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Energy-Level Modulation of Small-Molecule Electron Acceptors to Achieve over 12% Efficiency in Polymer Solar Cells

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1256	Novel Nitrogen-Containing Heterocyclic Non-Fullerene Acceptors for Organic Photovoltaic Cells: Different End-Capping Groups Leading to a Big Difference of Power Conversion Efficiencies.		
1255	Highly Efficient Fullerene-Free Organic Solar Cells Operate at Near Zero Highest Occupied Molecular Orbital Offsets.		
1254	Angular-Shaped Dithienonaphthalene-Based Nonfullerene Acceptor for High-Performance Polymer Solar Cells with Large Open-Circuit Voltages and Minimal Energy Losses.		
1253	High-Performance Polymer Solar Cells with Minimal Energy Loss Enabled by a Main-Chain-Twisted Nonfullerene Acceptor.		
1252	Elucidating Batch-to-Batch Variation Caused by Homocoupled Side Products in Solution-Processable Organic Solar Cells. 2016 , 28, 9088-9098		17
1251	Non-fullerene small molecule acceptors based on perylene diimides. 2016 , 4, 17604-17622		227
1250	High Performance Organic Solar Cells Processed by Blade Coating in Air from a Benign Food Additive Solution. 2016 , 28, 7451-7458		83
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1086	Non-fullerene acceptors based on fused-ring oligomers for efficient polymer solar cells via complementary light-absorption. 2017 , 5, 23926-23936		57
1085	Achieving over 9.8% Efficiency in Nonfullerene Polymer Solar Cells by Environmentally Friendly Solvent Processing. 2017 , 9, 37078-37086		29
1084	Authigenic buffer layer: Tuning surface work function in all polymer blend solar cells. 2017 , 535, 149-156		2
1083	A carbon-oxygen-bridged ladder-type building block for efficient donor and acceptor materials used in organic solar cells. 2017 , 62, 1331-1336		77
1082	Insertion of double bond bridges of A ₂ B acceptors for high performance near-infrared polymer solar cells. 2017 , 5, 22588-22597		50
1081	Efficient Semitransparent Organic Solar Cells with Tunable Color enabled by an Ultralow-Bandgap Nonfullerene Acceptor. <i>Advanced Materials</i> , 2017 , 29, 1703080	24	276
1080	Self-Assembly of 1-Pyrenemethanol on ZnO Surface toward Combined Cathode Buffer Layers for Inverted Polymer Solar Cells. 2017 , 9, 36082-36089		16
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1078	Two-Dimensional Conjugated Polymer Based on sp ² -Carbon Bridged Indacenodithiophene for Efficient Polymer Solar Cells. 2017 , 50, 7984-7992		22

1077	In Situ GIWAXS Analysis of Solvent and Additive Effects on PTB7 Thin Film Microstructure Evolution during Spin Coating. <i>Advanced Materials</i> , 2017 , 29, 1703933	24	60
1076	Porphyrins and BODIPY as Building Blocks for Efficient Donor Materials in Bulk Heterojunction Solar Cells. 2017 , 1, 1700127		46
1075	Regioisomeric Non-Fullerene Acceptors Containing Fluorobenzo[c][1,2,5]thiadiazole Unit for Polymer Solar Cells. 2017 , 9, 37087-37093		29
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1071	A simple molecular structure of ortho-derived perylene diimide diploid for non-fullerene organic solar cells with efficiency over 8%. 2017 , 5, 22288-22296		44
1070	Fused-Ring Acceptors with Asymmetric Side Chains for High-Performance Thick-Film Organic Solar Cells. <i>Advanced Materials</i> , 2017 , 29, 1703527	24	204
1069	Efficient fullerene-free solar cells with wide optical band gap polymers based on fluorinated benzotriazole and asymmetric benzodithiophene. 2017 , 5, 21650-21657		32
1068	Junction diodes in organic solar cells. 2017 , 41, 717-730		16
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1066	Highly Efficient Ternary-Blend Polymer Solar Cells Enabled by a Nonfullerene Acceptor and Two Polymer Donors with a Broad Composition Tolerance. <i>Advanced Materials</i> , 2017 , 29, 1704271	24	196
