Chemical Physics*, **2012**, 14, 1607-13	3.6	29
101	Strong donor-acceptor couplings in a special pair-antenna model. *Chemical Communications*, **2010**, 46, 9176-8	5.8	29
100	Efficiency-Limiting Processes in Low-Bandgap Polymer:Perylene Diimide Photovoltaic Blends. *Journal of Physical Chemistry C*, **2014**, 118, 20077-20085	3.8	28
99	Correlating Emissive Non-Geminate Charge Recombination with Photocurrent Generation Efficiency in Polymer/Perylene Diimide Organic Photovoltaic Blend Films. *Advanced Functional Materials*, **2012**, 22, 2318-2326	15.6	28

98	Novel wide-bandgap non-fullerene acceptors for efficient tandem organic solar cells. *Journal of Materials Chemistry A*, **2020**, 8, 1164-1175	13	28
97	Programmable and coherent crystallization of semiconductors. *Science Advances*, **2017**, 3, e1602462	14.3	27
96	The impact of donor-acceptor phase separation on the charge carrier dynamics in pBTTT:PCBM photovoltaic blends. *Macromolecular Rapid Communications*, **2015**, 36, 1054-60	4.8	27
95	Ligand-Assisted Reconstruction of Colloidal Quantum Dots Decreases Trap State Density. *Nano Letters*, **2020**, 20, 3694-3702	11.5	27
94	Impact of Fullerene on the Photophysics of Ternary Small Molecule Organic Solar Cells. *Advanced Energy Materials*, **2019**, 9, 1901443	21.8	27
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92	The Longest α,ω-Unsubstituted Oligothiophenes and Their Self-Assembly in Solution. *Chemistry of Materials*, **2010**, 22, 6453-6458	9.6	27
91	Influence of hole transport units on the efficiency of polymer light emitting diodes. *Applied Physics Letters*, **2007**, 90, 142109	3.4	27
90	A Lutetium Cyclopentadienyl-Phosphazene Constrained Geometry Complex (CGC): First Isolobal Analogues of Group 4 Cyclopentadienyl-Silylamido CGC Systems. *European Journal of Inorganic Chemistry*, **2005**, 2005, 3805-3807	2.3	27
89	Enhancing the Charge Extraction and Stability of Perovskite Solar Cells Using Strontium Titanate (SrTiO3) Electron Transport Layer. *ACS Applied Energy Materials*, **2019**, 2, 8090-8097	6.1	26
88	Tuning Reductive and Oxidative Photoinduced Electron Transfer in Amide-Linked Anthraquinone–Porphyrin–Ferrocene Architectures. *European Journal of Inorganic Chemistry*, **2014**, 2014, 1984-2001	2.3	26
87	Dielectric switching of the nature of excited singlet state in a donor-acceptor-type polyfluorene copolymer. *Physical Review B*, **2010**, 81,	3.3	26
86	Ligand-bridged charge extraction and enhanced quantum efficiency enable efficient n–p perovskite/silicon tandem solar cells. *Energy and Environmental Science*,	35.4	26
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84	Wide-Bandgap Small Molecular Acceptors Based on a Weak Electron-Withdrawing Moiety for Efficient Polymer Solar Cells. *Solar Rrl*, **2018**, 2, 1800120	7.1	24
83	Plasmon-enhanced photocurrent in quasi-solid-state dye-sensitized solar cells by the inclusion of gold/silica core–shell nanoparticles in a TiO2 photoanode. *Journal of Materials Chemistry A*, **2013**, 1, 12627	13	24
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80	A phosphorescent hexa-peri-hexabenzocoronene platinum complex and its time-resolved spectroscopy. *Synthetic Metals*, **2006**, 156, 1182-1186	3.6	24
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73	Multichromophoric phthalocyanine-(perylenediimide)(8) molecules: a photophysical study. *Chemistry - A European Journal*, **2010**, 16, 10021-9	4.8	22
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71	Triplet state formation in photovoltaic blends of DPP-type copolymers and PC71 BM. *Macromolecular Rapid Communications*, **2015**, 36, 1122-8	4.8	21
70	Deciphering the Role of Fluorination: Morphological Manipulation Prompts Charge Separation and Reduces Carrier Recombination in All-Small-Molecule Photovoltaics. *Solar Rrl*, **2020**, 4, 1900528	7.1	21
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61	Tuning the sensitivity of fluorophore–nitroxide radicals. *Journal of Materials Chemistry*, **2012**, 22, 13260		16
60	Charge Photogeneration in Non-Fullerene Organic Solar Cells: Influence of Excess Energy and Electrostatic Interactions. *Advanced Functional Materials*, **2021**, 31, 2007479	15.6	16
59	Eco-Friendly Spray Deposition of Perovskite Films on Macroscale Textured Surfaces. *Advanced Materials Technologies*, **2020**, 5, 1901009	6.8	15
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55	28.2%-efficient, outdoor-stable perovskite/silicon tandem solar cell. *Joule*, **2021**,	27.8	15
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49	Observing Charge Dynamics in Surface Reactions by Time-Resolved Stark Effects. *Journal of Physical Chemistry C*, **2013**, 117, 9171-9177	3.8	13
48	How Humidity and Light Exposure Change the Photophysics of Metal Halide Perovskite Solar Cells. *Solar Rrl*, **2020**, 4, 2000382	7.1	13
47	Understanding the Charge Transfer State and Energy Loss Trade-offs in Non-fullerene-Based Organic Solar Cells. *ACS Energy Letters*,3408-3416	20.1	13
46	Efficiency-limiting processes in cyclopentadithiophene-bridged donor-acceptor-type dyes for solid-state dye-sensitized solar cells. *Journal of Chemical Physics*, **2018**, 148, 044703	3.9	12
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44	Triarylphosphine Oxide as Cathode Interfacial Material for Inverted Perovskite Solar Cells. *Advanced Materials Interfaces*, **2019**, 6, 1900434	4.6	11
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42	Correlation of micellar structures with surface-plasmon-coupled fluorescence in a strategy for fluorescence enhancement. *Journal of Materials Chemistry*, **2012**, 22, 24727		11
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40	Bimolecular crystals with an intercalated structure improve poly(p-phenylenevinylene)-based organic photovoltaic cells. *ChemSusChem*, **2015**, 8, 337-44	8.3	10
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