Guangchao Han

List of Publications by Year
in descending order

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57 papers	5,106 citations	136950 32 h-index	149698 56 g-index
58 all docs	58 docs citations	58 times ranked	4390 citing authors

#	Article	IF	Citations
1	Non-fullerene acceptors with branched side chains and improved molecular packing to exceed 18% efficiency in organic solar cells. Nature Energy, 2021, 6, 605-613.	39.5	1,307
2	Achieving Highly Efficient Nonfullerene Organic Solar Cells with Improved Intermolecular Interaction and Openâ€Circuit Voltage. Advanced Materials, 2017, 29, 1700254.	21.0	363
3	Graphdiyne Oxides as Excellent Substrate for Electroless Deposition of Pd Clusters with High Catalytic Activity. Journal of the American Chemical Society, 2015, 137, 5260-5263.	13.7	341
4	Deepâ€Red to Nearâ€Infrared Thermally Activated Delayed Fluorescence in Organic Solid Films and Electroluminescent Devices. Angewandte Chemie - International Edition, 2017, 56, 11525-11529.	13.8	293
5	Optimized Fibril Network Morphology by Precise Sideâ€Chain Engineering to Achieve Highâ€Performance Bulkâ€Heterojunction Organic Solar Cells. Advanced Materials, 2018, 30, e1707353.	21.0	271
6	Fine-Tuning of Crystal Packing and Charge Transport Properties of BDOPV Derivatives through Fluorine Substitution. Journal of the American Chemical Society, 2015, 137, 15947-15956.	13.7	224
7	Terminal Ï€â€“Ï€ stacking determines three-dimensional molecular packing and isotropic charge transport in an Aâ€“Ï€â€“A electron acceptor for non-fullerene organic solar cells. Journal of Materials Chemistry C, 2017, 5, 4852-4857.	5.5	192
8	Rational Tuning of Molecular Interaction and Energy Level Alignment Enables Highâ€Performance Organic Photovoltaics. Advanced Materials, 2019, 31, e1904215.	21.0	162
9	Highâ€Performance Fluorinated Fusedâ€Ring Electron Acceptor with 3D Stacking and Exciton/Charge Transport. Advanced Materials, 2020, 32, e2000645.	21.0	122
10	Unraveling the influence of non-fullerene acceptor molecular packing on photovoltaic performance of organic solar cells. Nature Communications, 2020, 11, 6005.	12.8	112
11	A Cofacially Stacked Electronâ€Deficient Small Molecule with a High Electron Mobility of over 10 cm² V^{â^'1} s^{â^'1} in Air. Advanced Materials, 2015, 27, 8051-8055.	21.0	97
12	From Molecular Packing Structures to Electronic Processes: Theoretical Simulations for Organic Solar Cells. Advanced Energy Materials, 2018, 8, 1702743.	19.5	93
13	Monolayer Twoâ€dimensional Molecular Crystals for an Ultrasensitive OFETâ€based Chemical Sensor. Angewandte Chemie - International Edition, 2020, 59, 4380-4384.	13.8	90
14	Highâ€Yield and Damageâ€free Exfoliation of Layered Graphdiyne in Aqueous Phase. Angewandte Chemie - International Edition, 2019, 58, 746-750.	13.8	79
15	Reducing the Singletâ^'Triplet Energy Gap by Endâ€Group Ï€â^'Ï€ Stacking Toward Highâ€Efficiency Organic Photovoltaics. Advanced Materials, 2020, 32, e2000975.	21.0	77
16	A nonfullerene acceptor utilizing a novel asymmetric multifused-ring core unit for highly efficient organic solar cells. Journal of Materials Chemistry C, 2018, 6, 4873-4877.	5.5	73
17	Local Excitation/Charge-Transfer Hybridization Simultaneously Promotes Charge Generation and Reduces Nonradiative Voltage Loss in Nonfullerene Organic Solar Cells. Journal of Physical Chemistry Letters, 2019, 10, 2911-2918.	4.6	73
18	Doping mechanisms of N-DMBI-H for organic thermoelectrics: hydrogen removal vs. hydride transfer. Journal of Materials Chemistry A, 2020, 8, 8323-8328.	10.3	66