1065	Regular conjugated D _A copolymer containing two benzotriazole and benzothiadiazole acceptors and dithienosilole donor units for photovoltaic application. 2017 , 7, 49204-49214		3
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1063	Improved Glass Transition Temperature towards Thermal Stability via Thiols Solvent Additive versus DIO in Polymer Solar Cells. 2017 , 38, 1700428		26
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1061	High-Efficiency Semitransparent Organic Solar Cells with Non-Fullerene Acceptor for Window Application. 2017 , 4, 2327-2334		70
1060	Indium tin oxide-free inverted polymer solar cells with ultrathin metal transparent electrodes. 2017 , 10, 402-408		

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1058	2D/1A Strategy to Regulate Film Morphology for Efficient and Stable Nonfullerene Organic Solar Cells. 2017 , 50, 6954-6960		17
1057	Single Component Organic Solar Cells Based on Oligothiophene-Fullerene Conjugate. <i>Advanced Functional Materials</i> , 2017 , 27, 1702474	15.6	62
1056	Efficient strategies to improve photovoltaic performance of A-D-A type small molecules by introducing rigidly fluorinated central cores. <i>Dyes and Pigments</i> , 2017 , 147, 505-513	4.6	15
1055	An A-D-A Type Small-Molecule Electron Acceptor with End-Extended Conjugation for High Performance Organic Solar Cells. 2017 , 29, 7908-7917		119
1054	Side Chain Engineering on Medium Bandgap Copolymers to Suppress Triplet Formation for High-Efficiency Polymer Solar Cells. <i>Advanced Materials</i> , 2017 , 29, 1703344	24	182
1053	The effect of end-capping groups in A-D-A type non-fullerene acceptors on device performance of organic solar cells. 2017 , 60, 1458-1467		29
1052	Recent development of perylene diimide-based small molecular non-fullerene acceptors in organic solar cells. 2017 , 28, 2105-2115		51
1051	Influence of the replacement of alkoxyl with alkylthienyl on photovoltaic properties of two small molecule donors for organic solar cells. 2017 , 60, 1340-1348		19
1050	Pentaerythritol based push-pull tetramers for organic photovoltaics. 2017 , 1, 1921-1927		11
1049	PTB7-Th based organic solar cell with a high V_{oc} of 1.05 V by modulating the LUMO energy level of benzotriazole-containing non-fullerene acceptor. 2017 , 62, 1275-1282		24
1048	Isomeric Effects of Solution Processed Ladder-Type Non-Fullerene Electron Acceptors. 2017 , 1, 1700107		41
1047	Conjugated Polymers Based on Difluorobenzoxadiazole toward Practical Application of Polymer Solar Cells. <i>Advanced Energy Materials</i> , 2017 , 7, 1702033	21.8	30
1046	Side-Chain Effects on Energy-Level Modulation and Device Performance of Organic Semiconductor Acceptors in Organic Solar Cells. 2017 , 9, 34146-34152		36
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1043	Effect of Non-fullerene Acceptors' Side Chains on the Morphology and Photovoltaic Performance of Organic Solar Cells. 2017 , 9, 33906-33912		56
1042	Chalcogen-Atom-Annulated Perylene Diimide Trimers for Highly Efficient Nonfullerene Polymer Solar Cells. 2017 , 38, 1700405		17

1041	Highly Efficient Non-Fullerene Organic Photovoltaics Processed from o-Xylene without Using Additives. 2017 , 121, 21969-21974		24
1040	Highly efficient and thickness-tolerable bulk heterojunction polymer solar cells based on P3HT donor and a low-bandgap non-fullerene acceptor. 2017 , 364, 426-431		6
1039	Energy band alignment in operando inverted structure P3HT:PCBM organic solar cells. 2017 , 40, 454-461		21
1038	Design and synthesis of low band gap non-fullerene acceptors for organic solar cells with impressively high Jsc over 21 mA cm ⁻² . 2017 , 60, 819-828		26
1037	Acceptor-rich bulk heterojunction polymer solar cells with balanced charge mobilities. <i>Organic Electronics</i> , 2017 , 51, 16-24	3.5	11
