Moisture assisted perovskite film growth for high performance solar cells

DOI: 10.1063/1.4901510
Applied Physics Letters, 2014, 105, 183902.

#	Paper	IF	Citations
628	Vapor-assisted solution process for perovskite materials and solar cells. **2015**, 40, 667-673		32
627	Theory of Hydrogen Migration in Organic□Inorganic Halide Perovskites. **2015**, 127, 12614-12618		7
626	Direct Conversion of CH3NH3PbI3 from Electrodeposited PbO for Highly Efficient Planar Perovskite Solar Cells. **2015**, 5, 15889		72
625	Organometal Halide Perovskites for Photovoltaic Applications. **2015**, 535-566		7
624	High-Quality Mixed-Organic-Cation Perovskites from a Phase-Pure Non-stoichiometric Intermediate (FAI)1- x -PbI2 for Solar Cells. **2015**, 27, 4918-23		132
623	Beyond Efficiency: the Challenge of Stability in Mesoscopic Perovskite Solar Cells. **2015**, 5, 1501066		335
622	Plasmonic-Induced Photon Recycling in Metal Halide Perovskite Solar Cells. **2015**, 25, 5038-5046		167
621	Organisch-anorganische Perowskit-D□nnfilme f□ hocheffiziente Solarzellen. **2015**, 127, 3288-3297		25
620	Controllable Perovskite Crystallization by Water Additive for High-Performance Solar Cells. **2015**, 25, 6671-6678		282
619	Theory of hydrogen migration in organic-inorganic halide perovskites. **2015**, 54, 12437-41		112
618	High-Performance Semitransparent Perovskite Solar Cells with 10% Power Conversion Efficiency and 25% Average Visible Transmittance Based on Transparent CuSCN as the Hole-Transporting Material. **2015**, 5, 1500486		181
617	Single-Layer Light-Emitting Diodes Using Organometal Halide Perovskite/Poly(ethylene oxide) Composite Thin Films. **2015**, 27, 5196-202		252
616	Environmental Effects on the Photophysics of Organic-Inorganic Halide Perovskites. **2015**, 6, 2200-5		181
615	Solvent engineering of the electron transport layer using 1,8-diiodooctane for improving the performance of perovskite solar cells. **2015**, 24, 101-105		44
614	Efficiency Enhancement of Inverted Structure Perovskite Solar Cells via Oleamide Doping of PCBM Electron Transport Layer. **2015**, 7, 13659-65		108
613	Inverted planar NH2CH=NH2PbI3 perovskite solar cells with 13.56% efficiency via low temperature processing. **2015**, 17, 19745-50		65
612	Controlled Humidity Study on the Formation of Higher Efficiency Formamidinium Lead Triiodide-Based Solar Cells. **2015**, 27, 4814-4820		108

611	Perovskites: Solar cells & engineering applications materials and device developments. **2015**, 122, 678-699	90
610	Perovskite-polymer hybrid solar cells with near-infrared external quantum efficiency over 40%. **2015**, 58, 953-960	34
609	Interfaces in perovskite solar cells. **2015**, 11, 2472-86	293
608	Formation of thin films of organic-inorganic perovskites for high-efficiency solar cells. **2015**, 54, 3240-8	214
607	Perovskite Solar Cells: Do We Know What We Do Not Know?. **2015**, 6, 279-82	65
606	Water/alcohol soluble conjugated polymers for the interface engineering of highly efficient polymer light-emitting diodes and polymer solar cells. **2015**, 51, 5572-85	140
605	Morphology control of the perovskite films for efficient solar cells. **2015**, 44, 10582-93	136
604	Improving the TiO2 electron transport layer in perovskite solar cells using acetylacetonate-based additives. **2015**, 3, 9108-9115	94
603	Perovskite solar cells: film formation and properties. **2015**, 3, 9032-9050	327
602	A low temperature gradual annealing scheme for achieving high performance perovskite solar cells with no hysteresis. **2015**, 3, 14424-14430	32
601	Air-processed, efficient CH3NH3PbI3Clx perovskite solar cells with organic polymer PTB7 as a hole-transport layer. **2015**, 5, 66981-66987	28
600	Efficient and low-temperature processed perovskite solar cells based on a cross-linkable hybrid interlayer. **2015**, 3, 18483-18491	50
599	The Importance of Moisture in Hybrid Lead Halide Perovskite Thin Film Fabrication. **2015**, 9, 9380-93	366
598	High efficiency stable inverted perovskite solar cells without current hysteresis. **2015**, 8, 2725-2733	479
597	Efficient Light Harvester Layer Prepared by Solid/Mist Interface Reaction for Perovskite Solar Cells. **2015**, 7, 16907-12	22
596	Polyelectrolyte based hole-transporting materials for high performance solution processed planar perovskite solar cells. **2015**, 3, 15024-15029	83
595	Evolution of Organic–Inorganic Lead Halide Perovskite from Solid-State Iodoplumbate Complexes. **2015**, 119, 17065-17073	66
594	High efficiency perovskite solar cells using a PCBM/ZnO double electron transport layer and a short air-aging step. **2015**, 26, 30-35	73

593	Hole transporting material-free and annealing-free thermal evaporated planar perovskite solar cells with an ultra-thin CH3NH3PbI3−xClx layer. **2015**, 26, 104-108	14
592	Under the spotlight: The organic–inorganic hybrid halide perovskite for optoelectronic applications. **2015**, 10, 355-396	700
591	Multilayer Transparent Top Electrode for Solution Processed Perovskite/Cu(In,Ga)(Se,S)2 Four Terminal Tandem Solar Cells. **2015**, 9, 7714-21	139
590	Ab Initio Molecular Dynamics Simulations of Methylammonium Lead Iodide Perovskite Degradation by Water. **2015**, 27, 4885-4892	323
589	A simple in situ tubular chemical vapor deposition processing of large-scale efficient perovskite solar cells and the research on their novel roll-over phenomenon in J–V curves. **2015**, 3, 12443-12451	57
588	A hybrid physical–chemical deposition process at ultra-low temperatures for high-performance perovskite solar cells. **2015**, 3, 12436-12442	45
587	Efficient and stable planar heterojunction perovskite solar cells with an MoO3/PEDOT:PSS hole transporting layer. **2015**, 7, 9427-32	182
586	Nucleation and Crystal Growth of Organic-Inorganic Lead Halide Perovskites under Different Relative Humidity. **2015**, 7, 9110-7	113
585	Fundamental physics behind high-efficiency organo-metal halide perovskite solar cells. **2015**, 3, 15372-15385	99
584	Highly efficient and stable planar heterojunction perovskite solar cells via a low temperature solution process. **2015**, 3, 12133-12138	81
583	Metal-halide perovskites for photovoltaic and light-emitting devices. **2015**, 10, 391-402	2083
582	High-performance CH3NH3PbI3 perovskite solar cells fabricated under ambient conditions with high relative humidity. **2015**, 54, 100305	32
581	Degradation by Exposure of Coevaporated CH3NH3PbI3 Thin Films. **2015**, 119, 23996-24002	95
580	Interface and Composition Analysis on Perovskite Solar Cells. **2015**, 7, 26176-83	99
579	Investigation of the Interaction between Perovskite Films with Moisture via in Situ Electrical Resistance Measurement. **2015**, 7, 25113-20	56
578	High-performance perovskite solar cells fabricated by vapor deposition with optimized PbI2 precursor films. **2015**, 5, 95847-95853	15
577	Improved Crystallization of Perovskite Films by Optimized Solvent Annealing for High Efficiency Solar Cell. **2015**, 7, 24008-15	219
576	Improved photovoltaic performance in perovskite solar cells based on CH3NH3PbI3 films fabricated under controlled relative humidity. **2015**, 5, 93957-93963	25

575	The impact of precursor water content on solution-processed organometal halide perovskite films and solar cells. **2015**, 3, 19123-19128		51
574	Reliable solution processed planar perovskite hybrid solar cells with large-area uniformity by chloroform soaking and spin rinsing induced surface precipitation. **2015**, 5, 087125		12
573	Intrinsic Thermal Instability of Methylammonium Lead Trihalide Perovskite. **2015**, 5, 1500477		1386
572	Chlorine Incorporation for Enhanced Performance of Planar Perovskite Solar Cell Based on Lead Acetate Precursor. **2015**, 7, 23110-6		102
571	Influence of the Synthetic Procedures on the Structural and Optical Properties of Mixed-Halide (Br, I) Perovskite Films. **2015**, 119, 21304-21313		65
570	Photodecomposition and Morphology Evolution of Organometal Halide Perovskite Solar Cells. **2015**, 119, 20810-20816		83
569	In-situ synthesis of metal nanoparticle-polymer composites and their application as efficient interfacial materials for both polymer and planar heterojunction perovskite solar cells. **2015**, 27, 46-52		18
568	Controlling the conduction band offset for highly efficient ZnO nanorods based perovskite solar cell. *Applied Physics Letters*, **2015**, 107, 073507	3.4	52
567	A solution-processed bathocuproine cathode interfacial layer for high-performance bromine-iodine perovskite solar cells. **2015**, 17, 26653-8		89
566	CHNHPbI perovskite single crystals: surface photophysics and their interaction with the environment. **2015**, 6, 7305-7310		171
565	Perovskite-based solar cells: impact of morphology and device architecture on device performance. **2015**, 3, 8943-8969		465
564	Ambient Air and Hole Transport Layer Free Synthesis: Towards Low Cost CH3NH3PbI3Solar Cells. **2016**, 2016, 1-12		2
563	Humidity versus photo-stability of metal halide perovskite films in a polymer matrix. **2016**, 18, 21629-39		62
562	Mesoporous PbI2 Scaffold for High-Performance Planar Heterojunction Perovskite Solar Cells. **2016**, 6, 1501890		102
561	Inverted Perovskite Solar Cells: Progresses and Perspectives. **2016**, 6, 1600457		294
560	Iodine Migration and its Effect on Hysteresis in Perovskite Solar Cells. **2016**, 28, 2446-54		369
559	Humidity controlled crystallization of thin CH3NH3PbI3 films for high performance perovskite solar cell. **2016**, 10, 381-387		34
558	Highly Reproducible and Efficient Perovskite Solar Cells with Extraordinary Stability from Robust CH3NH3PbI3: Towards Large-Area Devices. **2016**, 4, 449-457		24

