

Over 17.7% efficiency ternary-blend organic solar cells with thickness-tolerance

Chemical Engineering Journal

428, 129276

DOI: [10.1016/j.cej.2021.129276](https://doi.org/10.1016/j.cej.2021.129276)

Citation Report

#	ARTICLE	IF	CITATIONS
1	Non-conjugated electrolytes as thickness-insensitive interfacial layers for high-performance organic solar cells. <i>Journal of Materials Chemistry A</i> , 2021, 9, 22926-22933.	10.3	9
2	Organic photovoltaics with 300 nm thick ternary active layers exhibiting 15.6% efficiency. <i>Journal of Materials Chemistry C</i> , 2021, 9, 9892-9898.	5.5	43
3	Rational compatibility in a ternary matrix enables all-small-molecule organic solar cells with over 16% efficiency. <i>Energy and Environmental Science</i> , 2021, 14, 3945-3953.	30.8	124
4	Highly sensitive all-polymer photodetectors with ultraviolet-visible to near-infrared photo-detection and their application as an optical switch. <i>Journal of Materials Chemistry C</i> , 2021, 9, 5349-5355.	5.5	45
5	Highly sensitive, broad-band organic photomultiplication-type photodetectors covering UV-Vis-NIR. <i>Journal of Materials Chemistry C</i> , 2021, 9, 6357-6364.	5.5	75
6	Progress in morphology control from fullerene to nonfullerene acceptors for scalable high-performance organic photovoltaics. <i>Journal of Materials Chemistry A</i> , 2021, 9, 24729-24758.	10.3	28
7	Ultra-Narrow-Band NIR Photomultiplication Organic Photodetectors Based on Charge Injection Narrowing. <i>Journal of Physical Chemistry Letters</i> , 2021, 12, 2937-2943.	4.6	90
8	Smart Strategy: Transparent Hole-Transporting Polymer as a Regulator to Optimize Photomultiplication-type Polymer Photodetectors. <i>ACS Applied Materials &amp; Interfaces</i> , 2021, 13, 21565-21572.	8.0	55
9	Efficient p-Doping with F 6 TCNQ for Improving Performance of Polymer Photodetectors with Photomultiplication. <i>Physica Status Solidi - Rapid Research Letters</i> , 2021, 15, 2100107.	2.4	0
10	Over 17.6% Efficiency Organic Photovoltaic Devices with Two Compatible Polymer Donors. <i>Solar Rrl</i> , 2021, 5, 2100175.	5.8	49
11	Over 16% Efficiency of Thick-Film Organic Photovoltaics with Symmetric and Asymmetric Non-Fullerene Materials as Alloyed Acceptor. <i>Solar Rrl</i> , 2021, 5, 2100365.	5.8	13
12	Asymmetric Isomer Effects in Benzo[ <i>c</i> ][1,2,5]thiadiazole-Fused Nonacyclic Acceptors: Dielectric Constant and Molecular Crystallinity Control for Significant Photovoltaic Performance Enhancement. <i>Advanced Functional Materials</i> , 2021, 31, 2104369.	14.9	46
13	Recent Progress of Organic Photovoltaics with Efficiency over 17%. <i>Energies</i> , 2021, 14, 4200.	3.1	75
14	Highly sensitive, sub-microsecond polymer photodetectors for blood oxygen saturation testing. <i>Science China Chemistry</i> , 2021, 64, 1302-1309.	8.2	69
15	Two-Pronged Effect of Warm Solution and Solvent-Vapor Annealing for Efficient and Stable All-Small-Molecule Organic Solar Cells. <i>ACS Energy Letters</i> , 2021, 6, 2898-2906.	17.4	50
16	Enhanced Short-Wavelength Absorption and Effective Exciton Dissociation in NC70BA-Based Ternary Polymer Solar Cells. <i>ACS Applied Energy Materials</i> , 2021, 4, 8432-8441.	5.1	7
17	Ternary polymer solar cells by employing two well-compatible donors with cascade energy levels. <i>Dyes and Pigments</i> , 2021, 192, 109424.	3.7	5
18	Incorporation of a Guaiacol-Based Small Molecule Guest Donor Enables Efficient Nonfullerene Acceptor-Based Ternary Organic Solar Cells. <i>Solar Rrl</i> , 2021, 5, 2100402.	5.8	8