1036	Crystalline Medium-Bandgap Light-Harvesting Donor Material Based on π -Naphthalene Asymmetric-Modified Benzodithiophene Moiety toward Efficient Polymer Solar Cells. 2017 , 29, 8249-8257		30
1035	Fullerene-Free Organic Solar Cells with an Efficiency of 10.2% and an Energy Loss of 0.59 eV Based on a Thieno[3,4-c]Pyrrole-4,6-dione-Containing Wide Band Gap Polymer Donor. 2017 , 9, 32939-32945		41
1034	Side Group Engineering of Small Molecular Acceptors for High-Performance Fullerene-Free Polymer Solar Cells: Thiophene Being Superior to Selenophene. <i>Advanced Functional Materials</i> , 2017 , 27, 1702194	15.6	81
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1027	Two Regioisomeric π -Conjugated Small Molecules: Synthesis, Photophysical, Packing, and Optoelectronic Properties. <i>Advanced Functional Materials</i> , 2017 , 27, 1701942	15.6	23
1026	Precise Manipulation of Multilength Scale Morphology and Its Influence on Eco-Friendly Printed All-Polymer Solar Cells. <i>Advanced Functional Materials</i> , 2017 , 27, 1702016	15.6	85
1025	Enhancing Performance of Nonfullerene Acceptors via Side-Chain Conjugation Strategy. <i>Advanced Materials</i> , 2017 , 29, 1702125	24	227
1024	Efficiency Exceeding 11% in Tandem Polymer Solar Cells Employing High Open-Circuit Voltage Wide-Bandgap π -Conjugated Polymers. <i>Advanced Energy Materials</i> , 2017 , 7, 1700782	21.8	20

1023	High Efficiency Nonfullerene Polymer Solar Cells with Thick Active Layer and Large Area. <i>Advanced Materials</i> , 2017 , 29, 1702291	24	175
1022	Efficient Organic Solar Cells with Non-Fullerene Acceptors. 2017 , 13, 1701120		185
1021	Light illumination intensity dependence of current-voltage characteristics in polymer solar cells with solution-processed titanium chelate as electron extraction layer. 2017 , 155, 1044-1051		9
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1016	Effect of intermolecular interaction with phenothiazine core on inverted organic photovoltaics by using different acceptor moiety. <i>Dyes and Pigments</i> , 2017 , 146, 374-385	4.6	6
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1012	High-Performance Polymer Solar Cells Employing Rhodamines as Cathode Interfacial Layers. 2017 , 9, 27083-27089		14
1011	New small-molecule acceptors based on hexacyclic naphthalene(cyclopentadithiophene) for efficient non-fullerene organic solar cells. 2017 , 5, 17204-17210		65
1010	High Extinction Coefficient Thieno[3,4-b]thiophene-Based Copolymer for Efficient Fullerene-Free Solar Cells with Large Current Density. 2017 , 29, 6766-6771		51
1009	Intrinsically Stretchable Nanostructured Silver Electrodes for Realizing Efficient Strain Sensors and Stretchable Organic Photovoltaics. 2017 , 9, 27853-27862		24
1008	High Performing Ternary Solar Cells through Förster Resonance Energy Transfer between Nonfullerene Acceptors. 2017 , 9, 26928-26936		34
1007	Ladder-type nonacyclic indacenodithieno[3,2-b]indole for highly efficient organic field-effect transistors and organic photovoltaics. <i>Journal of Materials Chemistry C</i> , 2017 , 5, 8988-8998	7.1	9
1006	High-performance nonfullerene polymer solar cells with open-circuit voltage over 1 V and energy loss as low as 0.54 eV. 2017 , 40, 20-26		58

1005	Self-doped n-type small molecular electron transport materials for high-performance organic solar cells. 2017 , 60, 1136-1144	29
1004	Rationally Designed Donor-Acceptor Random Copolymers with Optimized Complementary Light Absorption for Highly Efficient All-Polymer Solar Cells. <i>Advanced Functional Materials</i> , 2017 , 27, 1703070 ^{15,6}	35
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1000	Donor-acceptor (D-A) terpolymers based on alkyl-DPP and t-BocDPP moieties for polymer solar cells. 2017 , 28, 2223-2226	6