557	Amino-Functionalized Conjugated Polymer as an Efficient Electron Transport Layer for High-Performance Planar-Heterojunction Perovskite Solar Cells. **2016**, 6, 1501534		247
556	Coordination Chemistry Dictates the Structural Defects in Lead Halide Perovskites. **2016**, 17, 2795-8		112
555	Transparent Conductive Oxide-Free Graphene-Based Perovskite Solar Cells with over 17% Efficiency. **2016**, 6, 1501873		161
554	Mechanisms for light induced degradation in MAPbI3 perovskite thin films and solar cells. *Applied Physics Letters*, **2016**, 109, 233905	3.4	154
553	Inverted polymer solar cells with enhanced fill factor by inserting the potassium stearate interfacial modification layer. *Applied Physics Letters*, **2016**, 108, 181602	3.4	14
552	Oxygen influencing the photocarriers lifetime of CH3NH3PbI3□Clx film grown by two-step interdiffusion method and its photovoltaic performance. *Applied Physics Letters*, **2016**, 108, 033904	3.4	23
551	Low resistivity ZnO-GO electron transport layer based CH3NH3PbI3 solar cells. **2016**, 6, 065303		21
550	Voltage-Induced Transients in Methylammonium Lead Triiodide Probed by Dynamic Photoluminescence Spectroscopy. **2016**, 120, 7893-7902		21
549	Coarsening of one-step deposited organolead triiodide perovskite films via Ostwald ripening for high efficiency planar-heterojunction solar cells. **2016**, 45, 7856-65		46
548	The Effect of Humidity upon the Crystallization Process of Two-Step Spin-Coated Organic-Inorganic Perovskites. **2016**, 17, 112-8		26
547	Low thermal budget, photonic-cured compact TiO2 layers for high-efficiency perovskite solar cells. **2016**, 4, 9685-9690		41
546	Hysteresis, Stability, and Ion Migration in Lead Halide Perovskite Photovoltaics. **2016**, 7, 2240-5		73
545	High-Performance Perovskite Solar Cells Engineered by an Ammonia Modified Graphene Oxide Interfacial Layer. **2016**, 8, 14503-12		100
544	Efficiency Enhancement of Perovskite Solar Cells by Pumping Away the Solvent of Precursor Film Before Annealing. **2016**, 11, 248		9
543	Molecular Origins of Defects in Organohalide Perovskites and Their Influence on Charge Carrier Dynamics. **2016**, 120, 12392-12402		76
542	Morphology fixing agent for [6,6]-phenyl C61-butyric acid methyl ester (PC60BM) in planar-type perovskite solar cells for enhanced stability. **2016**, 6, 51513-51519		10
541	Highly reproducible perovskite solar cells with excellent CH3NH3PbI3□Clx film morphology fabricated via high precursor concentration. **2016**, 6, 51279-51285		9
540	Degradation of Co-Evaporated Perovskite Thin Films. **2016**, 1, 923-929		3

539	In situ investigation of the formation and metastability of formamidinium lead tri-iodide perovskite solar cells. **2016**, 9, 2372-2382	64
538	Advancements in the stability of perovskite solar cells: degradation mechanisms and improvement approaches. **2016**, 6, 38079-38091	131
537	p-i-n/n-i-p type planar hybrid structure of highly efficient perovskite solar cells towards improved air stability: synthetic strategies and the role of p-type hole transport layer (HTL) and n-type electron transport layer (ETL) metal oxides. **2016**, 8, 10528-40	95
536	Induced Crystallization of Perovskites by a Perylene Underlayer for High-Performance Solar Cells. **2016**, 10, 5479-89	111
535	Large-area, high-quality organic□inorganic hybrid perovskite thin films via a controlled vapor□solid reaction. **2016**, 4, 9124-9132	39
534	Structural and chemical evolution of methylammonium lead halide perovskites during thermal processing from solution. **2016**, 9, 2072-2082	153
533	A rapid annealing technique for efficient perovskite solar cells fabricated in air condition under high humidity. **2016**, 34, 84-90	16
532	Absorption enhancement in CH3NH3PbI3solar cell using a TiO2/MoS2nanocomposite electron selective contact. **2016**, 3, 045022	14
531	High-performance inverted planar heterojunction perovskite solar cells based on a solution-processed CuOx hole transport layer. **2016**, 8, 10806-13	161
530	Efficient perovskite solar cell fabricated in ambient air using one-step spin-coating. **2016**, 6, 43299-43303	40
529	Effect of Water Vapor, Temperature, and Rapid Annealing on Formamidinium Lead Triiodide Perovskite Crystallization. **2016**, 1, 155-161	21
528	Ultrasmooth metal halide perovskite thin films via sol□gel processing. **2016**, 4, 8308-8315	48
527	Film-through large perovskite grains formation via a combination of sequential thermal and solvent treatment. **2016**, 4, 8554-8561	68
526	Hydrophobic hole-transporting layer induced porous PbI2 film for stable and efficient perovskite solar cells in 50% humidity. **2016**, 157, 989-995	14
525	Bromide regulated film formation of CH3NH3PbI3 in low-pressure vapor-assisted deposition for efficient planar-heterojunction perovskite solar cells. **2016**, 157, 1026-1037	21
524	Influence of the mixed organic cation ratio in lead iodide based perovskite on the performance of solar cells. **2016**, 18, 27148-27157	61
523	Film Grain-Size Related Long-Term Stability of Inverted Perovskite Solar Cells. **2016**, 9, 2666-2672	79
522	A perspective on the recent progress in solution-processed methods for highly efficient perovskite solar cells. **2016**, 17, 650-658	26

521	Effect of polyelectrolyte interlayer on efficiency and stability of p-i-n perovskite solar cells. **2016**, 139, 190-198	22
520	Ambient air-processed mixed-ion perovskites for high-efficiency solar cells. **2016**, 4, 16536-16545	44
519	Promoting crystalline grain growth and healing pinholes by water vapor modulated post-annealing for enhancing the efficiency of planar perovskite solar cells. **2016**, 4, 13458-13467	52
518	Copper Salts Doped Spiro-OMeTAD for High-Performance Perovskite Solar Cells. **2016**, 6, 1601156	172
517	The interface and its role in carrier transfer/recombination dynamics for the planar perovskite solar cells prepared under fully open air conditions. **2016**, 16, 1353-1363	15
516	First-Principles Modeling of Organohalide Thin Films and Interfaces. **2016**, 19-52	4
515	Ionic Conductivity of Organic□Inorganic Perovskites: Relevance for Long-Time and Low Frequency Behavior. **2016**, 107-135	5
514	Ion Migration in Hybrid Perovskite Solar Cells. **2016**, 137-162	13
513	Mixed-solvent-vapor annealing of perovskite for photovoltaic device efficiency enhancement. **2016**, 28, 417-425	90
512	Cooperative Effect of GO and Glucose on PEDOT:PSS for High VOC and Hysteresis-Free Solution-Processed Perovskite Solar Cells. **2016**, 26, 6985-6994	55
511	Potentials and challenges towards application of perovskite solar cells. **2016**, 59, 769-778	13
510	High-Quality Perovskite Films Grown with a Fast Solvent-Assisted Molecule Inserting Strategy for Highly Efficient and Stable Solar Cells. **2016**, 8, 22238-45	16
509	Thermal flow air post-treatment under high relative humidity for efficient and reproducible planar CH3NH3PbI3□Clx based perovskite solar cells. **2016**, 48, 1	1
508	Efficient promotion of charge separation and suppression of charge recombination by blending PCBM and its dimer as electron transport layer in inverted perovskite solar cells. **2016**, 6, 112512-112519	14
507	Interaction of Organic Cation with Water Molecule in Perovskite MAPbI3: From Dynamic Orientational Disorder to Hydrogen Bonding. **2016**, 28, 7385-7393	133
506	Effects of Gas Blowing Condition on Formation of Perovskite Layer on Organic Scaffolds. **2016**, 45, 822-824	8
505	Strategic improvement of the long-term stability of perovskite materials and perovskite solar cells. **2016**, 18, 27026-27050	116
504	Advances in Perovskite Solar Cells. **2016**, 3, 1500324	397

503	Highly Efficient p-i-n Perovskite Solar Cells Utilizing Novel Low-Temperature Solution-Processed Hole Transport Materials with Linear Conjugated Structure. **2016**, 12, 4902-4908	48
502	Interface engineering in efficient vacuum deposited perovskite solar cells. **2016**, 37, 396-401	18
501	Highly reproducible and photocurrent hysteresis-less planar perovskite solar cells with a modified solvent annealing method. **2016**, 136, 210-216	14
500	Dramatically promoted crystallization control of organolead triiodide perovskite film by a homogeneous cap for high efficiency planar-heterojunction solar cells. **2016**, 4, 12535-12542	37
499	Room-temperature water-vapor annealing for high-performance planar perovskite solar cells. **2016**, 4, 17267-17273	51
498	Crystal Engineering for Low Defect Density and High Efficiency Hybrid Chemical Vapor Deposition Grown Perovskite Solar Cells. **2016**, 8, 32805-32814	61
497	Analysis of Sputtering Damage on IV Curves for Perovskite Solar Cells and Simulation with Reversed Diode Model. **2016**, 120, 28441-28447	32
496	WO Nanoparticles or Nanorods Incorporating CsCO/PCBM Buffer Bilayer as Carriers Transporting Materials for Perovskite Solar Cells. **2016**, 11, 464	23
495	Enhanced photovoltaic performance of planar perovskite solar cells fabricated in ambient air by solvent annealing treatment method. **2016**, 55, 122301	13
494	Enhancing performance and uniformity of CH3NH3PbI(3-x)Cl(x) perovskite solar cells by air-heated-oven assisted annealing under various humidities. **2016**, 6, 21257	24
493	Beyond Bulk Lifetimes: Insights into Lead Halide Perovskite Films from Time-Resolved Photoluminescence. **2016**, 6,	144
492	D-A-A Motif Quinoxaline-Based Sensitizers with High Molar Extinction Coefficient for Quasi-Solid-State Dye-Sensitized Solar Cells. **2016**, 8, 31016-31024	38
491	Hole-Transporting Materials in Inverted Planar Perovskite Solar Cells. **2016**, 6, 1600474	197
490	Photoluminescence Enhancement in Formamidinium Lead Iodide Thin Films. **2016**, 26, 4653-4659	54
489	The control of surface texture for planar CH3NH3PbI3Clx film and its effect on photovoltaic performance. **2016**, 27, 9384-9390	3
488	Systematic study on the impact of water on the performance and stability of perovskite solar cells. **2016**, 6, 52448-52458	26
487	Porous PbI2 films for the fabrication of efficient, stable perovskite solar cells via sequential deposition. **2016**, 4, 10223-10230	45
486	Solution processed perovskite solar cells using highly conductive PEDOT:PSS interfacial layer. **2016**, 157, 318-325	61

485	Spatial confinement growth of perovskite nanocrystals for ultra-flexible solar cells. **2016**, 6, 59429-59437	3
484	TiO2/ZnO/TiO2 sandwich multi-layer films as a hole-blocking layer for efficient perovskite solar cells. **2016**, 40, 806-813	28
483	Fullerene imposed high open-circuit voltage in efficient perovskite based solar cells. **2016**, 4, 3667-3672	38
482	Ion Migration in Organometal Trihalide Perovskite and Its Impact on Photovoltaic Efficiency and Stability. **2016**, 49, 286-93	1002
481	Recent progress in electron transport layers for efficient perovskite solar cells. **2016**, 4, 3970-3990	393
480	Unraveling the hidden function of a stabilizer in a precursor in improving hybrid perovskite film morphology for high efficiency solar cells. **2016**, 9, 867-872	56
479	Making and Breaking of Lead Halide Perovskites. **2016**, 49, 330-8	491
478	Novel Surface Passivation Technique for Low-Temperature Solution-Processed Perovskite PV Cells. **2016**, 8, 4644-50	72
477	Recent progress and challenges of organometal halide perovskite solar cells. **2016**, 79, 026501	97
476	n-Type Water/Alcohol-Soluble Naphthalene Diimide-Based Conjugated Polymers for High-Performance Polymer Solar Cells. **2016**, 138, 2004-13	400
475	Solution processed pristine PDPP3T polymer as hole transport layer for efficient perovskite solar cells with slower degradation. **2016**, 145, 193-199	90
474	Highly efficient perovskite solar cells with precursor composition-dependent morphology. **2016**, 145, 231-237	25
473	Formation Dynamics of CH3NH3PbI3 Perovskite Following Two-Step Layer Deposition. **2016**, 7, 96-102	82
472	Organic-inorganic hybrid lead halide perovskites for optoelectronic and electronic applications. **2016**, 45, 655-89	1049
471	Preheating-assisted deposition of solution-processed perovskite layer for an efficiency-improved inverted planar composite heterojunction solar cell. **2016**, 6, 30978-30985	22
470	Parameters that control and influence the organo-metal halide perovskite crystallization and morphology. **2016**, 9, 44-52	44
469	Structure and Growth Control of Organic-Inorganic Halide Perovskites for Optoelectronics: From Polycrystalline Films to Single Crystals. **2016**, 3, 1500392	152
468	Composition-controlled organometal halide perovskite via CH3NH3I pressure in a vacuum co-deposition process. **2016**, 4, 5663-5668	21