#	ARTICLE	IF	CITATIONS
19	Aminonaphthalimide-Based Molecular Cathode Interlayers for As-Cast Organic Solar Cells. ChemSusChem, 2021, 14, 4783-4792.	6.8	14
20	Binary and Ternary Polymer Solar Cells Based on a Wide Bandgap D-A Copolymer Donor and Two Nonfullerene Acceptors with Complementary Absorption Spectral. ChemSusChem, 2021, 14, 4731-4740.	6.8	3
21	Formation of Vitrified Solid Solution Enables Simultaneously Efficient and Stable Organic Solar Cells. ACS Energy Letters, 2021, 6, 3522-3529.	17.4	27
22	Unraveling the Mystery of Ternary Organic Solar Cells: A Review on the Influence of Third Component on Structure-Morphology-Performance Relationships. Solar Rrl, 2021, 5, 2100503.	5.8	6
23	Wide Bandgap Polymer with Narrow Photon Harvesting in Visible Light Range Enables Efficient Semitransparent Organic Photovoltaics. Advanced Functional Materials, 2021, 31, 2107934.	14.9	133
24	Two Y6 Derivations with Similar Chemical Structure As One Alloyed Acceptor Enable Efficient Ternary-Blend Polymer Solar Cells. ACS Applied Energy Materials, 2021, 4, 11761-11768.	5.1	8
25	The design of quinoxaline based unfused non-fullerene acceptors for high performance and stable organic solar cells. Chemical Engineering Journal, 2022, 427, 131473.	12.7	32
26	Ternary polymerization strategy to approach 12% efficiency in all-polymer solar cells processed by green solvent and additive. Chemical Engineering Journal, 2022, 429, 132407.	12.7	15
27	Employing liquid crystal material as regulator to enhance performance of photomultiplication type polymer photodetectors. Chemical Engineering Journal, 2022, 427, 131802.	12.7	71
28	17.25% high efficiency ternary solar cells with increased open-circuit voltage using a high HOMO level small molecule guest donor in a PM6:Y6 blend. Journal of Materials Chemistry A, 2021, 9, 20493-20501.	10.3	24
29	Engineering polymer solar cells: advancement in active layer thickness and morphology. Journal of Materials Chemistry C, 0, , .	5.5	15
30	Natural biomaterial sarcosine as an interfacial layer enables inverted organic solar cells to exhibit over 16.4% efficiency. Nanoscale, 2021, 13, 11128-11137.	5.6	16
31	Ternary polymer solar cells with iridium-based polymer PM6Ir1 as a donor and N <sub>3</sub> :ITIC-Th as an acceptor exhibiting over 17.2% efficiency. Sustainable Energy and Fuels, 2021, 5, 5825-5832.	4.9	12
32	Development of new nonacyclic small-molecule acceptors involving two benzo[1,2-b:4,5-b']dithiophene moieties for efficient polymer solar cells. Synthetic Metals, 2021, 282, 116922.	3.9	0
33	Reduced miscibility between highly compatible non-fullerene acceptor and donor enables efficient ternary organic solar cells. Polymer, 2021, 236, 124322.	3.8	10
34	Enhanced photomultiplication of organic photodetectors via phosphorescent material incorporation. Journal of Materials Chemistry C, 2021, 9, 16918-16924.	5.5	2
35	Modulation of Vertical Component Distribution for Large-Area Thick-Film Organic Solar Cells. Solar Rrl, 2022, 6, 2100838.	5.8	9
36	Ternary Blend Organic Solar Cells: Understanding the Morphology from Recent Progress. Advanced Materials, 2022, 34, e2107476.	21.0	100