999	Performance limitations in thieno[3,4-c]pyrrole-4,6-dione-based polymer:ITIC solar cells. 2017 , 19, 23990-23998 ⁷	7
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986	Significant enhancement of photovoltaic performance through introducing S ₂ N conformational locks. 2017 , 5, 21674-21678		70
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984	Versatile asymmetric thiophene/benzothiophene flanked diketopyrrolopyrrole polymers with ambipolar properties for OFETs and OSCs. 2017 , 8, 5603-5610		26
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937	Enhancing the Performance of Polymer Solar Cells via Core Engineering of NIR-Absorbing Electron Acceptors. <i>Advanced Materials</i> , 2018 , 30, e1706571	24	255
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934	Effect of Benzene Rings Incorporation on Photovoltaic Performance of Indacenodithiophene-cored Molecular Acceptors. 2018 , 36, 306-310		3

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917	Chlorine substituted 2D-conjugated polymer for high-performance polymer solar cells with 13.1% efficiency via toluene processing. 2018 , 48, 413-420		212
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913	Hydrogen-Bonding Strategy to Optimize Charge Distribution of PC71BM and Enable a High Efficiency of 12.45% for Organic Solar Cells. 2018 , 2, 1800038		20
912	A narrow-bandgap donor polymer for highly efficient as-cast non-fullerene polymer solar cells with a high open circuit voltage. <i>Organic Electronics</i> , 2018 , 58, 82-87	3.5	16
911	Insight into correlation between molecular length and exciton dissociation, charge transport and recombination in Polymer: Oligomer based solar cells. <i>Organic Electronics</i> , 2018 , 58, 75-81	3.5	2
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891	The Physics of Small Molecule Acceptors for Efficient and Stable Bulk Heterojunction Solar Cells. <i>Advanced Energy Materials</i> , 2018 , 8, 1703298	21.8	96
890	A Halogenation Strategy for over 12% Efficiency Nonfullerene Organic Solar Cells. <i>Advanced Energy Materials</i> , 2018 , 8, 1702870	21.8	146
889	Two-dimensional benzo[1,2-b:4,5-b']difuran-based wide bandgap conjugated polymers for efficient fullerene-free polymer solar cells. 2018 , 6, 4023-4031		30
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887	Molecular Consideration for Small Molecular Acceptors Based on Ladder-Type Dipyran: Influences of O-Functionalization and Bridges. <i>Advanced Functional Materials</i> , 2018 , 28, 1705927	15.6	45
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873	Two Thieno[3,2-b]thiophene-Based Small Molecules as Bifunctional Photoactive Materials for Organic Solar Cells. 2018 , 2, 1700179		10
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870	Multiple Cases of Efficient Nonfullerene Ternary Organic Solar Cells Enabled by an Effective Morphology Control Method. <i>Advanced Energy Materials</i> , 2018 , 8, 1701370	21.8	116
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861	Fused Tris(thienothiophene)-Based Electron Acceptor with Strong Near-Infrared Absorption for High-Performance As-Cast Solar Cells. <i>Advanced Materials</i> , 2018 , 30, 1705969	24	305
860	Fine-Tuning of Molecular Packing and Energy Level through Methyl Substitution Enabling Excellent Small Molecule Acceptors for Nonfullerene Polymer Solar Cells with Efficiency up to 12.54. <i>Advanced Materials</i> , 2018 , 30, 1706124	24	232
859	Synthesis and photophysical properties of 2,2'-bis(oligothiophene)-9,9'-bifluorenylidene derivatives. 2018 , 42, 2094-2103		4
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856	Surpassing 10% Efficiency Benchmark for Nonfullerene Organic Solar Cells by Scalable Coating in Air from Single Nonhalogenated Solvent. <i>Advanced Materials</i> , 2018 , 30, 1705485	24	127