467	Thin-film semiconductor perspective of organometal trihalide perovskite materials for high-efficiency solar cells. **2016**, 101, 1-38	91
466	Reversible Healing Effect of Water Molecules on Fully Crystallized Metal□Halide Perovskite Film. **2016**, 120, 4759-4765	45
465	Humidity-Induced Grain Boundaries in MAPbI3 Perovskite Films. **2016**, 120, 6363-6368	83
464	Intense Pulsed Light Sintering of CH3NH3PbI3 Solar Cells. **2016**, 8, 8419-26	46
463	Efficient Planar Perovskite Solar Cells with Reduced Hysteresis and Enhanced Open Circuit Voltage by Using PW12-TiO2 as Electron Transport Layer. **2016**, 8, 8520-6	33
462	Thin-Film Deposition and Characterization of a Sn-Deficient Perovskite Derivative Cs2SnI6. **2016**, 28, 2315-2322	252
461	Transition Metal-Oxide Free Perovskite Solar Cells Enabled by a New Organic Charge Transport Layer. **2016**, 8, 8511-9	17
460	Degradation of co-evaporated perovskite thin film in air. **2016**, 649, 151-155	33
459	Fully Printed Halide Perovskite Light-Emitting Diodes with Silver Nanowire Electrodes. **2016**, 10, 1795-801	219
458	Recent Advances in the Inverted Planar Structure of Perovskite Solar Cells. **2016**, 49, 155-65	472
457	Crystallization of a perovskite film for higher performance solar cells by controlling water concentration in methyl ammonium iodide precursor solution. **2016**, 8, 2693-703	81
456	Interfacial Degradation of Planar Lead Halide Perovskite Solar Cells. **2016**, 10, 218-24	357
455	Organometal halide perovskite thin films and solar cells by vapor deposition. **2016**, 4, 6693-6713	177
454	Relationships between Lead Halide Perovskite Thin-Film Fabrication, Morphology, and Performance in Solar Cells. **2016**, 138, 463-70	192
453	Effect of relative humidity on crystal growth, device performance and hysteresis in planar heterojunction perovskite solar cells. **2016**, 8, 6300-7	92
452	Improved air stability of perovskite solar cells via solution-processed metal oxide transport layers. **2016**, 11, 75-81	1614
451	Planar heterojunction organometal halide perovskite solar cells: roles of interfacial layers. **2016**, 9, 12-30	396
450	Organometal halide perovskite solar cells: degradation and stability. **2016**, 9, 323-356	1188

449	Crystallization process of perovskite modified by adding lead acetate in precursor solution for better morphology and higher device efficiency. **2017**, 43, 189-195	12
448	Keggin-Type PMoV as a P-type Dopant for Enhancing the Efficiency and Reproducibility of Perovskite Solar Cells. **2017**, 9, 2378-2386	26
447	Electronic and Morphological Inhomogeneities in Pristine and Deteriorated Perovskite Photovoltaic Films. **2017**, 17, 1796-1801	22
446	Formation criteria of high efficiency perovskite solar cells under ambient conditions. **2017**, 1, 540-547	48
445	CH3NH3PbI3 converted from reactive magnetron sputtered PbO for large area perovskite solar cells. **2017**, 163, 250-254	12
444	High performance perovskite solar cells fabricated under high relative humidity conditions. **2017**, 163, 38-42	24
443	Effects of ambient humidity on the optimum annealing time of mixed-halide Perovskite solar cells. **2017**, 28, 114004	15
442	Facile Face-Down Annealing Triggered Remarkable Texture Development in CHNHPbI Films for High-Performance Perovskite Solar Cells. **2017**, 9, 6104-6113	52
441	Advances in hole transport materials engineering for stable and efficient perovskite solar cells. **2017**, 34, 271-305	278
440	Towards high efficiency thin film solar cells. **2017**, 87, 246-291	67
439	The synergistic effect of H2O and DMF towards stable and 20% efficiency inverted perovskite solar cells. **2017**, 10, 808-817	315
438	Air-Induced High-Quality CH3NH3PbI3 Thin Film for Efficient Planar Heterojunction Perovskite Solar Cells. **2017**, 121, 6575-6580	42
437	Synergy of ammonium chloride and moisture on perovskite crystallization for efficient printable mesoscopic solar cells. **2017**, 8, 14555	234
436	Polymer strategies in perovskite solar cells. **2017**, 55, 549-568	16
435	Optimized organometal halide perovskite solar cell fabrication through control of nanoparticle crystal patterning. **2017**, 5, 2352-2359	11
434	Unveiling a Key Intermediate in Solvent Vapor Postannealing to Enlarge Crystalline Domains of Organometal Halide Perovskite Films. **2017**, 27, 1604944	86
433	Morphology Evolution and Degradation of CsPbBr Nanocrystals under Blue Light-Emitting Diode Illumination. **2017**, 9, 7249-7258	226
432	Tuning the work function of indium-tin-oxide electrodes for low-temperature-processed, titanium-oxide-free perovskite solar cells. **2017**, 44, 120-125	21

431	CHNHPbICl under Different Fabrication Strategies: Electronic Structures and Energy-Level Alignment with an Organic Hole Transport Material. **2017**, 9, 7859-7865	17
430	A facile one-pot synthesis of hyper-branched carbazole-based polymer as a hole-transporting material for perovskite solar cells. **2017**, 5, 6613-6621	34
429	Tuning Magneto-photocurrent between Positive and Negative Polarities in Perovskite Solar Cells. **2017**, 121, 9537-9542	7
428	Recent progress in stabilizing hybrid perovskites for solar cell applications. **2017**, 355, 98-133	76
427	Annealing Induced Re-crystallization in CHNHPbICl for High Performance Perovskite Solar Cells. **2017**, 7, 46724	44
426	Additive engineering for highly efficient organic–inorganic halide perovskite solar cells: recent advances and perspectives. **2017**, 5, 12602-12652	249
425	Synthesis of a nanostructured rutile TiO2 electron transporting layer via an etching process for efficient perovskite solar cells: impact of the structural and crystalline properties of TiO2. **2017**, 5, 12340-12353	30
424	Photon-generated carriers excite superoxide species inducing long-term photoluminescence enhancement of MAPbI3 perovskite single crystals. **2017**, 5, 12048-12053	27
423	Radiative Thermal Annealing/in Situ X-ray Diffraction Study of Methylammonium Lead Triiodide: Effect of Antisolvent, Humidity, Annealing Temperature Profile, and Film Substrates. **2017**, 29, 5931-5941	26
422	Cathode modification in planar hetero-junction perovskite solar cells through a small-molecule zwitterionic carboxylate. **2017**, 48, 204-210	20
421	Magnetic Field-Assisted Perovskite Film Preparation for Enhanced Performance of Solar Cells. **2017**, 9, 21756-21762	20
420	High performance carbon-based printed perovskite solar cells with humidity assisted thermal treatment. **2017**, 5, 12060-12067	74
419	Hybrid Perovskites: Effective Crystal Growth for Optoelectronic Applications. **2017**, 7, 1602596	54
418	Nonradiative Losses in Metal Halide Perovskites. **2017**, 2, 1515-1525	234
417	Aqueous self-assembled perovskite microfibers for sensitive photodetectors. **2017**, 48, 106-111	12
416	Interface design for high-efficiency non-fullerene polymer solar cells. **2017**, 10, 1784-1791	149
415	Structure formation and evolution in semiconductor films for perovskite and organic photovoltaics. **2017**, 32, 1798-1824	14
414	Effective hot-air annealing for improving the performance of perovskite solar cells. **2017**, 146, 359-367	16

413	Mechanical signatures of degradation of the photovoltaic perovskite CH3NH3PbI3 upon water vapor exposure. *Applied Physics Letters*, **2017**, 110, 121903	3.4	32
412	Improving the stability of the perovskite solar cells by V2O5 modified transport layer film. **2017**, 7, 18456-18465		24
411	Enhanced optoelectronic quality of perovskite films with excess CHNHI for high-efficiency solar cells in ambient air. **2017**, 28, 205401		15
410	Solvent vapor annealing of oriented PbI2 films for improved crystallization of perovskite films in the air. **2017**, 166, 167-175		16
409	A transparent poly(3,4-ethylenedioxylenethiophene):poly(styrene sulfonate) cathode for low temperature processed, metal-oxide free perovskite solar cells. **2017**, 5, 6974-6980		54
408	Moisture-driven phase transition for improved perovskite solar cells with reduced trap-state density. **2017**, 10, 1413-1422		12
407	Transition metal oxides as hole-transporting materials in organic semiconductor and hybrid perovskite based solar cells. **2017**, 60, 472-489		34
406	Efficient and Air-Stable Planar Perovskite Solar Cells Formed on Graphene-Oxide-Modified PEDOT:PSS Hole Transport Layer. **2017**, 9, 39		97
405	Ternary solvent for CHNHPbI perovskite films with uniform domain size. **2017**, 19, 1143-1150		26
404	The Influence of Morphology and PbI on the Intrinsic Trap State Distribution in Perovskite Films Determined by Using Temperature-Dependent Fluorescence Spectroscopy. **2017**, 18, 310-317		7
403	Sequential Introduction of Cations Deriving Large-Grain Cs FA PbI Thin Film for Planar Hybrid Solar Cells: Insight into Phase-Segregation and Thermal-Healing Behavior. **2017**, 13, 1603225		56
402	High Efficiency Inverted Planar Perovskite Solar Cells with Solution-Processed NiO Hole Contact. **2017**, 9, 2439-2448		126
401	Monitoring Thermal Annealing of Perovskite Solar Cells with In Situ Photoluminescence. **2017**, 7, 1601822		47
400	Hybrid Perovskite Photovoltaic Devices: Properties, Architecture, and Fabrication Methods. **2017**, 5, 373-401		21
399	Multinuclear Magnetic Resonance Tracking of Hydro, Thermal, and Hydrothermal Decomposition of CH3NH3PbI3. **2017**, 121, 1013-1024		63
398	Improved performance of pure formamidinium lead iodide perovskite light-emitting diodes by moisture treatment. **2017**, 5, 11121-11127		7
397	Efficient and stable perovskite solar cells based on high-quality CH3NH3PbI3−xClx films modified by V2Ox additives. **2017**, 5, 24282-24291		21
396	Effects of water on the forward and backward conversions of lead(II) iodide to methylammonium lead perovskite. **2017**, 5, 23815-23821		13