#	ARTICLE	IF	CITATIONS
37	Over 17% Efficiency of Ternary Organic Photovoltaics Employing Two Acceptors with an Acceptorâ€“Donorâ€“Acceptor Configuration. ACS Applied Materials & Interfaces, 2021, 13, 57684-57692.	8.0	47
38	Smart Ternary Strategy in Promoting the Performance of Polymer Solar Cells Based on Bulkâ€“Heterojunction or Layerâ€“Byâ€“Layer Structure. Small, 2022, 18, e2104215.	10.0	100
39	A polymer donor with versatility for fabricating high-performance ternary organic photovoltaics. Chemical Engineering Journal, 2022, 431, 133950.	12.7	25
40	Morphology optimization and charge characteristics in PM6-based solar cells via ternary solvent processing. Journal of Materials Science: Materials in Electronics, 2022, 33, 5370-5379.	2.2	0
41	Improving all ternary small-molecule organic solar cells by optimizing short wavelength photon harvesting and exciton dissociation based on a bisadduct analogue of [70]PCBM as a third component material. Sustainable Energy and Fuels, 2022, 6, 744-755.	4.9	3
42	Design and photovoltaic properties of conjugated polymers based on quinoxaline and diketopyrrolopyrrole for OSCs. Synthetic Metals, 2022, 285, 117016.	3.9	1
43	Ternary organic solar cells with double side chain fullerene derivative as guest electron acceptors in PM7:Y6 blend films. Organic Electronics, 2022, 103, 106465.	2.6	4
44	Improving charge transport and reducing non-radiative energy loss <i>via</i> a nonacyclic carbazole-based third component for over 18% efficiency polymer solar cells. Journal of Materials Chemistry A, 2022, 10, 7090-7098.	10.3	14
45	Efficient ternary bulk heterojunction organic solar cells using a low-cost nonfullerene acceptor. Journal of Materials Chemistry C, 2022, 10, 4372-4382.	5.5	5
46	Ternary Polymer Solar Cells Enabled Using Two Donor Polymers with Broad Absorption and Cascade LUMO Levels. ACS Applied Energy Materials, 2022, 5, 2621-2629.	5.1	8
47	Highâ€“Performance Ternary Semitransparent Polymer Solar Cells with Different Bandgap Third Component as Nonâ€“Fullerene Guest Acceptor. Solar Rrl, 2022, 6, .	5.8	4
48	Isogenous Asymmetricâ€“Symmetric Acceptors Enable Efficient Ternary Organic Solar Cells with Thin and 300Ånm Thick Active Layers Simultaneously. Advanced Functional Materials, 2022, 32, .	14.9	75
49	Two Better Compatible and Complementary Light Absorption Polymer Donors Contributing Synergistically to High Efficiency and Better Thermally Stable Ternary Organic Solar Cells. ACS Applied Energy Materials, 0, , .	5.1	7
50	High efficiency inverted organic solar cells with photo annealing titanium oxide films as electron extract layer. Colloids and Surfaces A: Physicochemical and Engineering Aspects, 2022, 642, 128698.	4.7	1
51	Inverted Nonfullerene Polymer Solar Cells with Photoannealed Cs<sub>2</sub>CO<sub>3</sub> Films as Electron Extraction Layers. Advanced Electronic Materials, 2022, 8, .	5.1	4
52	Two Well-Compatible Acceptors with Red-Shifted Absorption Edge and Cascaded LUMO Levels Enable Ternary Organic Photovoltaic Exhibiting Efficient Photovoltaic Performance. ACS Applied Energy Materials, 2022, 5, 1076-1084.	5.1	2
53	Engineering Non-fullerene Acceptors as a Mechanism to Control Film Morphology and Energy Loss in Organic Solar Cells. Energy & Fuels, 2022, 36, 4691-4707.	5.1	17
54	Regulation of Crystallinity and Vertical Phase Separation Enables Highâ€“Efficiency Thick Organic Solar Cells. Advanced Functional Materials, 2022, 32, .	14.9	29