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852	Alkylthienyl substituted asymmetric 2D BDT and DTBT-based polymer solar cells with a power conversion efficiency of 9.2%. 2018 , 6, 2371-2378		28
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845	A Lewis Base-Assisted Passivation Strategy Towards Highly Efficient and Stable Perovskite Solar Cells. 2018 , 2, 1800055		63
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810	Tailoring the second acceptor unit in easily synthesized ternary copolymers toward efficient non-fullerene polymer solar cells. <i>Dyes and Pigments</i> , 2018 , 148, 72-80	4.6	4
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808	A new small molecule acceptor based on indaceno[2,1-b:6,5-b']dithiophene and thiophene-fused ending group for fullerene-free organic solar cells. <i>Dyes and Pigments</i> , 2018 , 148, 263-269	4.6	16

807	The effect of alkylthio side chains in oligothiophene-based donor materials for organic solar cells. 2018 , 3, 131-141		9
806	Effect of acceptor strength on optical, electrochemical and photovoltaic properties of phenothiazine-based small molecule for bulk heterojunction organic solar cells. <i>Dyes and Pigments</i> , 2018 , 149, 830-842	4.6	22
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800	Advances in Non-Fullerene Acceptor Based Ternary Organic Solar Cells. 2018 , 2, 1700158		79
799	Highly efficient polyacetylene-based polyelectrolytes as cathode interfacial layers for organic solar cell applications. <i>Organic Electronics</i> , 2018 , 53, 265-272	3.5	27
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797	Efficient organic solar cells employing ytterbium ion-doped zinc oxide as cathode transporting layer. <i>Organic Electronics</i> , 2018 , 53, 296-302	3.5	16
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795	High-Performance As-Cast Nonfullerene Polymer Solar Cells with Thicker Active Layer and Large Area Exceeding 11% Power Conversion Efficiency. <i>Advanced Materials</i> , 2018 , 30, 1704546	24	210
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781	Effect of Alkylsilyl Side-Chain Structure on Photovoltaic Properties of Conjugated Polymer Donors. <i>Advanced Energy Materials</i> , 2018 , 8, 1702324	21.8	85
780	Simultaneously Achieved High Open-Circuit Voltage and Efficient Charge Generation by Fine-Tuning Charge-Transfer Driving Force in Nonfullerene Polymer Solar Cells. <i>Advanced Functional Materials</i> , 2018 , 28, 1704507	15.6	147
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777	Solution-Processed Titanium Chelate Used as Both Electrode Modification Layer and Intermediate Layer for Efficient Inverted Tandem Polymer Solar Cells. 2018 , 36, 194-198		18
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758	Investigation of short-term stability in high efficiency polymer : nonfullerene solar cells via quick current-voltage cycling method. 2018 , 35, 2496-2503		5
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749	Donor Conjugated Polymers with Polar Side Chain Groups: The Role of Dielectric Constant and Energetic Disorder on Photovoltaic Performance. <i>Advanced Functional Materials</i> , 2018 , 28, 1803418	15.6	26
748	Efficient Nonfullerene Organic Solar Cells with Small Driving Forces for Both Hole and Electron Transfer. <i>Advanced Materials</i> , 2018 , 30, e1804215	24	116
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710	Nonfullerene Polymer Solar Cells Based on a Main-Chain Twisted Low-Bandgap Acceptor with Power Conversion Efficiency of 13.2%. 2018 , 3, 1499-1507		98
709	Revealing the effects of molecular packing on the performances of polymer solar cells based on ADDDA type non-fullerene acceptors. 2018 , 6, 12132-12141		80
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