395	High-Resolution Study of TiO2 Contact Layer Thickness on the Performance of Over 800 Perovskite Solar Cells. **2017**, 2, 2356-2361	9
394	Crystallization Dependent Stability of Perovskite Solar Cells With Different Hole Transporting Layers. **2017**, 1, 1700141	7
393	Impact of H2O on organic□inorganic hybrid perovskite solar cells. **2017**, 10, 2284-2311	248
392	Constructing Efficient and Stable Perovskite Solar Cells via Interconnecting Perovskite Grains. **2017**, 9, 35200-35208	89
391	Nonconjugated Polymer Poly(vinylpyrrolidone) as an Efficient Interlayer Promoting Electron Transport for Perovskite Solar Cells. **2017**, 9, 32957-32964	54
390	Enhanced Moisture Stability of Cesium-Containing Compositional Perovskites by a Feasible Interfacial Engineering. **2017**, 4, 1700598	49
389	18% High-Efficiency Air-Processed Perovskite Solar Cells Made in a Humid Atmosphere of 70% RH. **2017**, 1, 1700097	75
388	DMF as an Additive in a Two-Step Spin-Coating Method for 20% Conversion Efficiency in Perovskite Solar Cells. **2017**, 9, 26937-26947	57
387	Improved efficiency and short-term stability of the planar heterojunction perovskite solar cells with a polyelectrolyte layer. **2017**, 214, 1700281	3
386	Efficient planar perovskite solar cells based on high-quality perovskite films with smooth surface and large crystal grains fabricated in ambient air conditions. **2017**, 155, 942-950	29
385	In situ investigation of halide incorporation into perovskite solar cells. **2017**, 7, 575-582	6
384	Updating the road map to metal-halide perovskites for photovoltaics. **2017**, 5, 17135-17150	23
383	High-Performance Rigid and Flexible Perovskite Solar Cells with Low-Temperature Solution-Processable Binary Metal Oxide Hole-Transporting Materials. **2017**, 1, 1700058	54
382	Enhanced Thermochemical Stability of CHNHPbI Perovskite Films on Zinc Oxides via New Precursors and Surface Engineering. **2017**, 9, 26045-26051	22
381	120 mm single-crystalline perovskite and wafers: towards viable applications. **2017**, 60, 1367-1376	86
380	Fabrication of high-performance and low-hysteresis lead halide perovskite solar cells by utilizing a versatile alcohol-soluble bispyridinium salt as an efficient cathode modifier. **2017**, 5, 17943-17953	23
379	Rational Solvent Annealing for Perovskite Film Formation in Air Condition (July 2017). **2017**, 7, 1338-1341	1
378	Improved Morphology and Efficiency of n□i□p Planar Perovskite Solar Cells by Processing with Glycol Ether Additives. **2017**, 2, 1960-1968	39

377	Interface Engineering of Perovskite Solar Cells with Air Plasma Treatment for Improved Performance. **2017**, 18, 2939-2946	15
376	Interfaces in Perovskite Solar Cells. **2017**, 7, 1700623	225
375	Electropolymerization Porous Aromatic Framework Film As a Hole-Transport Layer for Inverted Perovskite Solar Cells with Superior Stability. **2017**, 9, 43688-43695	14
374	Capturing the Sun: A Review of the Challenges and Perspectives of Perovskite Solar Cells. **2017**, 7, 1700264	235
373	Moisture annealing effect on CH3NH3PbI3 films deposited by solvent engineering method. **2017**, 636, 664-670	8
372	The Role of Connectivity on Electronic Properties of Lead Iodide Perovskite-Derived Compounds. **2017**, 56, 8408-8414	59
371	Efficient Indium-Doped TiOx Electron Transport Layers for High-Performance Perovskite Solar Cells and Perovskite-Silicon Tandems. **2017**, 7, 1601768	145
370	Enhanced electron extraction using SnO2 for high-efficiency planar-structure HC(NH2)2PbI3-based perovskite solar cells. **2017**, 2,	1231
369	Effect of guanidinium on mesoscopic perovskite solar cells. **2017**, 5, 73-78	119
368	Interplay between nucleation and crystal growth during the formation of CH3NH3PbI3 thin films and their application in solar cells. **2017**, 159, 583-589	46
367	Mesoscopic CH3NH3PbI3 perovskite solar cells using TiO2 inverse opal electron-conducting scaffolds. **2017**, 5, 1972-1977	31
366	Transamidation of dimethylformamide during alkylammonium lead triiodide film formation for perovskite solar cells. **2017**, 32, 45-55	31
365	Low temperature processed ZnO thin film as electron transport layer for efficient perovskite solar cells. **2017**, 159, 251-264	82
364	Efficient planar heterojunction perovskite solar cells with weak hysteresis fabricated via bar coating. **2017**, 159, 412-417	37
363	Fullerene Derivatives for the Applications as Acceptor and Cathode Buffer Layer Materials for Organic and Perovskite Solar Cells. **2017**, 7, 1601251	126
362	Solvent-induced textured structure and improved crystallinity for high performance perovskite solar cells. **2017**, 7, 2150	20
361	Effects of Annealing Conditions on Mixed Lead Halide Perovskite Solar Cells and Their Thermal Stability Investigation. **2017**, 10,	23
360	Overcoming the Intrinsic Difference between Hydrophilic CH$_3$NH$_3$PbI$_3$ and Hydrophobic C Thin Films to Improve the Photovoltaic Performance. **2017**, 7,	6

359	Hole-Transporting Materials for Printable Perovskite Solar Cells. **2017**, 10,	73
358	N-Type Self-Doped Water/Alcohol-Soluble Conjugated Polymers with Tailored Energy Levels for High-Performance Polymer Solar Cells. **2018**, 51, 2195-2202	28
357	The Impact of Atmosphere on the Local Luminescence Properties of Metal Halide Perovskite Grains. **2018**, 30, e1706208	116
356	Graphene Oxide for DSSC, OPV and Perovskite Stability. **2018**, 503-531	2
355	Effects of organic solvents for the phenyl-C61-butyric acid methyl ester layer on the performance of inverted perovskite solar cells. **2018**, 56, 247-253	4
354	Fast Postmoisture Treatment of Luminescent Perovskite Films for Efficient Light-Emitting Diodes. **2018**, 14, e1703410	28
353	Strategies for high performance perovskite/crystalline silicon four-terminal tandem solar cells. **2018**, 179, 36-44	23
352	Organometal Halide Perovskites for Next Generation Fully Printed and Flexible LEDs and Displays. **2018**, 199-214	
351	Evolution of organometal halide solar cells. **2018**, 35, 74-107	22
350	Highly efficient regular polymer solar cells based on Li-TFSI doping ZnO as electron-transporting interlayers. **2018**, 169, 49-54	8
349	A Simple Perylene Derivative as a Solution-Processable Cathode Interlayer for Perovskite Solar Cells with Enhanced Efficiency and Stability. **2018**, 10, 15933-15942	18
348	Highly Stable Hybrid Perovskite Solar Cells Modified with Polyethylenimine via Ionic Bonding. **2018**, 4, 649-655	17
347	Improving the Performance of Perovskite Solar Cells Through Solvent Vapor Annealing-based Morphology Control of the Hole-Transport Layer. **2018**, 6, 1283-1289	9
346	Low Work Function Surface Modifiers for Solution-Processed Electronics: A Review. **2018**, 5, 1701404	35
345	In Situ Monitoring the Uptake of Moisture into Hybrid Perovskite Thin Films. **2018**, 9, 2015-2021	41
344	Enhancing Photovoltaic Performance of Inverted Planar Perovskite Solar Cells by Cobalt-Doped Nickel Oxide Hole Transport Layer. **2018**, 10, 14153-14159	54
343	Photovoltaic performance and stability of fullerene/cerium oxide double electron transport layer superior to single one in p-i-n perovskite solar cells. **2018**, 389, 13-19	12
342	Fabricating High-Efficient Blade-Coated Perovskite Solar Cells under Ambient Condition Using Lead Acetate Trihydrate. **2018**, 2, 1700214	25

341	Improved Stability of Organometal Halide Perovskite Films and Solar Cells toward Humidity via Surface Passivation with Oleic Acid. **2018**, 1, 387-392	47
340	The influence of perovskite precursor composition on the morphology and photovoltaic performance of mixed halide MAPbI3-xClx solar cells. **2018**, 163, 215-223	29
339	High-Efficiency Fullerene Solar Cells Enabled by a Spontaneously Formed Mesostructured CuSCN-Nanowire Heterointerface. **2018**, 5, 1700980	15
338	Electrodeposition of organic□norganic tri-halide perovskites solar cell. **2018**, 378, 717-731	26
337	Nanoporous p-type NiOx electrode for p-i-n inverted perovskite solar cell toward air stability. **2018**, 21, 483-500	75
336	The stable perovskite solar cell prepared by rapidly annealing perovskite film with water additive in ambient air. **2018**, 176, 280-287	20
335	Micron-sized columnar grains of CH3NH3PbI3 grown by solvent-vapor assisted low-temperature (75 ℃) solid-state reaction: The role of non-coordinating solvent-vapor. **2018**, 437, 82-91	7
334	High Quality Perovskite Crystals for Efficient Film Photodetectors Induced by Hydrolytic Insulating Oxide Substrates. **2018**, 28, 1705220	29
333	Perovskite-based solar cells with inorganic inverted hybrid planar heterojunction structure. **2018**, 8, 015109	15
332	A Lewis Base-Assisted Passivation Strategy Towards Highly Efficient and Stable Perovskite Solar Cells. **2018**, 2, 1800055	63
331	Greener, Nonhalogenated Solvent Systems for Highly Efficient Perovskite Solar Cells. **2018**, 8, 1800177	80
330	Secondary crystal growth for efficient planar perovskite solar cells in ambient atmosphere. **2018**, 58, 119-125	3
329	Metal Oxide CrOx as a Promising Bilayer Electron Transport Material for Enhancing the Performance Stability of Planar Perovskite Solar Cells. **2018**, 2, 1700245	10
328	Micropatterned 2D Hybrid Perovskite Thin Films with Enhanced Photoluminescence Lifetimes. **2018**, 10, 12878-12885	28
327	Scalable fabrication of perovskite solar cells. **2018**, 3,	532
326	A New Method for Fitting Current-Voltage Curves of Planar Heterojunction Perovskite Solar Cells. **2018**, 10, 5	66
325	Stability of Molecular Devices: Halide Perovskite Solar Cells. **2018**, 477-531	1
324	Perovskite solar cells: Materials, configurations and stability. **2018**, 82, 2471-2489	73