#	ARTICLE	IF	CITATIONS
55	Synthesis, characterizations and photovoltaic applications of a thickness-insensitive benzodifuran based copolymer. European Polymer Journal, 2022, 172, 111189.	5.4	3
56	Efficient energy transfer and smooth charge transport via second donor as third component materials in ternary polymer solar cells. Dyes and Pigments, 2022, 204, 110426.	3.7	0
57	Perovskite-based tandem solar cells: Device architecture, stability, and economic perspectives. Renewable and Sustainable Energy Reviews, 2022, 165, 112553.	16.4	16
58	Multi-site functional cathode interlayers for high-performance binary organic solar cells. Journal of Materials Chemistry A, 2022, 10, 16163-16170.	10.3	15
59	Balance of both short wavelength and long wavelength light absorption by blending two "D18-series" donor enables ternary polymer solar cells. European Polymer Journal, 2022, 176, 111407.	5.4	0
60	15.28% efficiency of conventional layer-by-layer all-polymer solar cells superior to bulk heterojunction or inverted cells. Chemical Engineering Journal, 2022, 450, 138146.	12.7	18
61	Contrastive manipulations on vertical stratifications by a fluorescent guest component in ternary nonfullerene and fullerene organic solar cells. Chemical Engineering Journal, 2022, 450, 138018.	12.7	14
62	Pyrrolopyrrole-1,3-dione-Based Wide Band-Gap Polymeric Donors Exemplify High Voltage and Diminutive Energy Loss for Efficient Binary and Tandem Nonfullerene Organic Solar Cells with Efficiency Exceeding 15.7%. ACS Applied Energy Materials, 0, , .	5.1	1
63	Identifying the Signatures of Intermolecular Interactions in Blends of PM6 with Y6 and N4 Using Absorption Spectroscopy. Advanced Functional Materials, 2022, 32, .	14.9	19
64	High-Performance Ternary Organic Solar Cells through Incorporation of a Series of A <sub>2</sub> -A <sub>1</sub> -D-A <sub>1</sub> -A <sub>2</sub> Type Nonfullerene Acceptors with Different Terminal Groups. ACS Energy Letters, 2022, 7, 2845-2855.	17.4	29
65	Improvement in Optoelectronic Properties of Bismuth Sulphide Thin Films by Chromium Incorporation at the Orthorhombic Crystal Lattice for Photovoltaic Applications. Molecules, 2022, 27, 6419.	3.8	12
66	Stabilized Efficiency of Nonfullerene Organic Solar Cells Under UV-Filtered Sunlight. Solar Rrl, 0, , 2200712.	5.8	0
67	Insights into Magneto-Photocurrent and Coherent Spin Mixing for Binary and Ternary Nonfullerene Bulk Heterojunction Organic Solar Cells. Chemistry of Materials, 2022, 34, 10113-10122.	6.7	3
68	Third component with a high LUMO energy level enables 17.69% efficiency in ternary organic solar cells. Optical Materials, 2023, 135, 113382.	3.6	0
69	End Group Effect of Asymmetric Benzodithiophene-Based Donor with Liquid-Crystal State for Small-Molecule Binary Solar Cell. Small, 2023, 19, .	10.0	6
70	High-Performance Ternary Organic Photovoltaics Incorporating Small-Molecule Acceptors with an Unfused-Ring Core. ACS Applied Energy Materials, 2022, 5, 15423-15433.	5.1	7
71	Refining acceptor aggregation in nonfullerene organic solar cells to achieve high efficiency and superior thermal stability. Science China Chemistry, 2023, 66, 202-215.	8.2	21
72	Organic N-Type Dopants with a Phenyl Tertiary Carbon Structure: Molecular Structure and Doping Properties. ChemistrySelect, 2022, 7, .	1.5	1

#	ARTICLE	IF	CITATIONS
73	Co <sup>II</sup> -La <sup>III</sup> -Based Hole-Transporting Layers for Binary Organic Solar Cells with 18.82% Efficiency. <i>Angewandte Chemie</i> , 2023, 135, .	2.0	4
74	Co <sup>II</sup> -La <sup>III</sup> -Based Hole-Transporting Layers for Binary Organic Solar Cells with 18.82% Efficiency. <i>Angewandte Chemie - International Edition</i> , 2023, 62, .	13.8	12
75	Ternary Organic Solar Cells: Recent Insight on Structure-Processing-Property-Performance Relationships. <i>Energy Technology</i> , 2023, 11, .	3.8	8
76	Alkoxy Substitution on Asymmetric Conjugated Molecule Enabling over 18% Efficiency in Ternary Organic Solar Cells by Reducing Nonradiative Voltage Loss. <i>ACS Energy Letters</i> , 2023, 8, 361-371.	17.4	31
77	Polymer Solar Cells with Active Layer Thickness Compatible with Scalable Fabrication Processes: A Meta-Analysis. <i>Advanced Materials</i> , 2023, 35, .	21.0	14
78	Recent Developments of Polymer Solar Cells with Photovoltaic Performance over 17%. <i>Advanced Functional Materials</i> , 2023, 33, .	14.9	38
79	Small molecule-based organic solar cells. , 2023, , 97-122.		0
80	Achieving 17.94% efficiency all-polymer solar cells by independently induced D/A orderly stacking. <i>Energy and Environmental Science</i> , 2023, 16, 2327-2337.	30.8	24
81	18.7% Efficiency Ternary Organic Solar Cells Using Two Non-Fullerene Acceptors with Excellent Compatibility. <i>ACS Applied Energy Materials</i> , 2023, 6, 3126-3134.	5.1	8
82	Achieving 17.7% Efficiency of Ternary Organic Solar Cells by Incorporating a High Lowest Unoccupied Molecular Orbital Level and Miscible Third Component. <i>Solar Rrl</i> , 2023, 7, .	5.8	1
83	A review of progress and challenges in the research developments on organic solar cells. <i>Materials Science in Semiconductor Processing</i> , 2023, 163, 107541.	4.0	14
84	Solid Additive Enables Organic Solar Cells with Efficiency up to 18.6%. <i>ACS Applied Materials &amp; Interfaces</i> , 2023, 15, 25774-25782.	8.0	9
85	Critical Progress of Polymer Solar Cells with a Power Conversion Efficiency over 18%. <i>Energies</i> , 2023, 16, 4494.	3.1	1
86	Two compatible non-fullerene acceptors towards efficient ternary organic photovoltaics. <i>Optical Materials</i> , 2023, 141, 113890.	3.6	0
87	Enhancing intermolecular packing and light harvesting through asymmetric non-fullerene acceptors for achieving 18.7% efficiency ternary organic solar cells. <i>Journal of Materials Chemistry A</i> , 2023, 11, 15553-15560.	10.3	5
88	Efficiency and stability improvement of non-fullerene organic solar cells with binary anode buffer layer. <i>Journal of Materials Science: Materials in Electronics</i> , 2023, 34, .	2.2	2
89	Why Does the PV Solar Power Plant Operate Ineffectively?. <i>Energies</i> , 2023, 16, 4074.	3.1	7
90	A robust and thickness-insensitive hybrid cathode interlayer for high-efficiency and stable inverted organic solar cells. <i>Journal of Materials Chemistry A</i> , 2023, 11, 18723-18732.	10.3	2