323	Stabilizing the Efficiency Beyond 20% with a Mixed Cation Perovskite Solar Cell Fabricated in Ambient Air under Controlled Humidity. **2018**, 8, 1700677	334
322	Fullerene-Based Materials for Photovoltaic Applications: Toward Efficient, Hysteresis-Free, and Stable Perovskite Solar Cells. **2018**, 4, 1700435	74
321	Influence of water intercalation and hydration on chemical decomposition and ion transport in methylammonium lead halide perovskites. **2018**, 6, 1067-1074	64
320	A strategy toward air-stable and high-performance ZnO-based perovskite solar cells fabricated under ambient conditions. **2018**, 336, 732-740	27
319	Flexible Perovskite Solar Cells onto Plastic Substrate Exceeding 13% Efficiency Owing to the Optimization of CH3NH3PbI3−xClx Film via H2O Additive. **2018**, 6, 1083-1090	15
318	Pinhole-free mixed perovskite film for bending durable mixed perovskite solar cells. **2018**, 175, 111-117	25
317	One-step implementation of plasmon enhancement and solvent annealing effects for air-processed high-efficiency perovskite solar cells. **2018**, 6, 24036-24044	15
316	Fabrication techniques and morphological analysis of perovskite absorber layer for high-efficiency perovskite solar cell: A review. **2018**, 98, 469-488	25
315	A Method for the Preparation of Highly Oriented MAPbI Crystallites for High-Efficiency Perovskite Solar Cells to Achieve an 86% Fill Factor. **2018**, 12, 10355-10364	88
314	Improving Electron Extraction Ability and Device Stability of Perovskite Solar Cells Using a Compatible PCBM/AZO Electron Transporting Bilayer. **2018**, 8,	23
313	Initial photochemical stability in perovskite solar cells based on the Cu electrode and the appropriate charge transport layers. **2018**, 246, 101-107	16
312	Studies of Graphdiyne-ZnO Nanocomposite Material and Application in Polymer Solar Cells. **2018**, 2, 1800211	12
311	General Post-annealing Method Enables High-Efficiency Two-Dimensional Perovskite Solar Cells. **2018**, 10, 33187-33197	52
310	Sensitivity-Enhanced 207Pb Solid-State NMR Spectroscopy for the Rapid, Non-Destructive Characterization of Organolead Halide Perovskites. **2018**, 30, 7005-7015	31
309	Effect of Water, Oxygen, and Air Exposure on CH3NH3PbI3−xClx Perovskite Surface Electronic Properties. **2018**, 4, 1800307	30
308	Organic–Inorganic Hybrid Perovskites for Solar Energy Conversion. **2018**, 95-117	
307	Effects of mixed solvent on morphology of CH3NH3PbI3 absorption layers and photovoltaic performance of perovskite solar cells. **2018**, 29, 18868-18877	1
306	Metal halide perovskites: stability and sensing-ability. **2018**, 6, 10121-10137	82

305	Morphology Control of MAPbI3 Perovskite Thin Film as An Active Layer of Solar Cells. **2018**, 395, 012010	5
304	Unraveling the Passivation Process of PbI2 to Enhance the Efficiency of Planar Perovskite Solar Cells. **2018**, 122, 21269-21276	62
303	Enhancing the open circuit voltage of PEDOT:PSS-PC61BM based inverted planar mixed halide perovskite solar cells from 0.93 to 1.05 V by simply oxidizing PC61BM. **2018**, 59, 260-265	12
302	Improving the Quality of CH3NH3PbI3 Films via Chlorobenzene Vapor Annealing. **2018**, 215, 1700959	9
301	A 1300 mm Ultrahigh-Performance Digital Imaging Assembly using High-Quality Perovskite Single Crystals. **2018**, 30, e1707314	156
300	Stable Formamidinium-Based Perovskite Solar Cells via In Situ Grain Encapsulation. **2018**, 8, 1800232	59
299	Alcohol based vapor annealing of a poly(3,4-ethylenedioxythiophene):poly(styrenesulfonate) layer for performance improvement of inverted perovskite solar cells. **2018**, 10, 11043-11051	17
298	An Overview of Hybrid Organic□Inorganic Metal Halide Perovskite Solar Cells. **2018**, 233-254	6
297	Elucidating the Origins of Subgap Tail States and Open-Circuit Voltage in Methylammonium Lead Triiodide Perovskite Solar Cells. **2018**, 28, 1801808	58
296	Ionic liquid modified SnO2 nanocrystals as a robust electron transporting layer for efficient planar perovskite solar cells. **2018**, 6, 22086-22095	47
295	Semiconducting Metal Oxides for High Performance Perovskite Solar Cells. **2018**, 241-265	3
294	Stability of Perovskites at the Surface Analytic Level. **2018**, 9, 4657-4666	13
293	Dew point temperature as an invariant replacement for relative humidity for advanced perovskite solar cell fabrication systems. **2018**, 6, 20695-20701	9
292	Efficient planar CsPbBr3 perovskite solar cells by dual-source vacuum evaporation. **2018**, 187, 1-8	107
291	All that glitters is not gold: Recent progress of alternative counter electrodes for perovskite solar cells. **2018**, 52, 211-238	57
290	In situ synthesis and macroscale alignment of CsPbBr perovskite nanorods in a polymer matrix. **2018**, 10, 15436-15441	56
289	Zinc as a New Dopant for NiOx-Based Planar Perovskite Solar Cells with Stable Efficiency near 20%. **2018**, 1, 3947-3954	62
288	Influence of Hot Spot Heating on Stability of Large Size Perovskite Solar Module with a Power Conversion Efficiency of ~14%. **2018**, 1, 3565-3570	9

287	A dopant-free polymer as hole-transporting material for highly efficient and stable perovskite solar cells. **2018**, 26, 994-1002		5
286	The Arcane Magic of High-Performance Solar Cells. **2018**, 2, 1211-1213		
285	CH NH PbI and HC(NH) PbI Powders Synthesized from Low-Grade PbI : Single Precursor for High-Efficiency Perovskite Solar Cells. **2018**, 11, 1813-1823		41
284	Pressure dependence of excited-state charge-carrier dynamics in organolead tribromide perovskites. *Applied Physics Letters*, **2018**, 112, 191903	3.4	13
283	A simple method for the prediction of the orientation of H2O molecules in ionic crystals. **2018**, 51, 1116-1124		7
282	Bulk Heterojunction-Assisted Grain Growth for Controllable and Highly Crystalline Perovskite Films. **2018**, 10, 31366-31373		11
281	Defects engineering for high-performance perovskite solar cells. **2018**, 2,		207
280	High-performance metal oxide-free inverted perovskite solar cells using poly(bis(4-phenyl)(2,4,6-trimethylphenyl)amine) as the hole transport layer. **2018**, 6, 6975-6981		42
279	Solvent-controlled growth of inorganic perovskite films in dry environment for efficient and stable solar cells. **2018**, 9, 2225		427
278	A review on morphology engineering for highly efficient and stable hybrid perovskite solar cells. **2018**, 6, 12842-12875		115
277	The efficient and non-hysteresis inverted non-fullerenes/CH3NH3PbI3 planar solar cells. **2019**, 189, 307-313		10
276	Tunable thiocyanate-doped perovskite microstructure via water-ethanol additives for stable solar cells at ambient conditions. **2019**, 200, 110029		10
275	Recent Progress in High-efficiency Planar-structure Perovskite Solar Cells. **2019**, 2, 93-106		29
274	Synergistic effects of multiple functional ionic liquid-treated PEDOT:PSS and less-ion-defects S-acetylthiocholine chloride-passivated perovskite surface enabling stable and hysteresis-free inverted perovskite solar cells with conversion efficiency over 20%. **2019**, 63, 103866		38
273	Crystalline Clear or Not: Beneficial and Harmful Effects of Water in Perovskite Solar Cells. **2019**, 20, 2587-2599		19
272	Rare earth ions doped NiO hole transport layer for efficient and stable inverted perovskite solar cells. **2019**, 444, 227267		22
271	Role of Moisture in the Preparation of Efficient Planar Perovskite Solar Cells. **2019**, 7, 17691-17696		10
270	Controlling Homogenous Spherulitic Crystallization for High-Efficiency Planar Perovskite Solar Cells Fabricated under Ambient High-Humidity Conditions. **2019**, 15, e1904422		21

269	Defect Passivation in Hybrid Perovskite Solar Cells by Tailoring the Electron Density Distribution in Passivation Molecules. **2019**, 11, 44233-44240	40
268	Accelerating the Screening of Perovskite Compositions for Photovoltaic Applications through High-Throughput Inkjet Printing. **2019**, 29, 1905487	23
267	Engineering Green-to-Blue Emitting CsPbBr3 Quantum-Dot Films with Efficient Ligand Passivation. **2019**, 4, 2731-2738	17
266	Solution-Processable All-Small-Molecules for High-Performance Nonfullerene Organic Solar Cells with High Crystallinity Acceptor. **2019**, 123, 28021-28026	9
265	High-Quality Ruddlesden-Popper Perovskite Films Based on In Situ Formed Organic Spacer Cations. **2019**, 31, e1904243	27
264	Sulfur-fused perylene diimide electron transport layers allow >400 h operational lifetime of methylammonium lead iodide photovoltaics. **2019**, 7, 11126-11133	6
263	Novel approaches and scalability prospects of copper based hole transporting materials for planar perovskite solar cells. **2019**, 7, 13680-13708	25
262	High-Efficiency and Stable Perovskite Solar Cells Prepared Using Chlorobenzene/Acetonitrile Antisolvent. **2019**, 11, 34989-34996	23
261	Compositional and Morphological Changes in Water-Induced Early-Stage Degradation in Lead Halide Perovskites. **2019**, 9, 535	12
260	Ultrasonically sprayed-on perovskite solar cells-effects of organic cation on defect formation of CH3NH3PbI3 films. **2019**, 19, 1427-1435	2
259	Enhanced efficiency in perovskite solar cells by eliminating the electron contact barrier between the metal electrode and electron transport layer. **2019**, 7, 1349-1355	24
258	Improving the efficiency of degenerated perovskite solar cells by a simple freeze treatment. **2019**, 93, 260-265	2
257	Improving the light harvesting and colour range of methyl ammonium lead tri-bromide (MAPbBr) perovskite solar cells through co-sensitisation with organic dyes. **2018**, 55, 35-38	11
256	A Dual-Retarded Reaction Processed Mixed-Cation Perovskite Layer for High-Efficiency Solar Cells. **2019**, 29, 1807420	24
255	Organic Monomolecular Layers Enable Energy-Level Matching for Efficient Hole Transporting Layer Free Inverted Perovskite Solar Cells. **2019**, 13, 1625-1634	27
254	Porous and Intercrossed PbI-CsI Nanorod Scaffold for Inverted Planar FA-Cs Mixed-Cation Perovskite Solar Cells. **2019**, 11, 6126-6135	20
253	Realizing a highly luminescent perovskite thin film by controlling the grain size and crystallinity through solvent vapour annealing. **2019**, 11, 5861-5867	16
252	Solution-processed bathocuproine cathode buffer layer towards efficient planar heterojunction perovskite solar cells. **2019**, 34, 075023	4

251	Probing Facet-Dependent Surface Defects in MAPbI3 Perovskite Single Crystals. **2019**, 123, 14144-14151	43
250	Amphiphilic Fullerenes Employed to Improve the Quality of Perovskite Films and the Stability of Perovskite Solar Cells. **2019**, 11, 24782-24788	43
249	In Situ 2D Perovskite Formation and the Impact of the 2D/3D Structures on Performance and Stability of Perovskite Solar Cells. **2019**, 3, 1900199	19
248	Effects of precursor composition on morphology and microstructure of hybrid organic□inorganic perovskite solar cells. **2019**, 54, 12758-12766	1
247	Multiple-engineering controlled growth of tunable-bandgap perovskite nanowires for high performance photodetectors.. **2019**, 9, 19772-19779	4
246	Role of Water in Suppressing Recombination Pathways in CHNHPbI Perovskite Solar Cells. **2019**, 11, 25474-25482	82
245	Polarized Ferroelectric Polymers for High-Performance Perovskite Solar Cells. **2019**, 31, e1902222	64
244	Post-treatment of Perovskite Films toward Efficient Solar Cells via Mixed Solvent Annealing. **2019**, 2, 4954-4963	14
243	Stabilizer-assisted growth of formamdinium-based perovskites for highly efficient and stable planar solar cells with over 22% efficiency. **2019**, 63, 103835	38
242	Room-Temperature Sputtered SnO as Robust Electron Transport Layer for Air-Stable and Efficient Perovskite Solar Cells on Rigid and Flexible Substrates. **2019**, 9, 6963	41
241	Progress in air-processed perovskite solar cells: from crystallization to photovoltaic performance. **2019**, 6, 1611-1624	61
240	Properties of Excitons and Photogenerated Charge Carriers in Metal Halide Perovskites. **2019**, 31, e1806671	85
239	An Analytical Approach to CH3NH3PbI3 Perovskite Solar Cells Based on Different Hole Transport Materials. **2019**, 216, 1900087	3
238	Achieving efficient inverted planar perovskite solar cells with nondoped PTAA as a hole transport layer. **2019**, 71, 106-112	57
237	Improvement of perovskite crystallinity by omnidirectional heat transfer radiative thermal annealing.. **2019**, 9, 14868-14875	4
236	Improving Two-Step Prepared CHNHPbI Perovskite Solar Cells by Co-Doping Potassium Halide and Water in PbI Layer. **2019**, 9,	8
235	Liquid Crystal Molecule as Binding Agent□Enables Superior Stable Perovskite Solar Cells with High Fill Factor. **2019**, 3, 1900125	5
234	Steering the crystallization of perovskites for high-performance solar cells in ambient air. **2019**, 7, 12166-12175	46