#	ARTICLE	IF	CITATIONS
91	Achieved 18.9% Efficiency by Fine-Tuning Non-Fullerene Acceptor Content to Simultaneously Increase the Short-Circuit Current and Fill Factor of Organic Solar Cells. <i>Small</i> , 2023, 19, .	10.0	9
92	All-Polymer Solar Cells Sequentially Solution Processed from Hydrocarbon Solvent with a Thick Active Layer. <i>Polymers</i> , 2023, 15, 3462.	4.5	0
93	Ordering structure control of polythiophene-based donors for High-Efficiency organic solar cells. <i>Chemical Engineering Journal</i> , 2023, 474, 145531.	12.7	9
94	Nonfullerene Ternary Organic Photovoltaics with Long-Wavelength Light-Absorption Guest Donor Materials to Improve Photovoltaic Performance. <i>ACS Applied Polymer Materials</i> , 2023, 5, 7658-7665.	4.4	1
95	Exploring novel naphthalene-fused octacyclic core-based non-fullerene acceptor materials with augmented optoelectronic attributes for stable and efficient solar cells. <i>Journal of Molecular Structure</i> , 2024, 1295, 136646.	3.6	0
96	Interstellar photovoltaics. <i>Scientific Reports</i> , 2023, 13, .	3.3	0
97	Asymmetric Non-Fullerene Acceptor Derivatives Incorporated Ternary Organic Solar Cells. <i>ACS Applied Materials &amp; Interfaces</i> , 2023, 15, 39657-39668.	8.0	2
98	A machine learning prediction model for quantitative analyzing the influence of non-radiative voltage loss on non-fullerene organic solar cells. <i>Chemical Engineering Journal</i> , 2023, 475, 145958.	12.7	2
99	Influence of interfacial modification by conjugated small molecules in large-scale spray-coated inverted organic solar cells. <i>Organic Electronics</i> , 2023, 122, 106917.	2.6	0
100	Improved Short-Circuit Current and Fill Factor in PM6:Y6 Organic Solar Cells through D18-Cl Doping. <i>Nanomaterials</i> , 2023, 13, 2899.	4.1	0
101	Processability Considerations for Next-Generation Organic Photovoltaic Materials. <i>Advanced Materials</i> , 0, , .	21.0	2
102	Colorful Semitransparent Organic Photovoltaics with Record Key Parameters by Optimizing Photon Utilization and Fabry-Pérot Resonator Electrode. <i>Advanced Optical Materials</i> , 0, , .	7.3	2
103	Highly Efficient Nonfullerene Organic Solar Cells: Morphology Control and Characterizations. <i>Solar Rrl</i> , 2024, 8, .	5.8	0
104	Efficient D1:D2:A ternary all-polymer solar cell with optimized photoactive layer morphology realized by compatible two polymer donor. <i>Optical Materials</i> , 2024, 147, 114735.	3.6	3
105	Dual-donor organic solar cells with 19.13% efficiency through optimized active layer crystallization behavior. <i>Nano Energy</i> , 2024, 121, 109226.	16.0	1
106	Enhancing the Efficiency of Indoor Perovskite Solar Cells through Surface Defect Passivation with Coplanar Heteroacene Cored “D”-Type Molecules. <i>Advanced Functional Materials</i> , 0, , .	14.9	0
107	A review on smart strategies for active layer phase separation regulation of organic solar cells. <i>APL Materials</i> , 2023, 11, .	5.1	1
108	Dicyclopentadithienothiophene-based non-fullerene acceptors for ternary blend organic photovoltaics. <i>Journal of Materials Chemistry C</i> , 2024, 12, 2247-2257.	5.5	1

#	ARTICLE	IF	CITATIONS
109	Reducing Interfacial Losses in Solution-Processed Integrated Perovskite-Organic Solar Cells. ACS Applied Materials & Interfaces, 2024, 16, 10170-10179.	8.0	0
110	18.63% Efficiency of Ternary Organic Solar Cells Achieved via Nonhalogenated Solvent and Hot Spin-Coating Process. Advanced Functional Materials, 0, , .	14.9	0