233	The effect of water in Carbon-Perovskite Solar Cells with optimized alumina spacer. **2019**, 197, 76-83		16
232	Preparation of high quality perovskite thin film in ambient air using ethylacetate as anti-solvent. **2019**, 274, 199-206		7
231	Fabrication of Efficient and Stable Perovskite Solar Cells in High-Humidity Environment through Trace-Doping of Large-Sized Cations. **2019**, 12, 2385-2392		9
230	Room temperature solution-processed Fe doped NiOx as a novel hole transport layer for high efficient perovskite solar cells. **2019**, 481, 588-596		29
229	Accelerated hole-extraction in carbon-electrode based planar perovskite solar cells by moisture-assisted post-annealing. *Applied Physics Letters*, **2019**, 114, 103503	3.4	29
228	Dual effect of humidity on cesium lead bromide: enhancement and degradation of perovskite films. **2019**, 7, 12292-12302		46
227	Resolving the detrimental interface in co-evaporated MAPbI3 perovskite solar cells by hybrid growth method. **2019**, 69, 329-335		6
226	Study on the defect density of states in light soaking effect enhanced performance of perovskite solar cells. **2019**, 52, 265302		14
225	Photonics and optoelectronics using nano-structured hybrid perovskite media and their optical cavities. **2019**, 795, 1-51		262
224	Tailoring vertical phase distribution of quasi-two-dimensional perovskite films via surface modification of hole-transporting layer. **2019**, 10, 878		76
223	A Review of Perovskites Solar Cell Stability. **2019**, 29, 1808843		554
222	Highly Efficient Perovskite Solar Cells Processed Under Ambient Conditions Using In Situ Substrate-Heating-Assisted Deposition. **2019**, 3, 1800318		29
221	Optimal Performance Emulation of PSCs using the Elephant Herd Algorithm Associated with Experimental Validation. **2019**, 8, Q249-Q255		15
220	The synergistic effect of cooperating solvent vapor annealing for high-efficiency planar inverted perovskite solar cells. **2019**, 7, 27267-27277		17
219	Integration of NiO Layer as Hole Transport Material in Perovskite Solar Cells. **2019**,		
218	Single-Source Vapor-Deposited CsAgBiBr Thin Films for Lead-Free Perovskite Solar Cells. **2019**, 9,		29
217	Carbon-based materials for stable, cheaper and large-scale processable perovskite solar cells. **2019**, 12, 3437-3472		134
216	Achieving 20% Efficiency for Low-Temperature-Processed Inverted Perovskite Solar Cells. **2019**, 29, 1807556		57

215	Strategies to Improve Luminescence Efficiency of Metal-Halide Perovskites and Light-Emitting Diodes. **2019**, 31, e1804595	64
214	Performance analysis of perovskite solar cells in 2013–2018 using machine-learning tools. **2019**, 56, 770-791	49
213	Rapid and sheet-to-sheet slot-die coating manufacture of highly efficient perovskite solar cells processed under ambient air. **2019**, 177, 255-261	23
212	Stability of Quantum Dots, Quantum Dot Films, and Quantum Dot Light-Emitting Diodes for Display Applications. **2019**, 31, e1804294	241
211	Optimizing reaction kinetics of sequential deposition technique for ambient air and solution processed hybrid perovskite thin films. **2019**, 30, 4250-4258	4
210	High-performance metal-oxide-free perovskite solar cells based on organic electron transport layer and cathode. **2019**, 64, 195-201	9
209	Synthetic Approaches for Halide Perovskite Thin Films. **2019**, 119, 3193-3295	293
208	Rapid Crystallization for Efficient 2D Ruddlesden–Popper (2DRP) Perovskite Solar Cells. **2019**, 29, 1806831	68
207	An ionic compensation strategy for high-performance mesoporous perovskite solar cells: healing defects with tri-iodide ions in a solvent vapor annealing process. **2019**, 7, 353-362	18
206	Recent Advances in Energetics and Stability of Metal Halide Perovskites for Optoelectronic Applications. **2019**, 6, 1801351	20
205	Humidity-insensitive fabrication of efficient perovskite solar cells in ambient air. **2019**, 412, 359-365	17
204	Stable and efficient perovskite solar cells fabricated using aqueous lead nitrate precursor: Interpretation of the conversion mechanism and renovation of the sequential deposition. **2019**, 14, 100125	8
203	Lead-Free Double Perovskites for Perovskite Solar Cells. **2020**, 4, 1900306	64
202	Synergy of Plasmonic Silver Nanorod and Water for Enhanced Planar Perovskite Photovoltaic Devices. **2020**, 4, 1900231	16
201	Carbon-Electrode Based Perovskite Solar Cells: Effect of Bulk Engineering and Interface Engineering on the Power Conversion Properties. **2020**, 4, 1900190	21
200	Fabrication of efficient $CsPbBr_3$ perovskite solar cells by single-source thermal evaporation. **2020**, 818, 152903	32
199	CsPbBr quantum dots assisted crystallization of solution-processed perovskite films with preferential orientation for high performance perovskite solar cells. **2019**, 31, 085401	8
198	Molecularly imprinted polymers and PEG double engineered perovskite: an efficient platform for constructing aqueous solution feasible photoelectrochemical sensor. **2020**, 304, 127321	20

197	Lattice reconstruction of La-incorporated CsPbI2Br with suppressed phase transition for air-processed all-inorganic perovskite solar cells. **2020**, 8, 3351-3358	19
196	Defects Healing in Two-Step Deposited Perovskite Solar Cells via Formamidinium Iodide Compensation. **2020**, 3, 3318-3327	18
195	Conjugated Polymers as Hole Transporting Materials for Solar Cells. **2020**, 38, 449-458	6
194	Air-processed carbon-based perovskite solar cells with enhanced efficiency and stability: Effect of temperature control and using CuSCN. **2020**, 821, 153272	19
193	Low temperature, solution processed spinel NiCo2O4 nanoparticles as efficient hole transporting material for mesoscopic n-i-p perovskite solar cells. **2020**, 196, 367-378	15
192	New Strategies for Defect Passivation in High-Efficiency Perovskite Solar Cells. **2020**, 10, 1903090	152
191	A facile strategy for enhanced performance of inverted organic solar cells based on low-temperature solution-processed SnO2 electron transport layer. **2020**, 78, 105555	8
190	Solution-based heteroepitaxial growth of stable mixed cation/anion hybrid perovskite thin film under ambient condition via a scalable crystal engineering approach. **2020**, 69, 104441	23
189	Enhanced V of two-dimensional Ruddlesden-Popper perovskite solar cells using binary synergetic organic spacer cations. **2019**, 22, 54-61	9
188	Modulable hysteresis behavior controlled by water-promoted decomposition in a single CH3NH3PbI3 micro/nanowire. **2020**, 507, 145048	4
187	Nanoscale mapping of humid degradation-induced local mechanical property variation in CH3NH3PbI3 polycrystalline film by scanning probe microscopy. **2020**, 507, 145078	6
186	Selective doping to relax glassified grain boundaries substantially enhances the ionic conductivity of LiTi2(PO4)3 glass-ceramic electrolytes. **2020**, 449, 227574	9
185	Stability of materials and complete devices. **2020**, 197-215	1
184	Nanoscale control of grain boundary potential barrier, dopant density and filled trap state density for higher efficiency perovskite solar cells. **2020**, 2, 409-423	16
183	Improving the performance of lead-acetate-based perovskite solar cells using solvent controlled crystallization process. **2020**, 78, 105552	9
182	Degradation mechanism of flexible perovskite solar cells: Investigated by tracking of the heterojunction property. **2020**, 123, 110696	5
181	Synergistic engineering of hole transport materials in perovskite solar cells. **2020**, 2, 928-941	16
180	Improved Pore-Filling and Passivation of Defects in Hole-Conductor-Free, Fully Printable Mesoscopic Perovskite Solar Cells Based on d-Sorbitol Hexaacetate-Modified MAPbI. **2020**, 12, 47677-47683	5

179	Influence of Temperature, Pressure, and Humidity on the Stabilities and Transition Kinetics of the Various Polymorphs of FAPbI3. **2020**, 124, 22972-22980	8
178	Eppur si Muove: Proton Diffusion in Halide Perovskite Single Crystals. **2020**, 32, e2002467	20
177	Preparing Ambient-Processed Perovskite Solar Cells with Better Electronic Properties via Preheating Assisted One-Step Deposition Method. **2020**, 15, 178	3
176	Improving the Stability and Optoelectronic Properties of All Inorganic Less-Pb Perovskites by B-Site Doping for High-Performance Inorganic Perovskite Solar Cells. **2020**, 4, 2000528	10
175	Water-stable polymer hole transport layer in organic and perovskite light-emitting diodes. **2020**, 478, 228810	0
174	Light-induced improvement of dopant-free PTAA on performance of inverted perovskite solar cells. **2020**, 215, 110606	13
173	Synthesis of single CsPbBr3@SiO2 core□shell particles via surface activation. **2020**, 8, 17403-17409	12
172	Intense Pulse Light Annealing of Perovskite Photovoltaics Using Gradient Flashes. **2020**, 3, 11641-11654	6
171	Combined Computational and Experimental Investigation on the Nature of Hydrated Iodoplumbate Complexes: Insights into the Dual Role of Water in Perovskite Precursor Solutions. **2020**, 124, 11481-11490	12
170	Electrical and Optical Properties of Nickel-Oxide Films for Efficient Perovskite Solar Cells. **2020**, 4, 2000454	19
169	In situ TEM observation of the heat□induced degradation of single□and triple□cation planar perovskite solar cells. **2020**, 77, 105164	14
168	A new family of liquid and solid guanidine-based n-type dopants for solution-processed perovskite solar cells. **2020**, 4, 3616-3622	2
167	An Efficient and Stable Perovskite Solar Cell with Suppressed Defects by Employing Dithizone as a Lead Indicator. **2020**, 132, 21593-21597	0
166	An Efficient and Stable Perovskite Solar Cell with Suppressed Defects by Employing Dithizone as a Lead Indicator. **2020**, 59, 21409-21413	16
165	Toward Greener Solution Processing of Perovskite Solar Cells. **2020**, 8, 13126-13138	22
164	Manipulation of PEDOT:PSS with Polar and Nonpolar Solvent Post-treatment for Efficient Inverted Perovskite Solar Cells. **2020**, 3, 9656-9666	8
163	Ambient Manipulation of Perovskites by Alternating Electric Field toward Tunable Photovoltaic Performance. **2020**, 30, 2004652	5
162	Deterioration mechanism of perovskite solar cells by operando observation of spin states. **2020**, 1,	7

161	SiO2 nanoparticle-regulated crystallization of lead halide perovskite and improved efficiency of carbon-electrode-based low-temperature planar perovskite solar cells. **2020**, 29, 078401	1
160	The Role of Surface Termination in Halide Perovskites for Efficient Photocatalytic Synthesis. **2020**, 59, 12931-12937	19
159	High-humidity processed perovskite solar cells. **2020**, 8, 10481-10518	32
158	Solvent modification to suppress halide segregation in mixed halide perovskite solar cells. **2020**, 55, 9787-9794	4
157	The Role of Surface Termination in Halide Perovskites for Efficient Photocatalytic Synthesis. **2020**, 132, 13031-13037	1
156	Identifying, understanding and controlling defects and traps in halide perovskites for optoelectronic devices: a review. **2020**, 53, 373001	16
155	All-Inorganic CsPbBr Perovskite Films Prepared by Single Source Thermal Ablation. **2020**, 8, 313	18
154	Electron Transport Materials: Evolution and Case Study for High-Efficiency Perovskite Solar Cells. **2020**, 4, 2000136	16
153	Solution-processed perovskite solar cells. **2020**, 27, 1104-1133	21
152	Progress in Materials Development for the Rapid Efficiency Advancement of Perovskite Solar Cells. **2020**, 16, e1907531	18
151	Defect suppression and passivation for perovskite solar cells: from the birth to the lifetime operation. **2020**, 2, 100032	12
150	Vapor-Phase Photocatalytic Overall Water Splitting Using Hybrid Methylammonium Copper and Lead Perovskites. **2020**, 10,	6
149	Enhanced photovoltaic performance and reduced hysteresis in hole-conductor-free, printable mesoscopic perovskite solar cells based on melamine hydroiodide modified MAPbI3. **2020**, 206, 548-554	7
148	Interaction engineering in organic–inorganic hybrid perovskite solar cells. **2020**, 7, 2208-2236	13
147	Good or evil: what is the role of water in crystallization of organometal halide perovskites?. **2020**, 5, 1147-1154	4
146	Understanding of perovskite crystal growth and film formation in scalable deposition processes. **2020**, 49, 1653-1687	184
145	Intermediate-Controlled Interfacial Engineering for Stable and Highly Efficient Carbon-Based PSCs. **2020**, 12, 34479-34486	2
144	TiO2@PbTiO3 core-shell nanoparticles as mesoporous layer to improve electron transport performance in carbon-based perovskite solar cells. **2020**, 254, 123436	3

143	Thermal Stability and Performance Enhancement of Perovskite Solar Cells Through Oxalic Acid-Induced Perovskite Formation. **2020**, 3, 2432-2439	34
142	Controllable Multistep Preparation Method for High-Efficiency Perovskite Solar Cells with Low Annealing Temperature in Glove Box. **2020**, 8, 2000071	3
141	Tailoring Perovskite Adjacent Interfaces by Conjugated Polyelectrolyte for Stable and Efficient Solar Cells. **2020**, 4, 2000060	14
140	Multifunctional nanostructured materials for next generation photovoltaics. **2020**, 70, 104480	25
139	Understanding the Interplay of Binary Organic Spacer in Ruddlesden Popper Perovskites toward Efficient and Stable Solar Cells. **2020**, 30, 1907759	17
138	Ambient Air Stability of Hybrid Perovskite Thin-Film Transistors by Ambient Air Processing. **2020**, 7, 1901777	11
137	Heavy Water Additive in Formamidinium: A Novel Approach to Enhance Perovskite Solar Cell Efficiency. **2020**, 32, e1907864	34
136	Secondary Grain Growth in Organic-Inorganic Perovskite Films with Ethylamine Hydrochloride Additives for Highly Efficient Solar Cells. **2020**, 12, 20026-20034	15
135	Vapor-Deposited CsAgBiCl Double Perovskite Films toward Highly Selective and Stable Ultraviolet Photodetector. **2020**, 7, 1903662	40
134	A New Strategy for Increasing the Efficiency of Inverted Perovskite Solar Cells to More than 21%: High-Humidity Induced Self-Passivation of Perovskite Films. **2020**, 4, 2000149	10
133	Molecular-Level Insight into Correlation between Surface Defects and Stability of Methylammonium Lead Halide Perovskite Under Controlled Humidity.. **2021**, 5, e2000834	13
132	Evaluation of the optical properties of the lead-free mixed-halide iron perovskite CH3NH3FeI2Br for application in solar cells: A computational study. **2021**, 26, 101847	0
131	Advanced Strategies of Passivating Perovskite Defects for High-Performance Solar Cells. **2021**, 4, 293-301	5
130	Impact of halide additives on green antisolvent and high-humidity processed perovskite solar cells. **2021**, 536, 147949	4
129	Environmental risks and strategies for the long-term stability of carbon-based perovskite solar cells. **2021**, 19, 100590	9
128	Low-temperature processed bipolar metal oxide charge transporting layers for highly efficient perovskite solar cells. **2021**, 221, 110870	5
127	Ambient Fabrication of Organic-Inorganic Hybrid Perovskite Solar Cells.. **2021**, 5, e2000744	23
126	Preparation and Properties of Films of Organic-Inorganic Perovskites MAPbX3 (MA = CH3NH3; X = Cl, Br, I) for Solar Cells: A Review. **2021**, 56, 359-386	2

125	Methylamine-assisted secondary grain growth for CH3NH3PbI3 perovskite films with large grains and a highly preferred orientation. **2021**, 9, 7625-7630	4
124	Heterogenization of homogeneous photocatalysts utilizing synthetic and natural support materials. **2021**, 9, 4454-4504	16
123	Bathocuproine as a cathode interlayer for nonfullerene organic solar cells with efficiency over 17%.	3
122	Research progress of light irradiation stability of functional layers in perovskite solar cells. **2021**, 0-0	0
121	Tris(4-(1-phenyl-1H-benzo[d]imidazole)phenyl)phosphine oxide for enhanced mobility and restricted traps in photovoltaic interlayers. **2021**, 9, 3642-3651	2
120	Plasmon-Enhanced Perovskite Solar Cells with Efficiency Beyond 21 %: The Asynchronous Synergistic Effect of Water and Gold Nanorods. **2021**, 86, 291-297	16
119	Polarization improvement of CsPbClBr quantum dot film by laser direct writing technology. **2021**, 46, 777-780	2
118	Perovskite Nanocrystals: Synthesis, Stability, and Optoelectronic Applications. **2021**, 2, 2000124	20
117	A Rapid and Robust Light-and-Solution-Triggered In Situ Crafting of Organic Passivating Membrane over Metal Halide Perovskites for Markedly Improved Stability and Photocatalysis. **2021**, 21, 1643-1650	19
116	Elucidating Mechanisms behind Ambient Storage-Induced Efficiency Improvements in Perovskite Solar Cells. **2021**, 6, 925-933	23
115	Factors influencing the nucleation and crystal growth of solution-processed organic lead halide perovskites: a review. **2021**, 54, 163001	10
114	Post-Treating the Precursor Intermediate Film by a Cooling Stage for Fabricating Efficient Formamidinium-Based Perovskite Solar Cells. **2021**, 13, 11783-11792	4
113	Volatile solution: the way toward scalable fabrication of perovskite solar cells?. **2021**, 4, 775-793	16
112	Mild water intake orients crystal formation imparting high tolerance on unencapsulated halide perovskite solar cells. **2021**, 2, 100395	3
111	Photo-stable perovskite solar cells with reduced interfacial recombination losses using a CeOx interlayer. **2021**, 64, 1858-1867	3
110	The Challenge of Ambient Air Processed Organometallic Halide Perovskite: Technology Transfer From Spin Coating to Meniscus Blade Coating of Perovskite Thin Films. **2021**, 8,	6
109	Photoemission Studies on the Environmental Stability of Thermal Evaporated MAPbI3 Thin Films and MAPbBr3 Single Crystals. **2021**, 14, 2005	0
108	Device Modeling and Design of Inverted Solar Cell Based on Comparative Experimental Analysis between Effect of Organic and Inorganic Hole Transport Layer on Morphology and Photo-Physical Property of Perovskite Thin Film. **2021**, 14,	

107	Photodegradation pathways of CH3NH3PbI3 organic perovskite polycrystalline film observed by in-situ scanning probe microscopy. **2021**, 545, 149081		0
106	Polymer Additive Assisted Fabrication of Compact and Ultra-Smooth Perovskite Thin Films with Fast Lamp Annealing. **2021**, 14, 2656		0
105	Reduction of Hysteresis in Hybrid Perovskite Transistors by Solvent-Controlled Growth. **2021**, 14,		2
104	Achieving Resistance against Moisture and Oxygen for Perovskite Solar Cells with High Efficiency and Stability. **2021**, 33, 4269-4303		14
103	Halide Perovskites: A New Era of Solution-Processed Electronics. **2021**, 33, e2005000		48
102	An ultraviolet-ozone post-treatment to remove the inherent impurities in all-ambient solution-processed CsPbBr3 perovskite films. *Applied Physics Letters*, **2021**, 118, 221604	3.4	2
101	Behavior of photoexcited electrons in hole-transport material-free perovskite solar cells. **2021**, 39, 032202		
100	Structural Transitions and Stability of FAPbI and MAPbI: The Role of Interstitial Water. **2021**, 11,		0
99	Octylammonium Sulfate Decoration Enhancing the Moisture Durability of Quasi-2D Perovskite Film for Light-Emitting Diodes. **2021**, 8, 2100442		3
98	Exploring Transport Behavior in Hybrid Perovskites Solar Cells via Machine Learning Analysis of Environmental-Dependent Impedance Spectroscopy. **2021**, 8, e2002510		7
97	Tailored Key Parameters of Perovskite for High-Performance Photovoltaics. **2021**, 2, 447-457		1
96	Understanding the synergistic effect of mixed solvent annealing on perovskite film formation*. **2021**, 30, 068103		
95	Room-Temperature-Processed, Carbon-Based Fully Printed Mesoscopic Perovskite Solar Cells with 15% Efficiency. **2021**, 5, 2100274		5
94	Water-stable CsPbBr3 perovskite quantum-dot luminous fibers fabricated by centrifugal spinning for dual white light illumination and communication. **2021**, 9, 1559		2
93	Liquid medium annealing for fabricating durable perovskite solar cells with improved reproducibility. **2021**, 373, 561-567		60
92	Elucidating the Spatial Dynamics of Charge Carriers in Quasi-Two-Dimensional Perovskites. **2021**, 13, 35133-35141		3
91	Manipulated Crystallization and Passivated Defects for Efficient Perovskite Solar Cells via Addition of Ammonium Iodide. **2021**, 13, 34053-34063		3
90	Progress in ambient air-processed perovskite solar cells: Insights into processing techniques and stability assessment. **2021**, 224, 1369-1395		11

89	Interfacial and Permeating Modification Effect of n-type Non-fullerene Acceptors toward High-Performance Perovskite Solar Cells. **2021**, 13, 40778-40787	7
88	Grain Boundaries in Methylammonium Lead Halide Perovskites Facilitate Water Diffusion. 2100087	2
87	Upscaling perovskite solar cells via the ambient deposition of perovskite thin films. **2021**, 3, 747-764	2
86	Defect reduction by anthraquinone-modified graphdiyne quantum dots for efficient perovskite solar cells. **2021**, 8, 044010	2
85	Humidity-Assisted Chlorination with Solid Protection Strategy for Efficient Air-Fabricated Inverted CsPbI3 Perovskite Solar Cells. 3661-3668	13
84	Suppressed Phase Segregation in High-Humidity-Processed Dion□acobson Perovskite Solar Cells Toward High Efficiency and Stability. **2021**, 5, 2100555	2
83	Optimization of TiO2 paste concentration employed as electron transport layers in fully ambient air processed perovskite solar cells with a low-cost architecture. **2021**, 48, 320-320	6
82	The Impact of Solvent Vapor on the Film Morphology and Crystallization Kinetics of Lead Halide Perovskites during Annealing. **2021**, 13, 45365-45374	4
81	Application of lead-free BaZr0.1Ti0.9O3 in polarized tunable charge transfer perovskite solar cells. **2021**, 130, 115301	0
80	A simple and low-cost surface treatment to facilitate charge extraction and eliminate light soaking of polymer solar cells. **2021**, 564, 150425	
79	Defect passivation and interface modification by tetra-n-octadecyl ammonium bromide for efficient and stable inverted perovskite solar cells. **2022**, 429, 132426	3
78	Low-temperature sprayed carbon electrode in modular HTL-free perovskite solar cells: a comparative study on the choice of carbon sources. **2021**, 9, 3546-3554	8
77	Organic-inorganic hybrid lead halide perovskites for optoelectronic and electronic applications. **2021**, 267-289	2
76	Synergistic Benefits of Cesium-Doped Aqueous Precursor in Air-Processed Inverted Perovskite Solar Cells. **2020**, 4, 1900406	6
75	Grain boundary passivation with triazine-graphdiyne to improve perovskite solar cell performance. **2020**, 63, 2465-2476	17
74	Highly Crystalline and (110)-Oriented n-Type Perovskite Films with Excellent Structural Stability via Cu Doping. **2021**, 21, 462-470	4
73	Perovskite Solar Cells Based on Compact, Smooth FAMAPbI Film with Efficiency Exceeding 22. **2020**, 15, 89	8
72	Air-stable perovskite photovoltaic cells with low temperature deposited NiOx as an efficient hole-transporting material. **2020**, 10, 1801	11

71	Photoluminescence characterizations of highly ambient-air-stable CH3NH3PbI3/PbI2 heterostructure. **2019**, 9, 1882	12
70	Progress and Prospect on Stability of Perovskite Photovoltaics. **2017**, 4, 16-30	7
69	Recent Advances and Challenges in Halide Perovskite Crystals in Optoelectronic Devices from Solar Cells to Other Applications. **2021**, 11, 39	4
68	An in-situ real time study of the perovskite film micro-structural evolution in a humid environment by using synchrotron based characterization technique. **2017**, 66, 018401	2
67	Influence of phenyl-C61-butyric acid methyl ester (PCBM) electron transport layer treated by two additives on perovskite solar cell performance. **2017**, 66, 118801	2
66	High throughput screening of novel tribromide perovskite materials for high-photovoltage solar cells.	3
65	Emerging electronic applications of fullerene derivatives: an era beyond OPV.	3
64	High-field polarization boosting visible-light photocatalytic H2 evolution of narrow-bandgap semiconducting (1 x)KNbO3 Ba(Ni1/2Nb1/2)O3 ferroelectric ceramics. **2021**, 45, 20296-20308	
63	Ambient-environment processed perovskite solar cells: A review. **2021**, 21, 100557	1
62	Vapor deposition of metal halide perovskite thin films: Process control strategies to shape layer properties. **2021**, 9, 100703	7
61	Enhancing the photo-luminescence stability of CH3NH3PbI3 film with ionic liquids.	0
60	Stable and Efficient Perovskite Solar Cells Fabricated Using Aqueous Lead Nitrate Precursor: Interpretation of the Conversion Mechanism and Renovation of the Sequential Deposition.	
59	Experimental realization of strain-induced room-temperature ferroelectricity in SrMnO3 films via selective oxygen annealing. **2021**, 13,	0
58	Organic Halide PEACl for Surface Passivation and Defects Suppression in Perovskite Solar Cells.	3
57	Development of encapsulation strategies towards the commercialization of perovskite solar cells.	33
56	Structural and Optoelectronic Properties of Spin-Coated CH3NH3PbCl3 Thin Film Using Non-halide Source of Lead. **2020**, 929-937	
55	Tuning Interfacial Effects in Hybrid Perovskite Solar Cells. **2021**, 113-173	
54	A review on the emerging applications of 4-cyano-4?-alkylbiphenyl (nCB) liquid crystals beyond display. **2022**, 275, 115522	1

53	Defect Behaviors in Perovskite Light-Emitting Diodes. 1702-1728	5
52	Improving Contact and Passivation of Buried Interface for High-Efficiency and Large-Area Inverted Perovskite Solar Cells. 2109968	12
51	Amino-Linked Conjugated Tetrazole Ring Passivation Strategy for Air-Processed Perovskite Cells with Predominant Stability and Efficiency. **2021**,	0
50	Ambient environment induced synergetic improvement in morphology and iodine vacancy passivation by MAI surface engineering in mixed-cation lead mixed-halide (FA0.85MA0.15PbI0.55Br0.45) perovskite solar cells. **2022**, 29, 101703	0
49	A comparison of electrical parameters and efficiency improvement between perovskite cells with carbon and metal electrodes. **2020**,	
48	Influence of Photon Pump Fluence on Charge Carriers in FAPbI3 and Manganite Perovskites. **2022**, 12, 54-64	
47	Inverted Perovskite Solar Cells: The Emergence of a Highly Stable and Efficient Architecture. 2100952	2
46	Using ZnCoO nanoparticles as the hole transport layer to improve long term stability of perovskite solar cells.. **2022**, 12, 2921	1
45	Modular Perovskite Solar Cells with Cs0.05(FA0.85MA0.15)0.95Pb(I0.85Br0.15)3 Light-Harvesting Layer and Graphene Electrode. **2022**, 51, 2381-2389	1
44	The effect of argon plasma treatment on surface engineering in an inverted perovskite solar cell. **2022**, 134, 1	0
43	Vapor-Phase Deposition of Highly Luminescent Embedded Perovskite Nanocrystals. 2102809	1
42	All green solvent engineering of organic inorganic hybrid perovskite layer for high-performance solar cells. **2022**, 437, 135458	8
41	Characterize and Retard the Impact of the Bias-Induced Mobile Ions in CH 3 NH 3 PbBr 3 Perovskite Light-Emitting Diodes. **2022**, 10, 2101439	1
40	Efficient Ag-Doped Perovskite Solar Cells Fabricated in Ambient Air. **2021**, 11, 1521	0
39	Solvent Effects on the Structural and Optical Properties of MAPbI3 Perovskite Thin Film for Photovoltaic Active Layer. **2022**, 12, 549	0
38	Data_Sheet_1.PDF. **2020**,	
37	Rear Electrode Materials for Perovskite Solar Cells. 2200651	5
36	Hydrogen Bonds in Precursor Solution: The Origin of the Anomalous J V Curves in Perovskite Solar Cells. **2022**, 12, 610	0

35	Precursor formula engineering enabling high quality solution processed C60 films for efficient and stable inverted perovskite solar cells. **2022**, 136897	0
34	Halide anions engineered ionic liquids passivation layer for highly stable inverted perovskite solar cells.. **2022**, 622, 469-480	2
33	Counter Electrodes for Perovskite Solar Cells: Materials, Interfaces and Device Stability.	1
32	Crystallization under control. **2022**, 7, 480-481	
31	Recent advancements and future insight of lead-free non-toxic perovskite solar cells for sustainable and clean energy production: A review. **2022**, 53, 102433	1
30	High efficiency stable planar perovskite solar cells via heavy water additive. **2022**, 245, 111861	
29	Progress and challenges of halide perovskite-based solar cell- a brief review. **2022**, 150, 106953	1
28	Inactive (PbI 2) 2 RbCl stabilizes perovskite films for efficient solar cells. **2022**, 377, 531-534	85
27	Recent Advances in CsPb X 3 Perovskite Solar Cells: Focus on Crystallization Characteristics and Controlling Strategies. 2201733	6
26	Moisture-triggered fast crystallization enables efficient and stable perovskite solar cells. **2022**, 13,	3
25	Impact of humidity in triple cation perovskite solar cells: Surface analysis. **2022**, 152, 107100	1
24	Screening interface passivation materials intelligently through machine learning for highly efficient perovskite solar cells. **2022**, 10, 17782-17789	2
23	Environmental impact of quantum dots. **2022**, 837-867	0
22	Laser-Induced Secondary Crystallization of CsPbBr 3 Perovskite Film for Robust and Low Threshold Amplified Spontaneous Emission. 2207206	0
21	Restructuring and Reshaping of CsPbX 3 Perovskites by Lithium Salts. 2201296	0
20	Moisture-dependent room-temperature perovskite crystallization in vacuum flash-assisted solution processed intermediate phase films. **2022**, 106652	0
19	Fullerene-Based Inverted Perovskite Solar Cell: A Key to Achieve Promising, Stable, and Efficient Photovoltaics. 2201438	5
18	Preparation of Perovskite Solar Cells in the Air: Degradation Mechanism and Prospects on Large-area Fabrication.	1

17	Minimizing the Voltage Deficit of Tin Halide Perovskite Solar Cells with Hydroxyurea-Doped PEDOT:PSS.	0
16	Dark And Photoconductivity Behavior of CH3NH3PbI3 Thin Films Depending On Atmospheric Conditions. 2140-2152	0
15	The interplay of organic spacer and small cation for efficient Dion-Jacobson perovskite solar cells.	0
14	Reexamining the Post-Treatment Effects on Perovskite Solar Cells: Passivation and Chloride Redistribution. 2201467	0
13	Slot-die coating fabrication of perovskite solar cells toward commercialization. **2023**, 942, 169104	0
12	EtOH/H2O ratio modulation on carbon for high-Voc (1.03 V) printable mesoscopic perovskite solar cells without any passivation. **2023**, 4, 1534-1545	0
11	Halide perovskites and high-pressure technologies: a fruitful encounter.	0
10	Simple approach for crystallizing growth of MAPbI3 perovskite nanorod without thermal annealing for Next-Generation optoelectronic applications. **2023**, 298, 127423	1
9	Comprehensive review of environmental factors influencing the performance of photovoltaic panels: Concern over emissions at various phases throughout the lifecycle. **2023**, 326, 121474	0
8	Simultaneous defect passivation and energy level modulation by multifunctional phthalocyanine for efficient and stable perovskite solar cells. **2023**, 459, 141573	0
7	Thermal Annealing Effect on Surface-Enhanced Raman Scattering of Gold Films Deposited on Liquid Substrates. **2023**, 28, 1472	0
6	Shedding Light on the Moisture Stability of Halide Perovskite Thin Films. **2023**, 11,	0
5	Rethinking the Role of Excess/Residual Lead Iodide in Perovskite Solar Cells. 2215171	0
4	Surface decorated quantum dots: Synthesis, properties and role in herbal therapy. 11,	0
3	Enhanced Performance and Stability of Fully Printed Perovskite Solar Cells and Modules by Ternary Additives under High Humidity. **2023**, 37, 6049-6061	0
2	Hydrogen-bond-bridged intermediate for perovskite solar cells with enhanced efficiency and stability.	0
1	Influence of water vapor treatment on the properties of CsPbBr3 perovskite solar cells. **2023**, 138,	0