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19	Insertion of double bond Ï€-bridges of Aâ€“Dâ€“A acceptors for high performance near-infrared polymer solar cells. Journal of Materials Chemistry A, 2017, 5, 22588-22597.	10.3	61
20	Electrical Loss Management by Molecularly Manipulating Dopantâ€free Poly(3â€hexylthiophene) towards 16.93â€‰% CsPbI₂Br Solar Cells. Angewandte Chemie - International Edition, 2021, 60, 16388-16393.	13.8	57
21	Tunable Electron Donating and Accepting Properties Achieved by Modulating the Steric Hindrance of Side Chains in A-D-A Small-Molecule Photovoltaic Materials. Chemistry of Materials, 2018, 30, 619-628.	6.7	49
22	Origin of High Efficiencies for Thermally Activated Delayed Fluorescence Organic Light-Emitting Diodes: Atomistic Insight into Molecular Orientation and Torsional Disorder. Journal of Physical Chemistry C, 2018, 122, 27191-27197.	3.1	48
23	Deepâ€Red to Nearâ€Infrared Thermally Activated Delayed Fluorescence in Organic Solid Films and Electroluminescent Devices. Angewandte Chemie, 2017, 129, 11683-11687.	2.0	47
24	Atomistic Insight Into Donor/Acceptor Interfaces in Highâ€Efficiency Nonfullerene Organic Solar Cells. Solar Rrl, 2018, 2, 1800190.	5.8	47
25	Barrier-Free Charge Separation Enabled by Electronic Polarization in High-Efficiency Non-fullerene Organic Solar Cells. Journal of Physical Chemistry Letters, 2020, 11, 2585-2591.	4.6	47
26	Hot Charge-Transfer States Determine Exciton Dissociation in the DTDCTB/C₆₀ Complex for Organic Solar Cells: A Theoretical Insight. Journal of Physical Chemistry C, 2015, 119, 11320-11326.	3.1	46
27	Origin of Photocurrent and Voltage Losses in Organic Solar Cells. Advanced Theory and Simulations, 2019, 2, 1900067.	2.8	46
28	Nature of the Lowest Singlet and Triplet Excited States of Organic Thermally Activated Delayed Fluorescence Emitters: A Self-Consistent Quantum Mechanics/Embedded Charge Study. Chemistry of Materials, 2019, 31, 6665-6671.	6.7	46
29	Molecular Insight into Efficient Charge Generation in Low-Driving-Force Nonfullerene Organic Solar Cells. Accounts of Chemical Research, 2022, 55, 869-877.	15.6	46
30	Organic Cocrystal Photovoltaic Behavior: A Model System to Study Charge Recombination of C₆₀ and C₇₀ at the Molecular Level. Advanced Electronic Materials, 2016, 2, 1500423.	5.1	42
31	Sub-5 nm single crystalline organic pâ€“n heterojunctions. Nature Communications, 2021, 12, 2774.	12.8	39
32	Multi-channel exciton dissociation in D18/Y6 complexes for high-efficiency organic photovoltaics. Journal of Materials Chemistry A, 2020, 8, 20408-20413.	10.3	35
33	Importance of side-chain anchoring atoms on electron donor/fullerene interfaces for high-performance organic solar cells. Journal of Materials Chemistry A, 2017, 5, 9316-9321.	10.3	34
34	Improving the Electron Mobility of ITIC by Endâ€Group Modulation: The Role of Fluorination and Ï€â€Extension. Solar Rrl, 2019, 3, 1800251.	5.8	32
35	Revealing the influence of the solvent evaporation rate and thermal annealing on the molecular packing and charge transport of DPP(TBFu)₂. Journal of Materials Chemistry C, 2016, 4, 4654-4661.	5.5	31
36	Rationalizing Smallâ€Molecule Donor Design toward Highâ€Performance Organic Solar Cells: Perspective from Molecular Architectures. Advanced Theory and Simulations, 2018, 1, 1800091.	2.8	29

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37	The nature of excited states in dipolar donor/fullerene complexes for organic solar cells: evolution with the donor stack size. Physical Chemistry Chemical Physics, 2016, 18, 15955-15963.	2.8	25
38	The Intrinsic Role of the Fusion Mode and Electronâ€Deficient Core in Fusedâ€Ring Electron Acceptors for Organic Photovoltaics. Angewandte Chemie - International Edition, 2022, 61, .	13.8	25
39	Deposition Growth and Morphologies of C₆₀ on DTDCTB Surfaces: An Atomistic Insight into the Integrated Impact of Surface Stability, Landscape, and Molecular Orientation. Advanced Materials Interfaces, 2015, 2, 1500329.	3.7	23
40	Energetic fluctuations in amorphous semiconducting polymers: Impact on charge-carrier mobility. Journal of Chemical Physics, 2017, 147, 134904.	3.0	21
41	Boosting the electron mobilities of dimeric perylenediimides by simultaneously enhancing intermolecular and intramolecular electronic interactions. Journal of Materials Chemistry A, 2018, 6, 14224-14230.	10.3	21
42	Regulation of Molecular Orientations of Aâ€“Dâ€“A Nonfullerene Acceptors for Organic Photovoltaics: The Role of Endâ€Group Ï€â€“Ï€ Stacking. Advanced Functional Materials, 2022, 32, 2108551.	14.9	20
43	Impact of alkyl chain branching positions on molecular packing and electron transport of dimeric perylenediimide derivatives. Journal of Energy Chemistry, 2019, 35, 138-143.	12.9	18
44	Electrical Loss Management by Molecularly Manipulating Dopantâ€free Poly(3â€hexylthiophene) towards 16.93â€‰% CsPbI₂Br Solar Cells. Angewandte Chemie, 2021, 133, 16524-16529.	2.0	18
45	Novel Ï€-Conjugated Polymer Based on an Extended Thienoquinoid. Chemistry of Materials, 2018, 30, 319-323.	6.7	17
46	Importance of molecular rigidity on reducing the energy losses in organic solar cells: implication from geometric relaxations of Aâ€“Dâ€“A electron acceptors. Materials Chemistry Frontiers, 2021, 5, 3903-3910.	5.9	16
47	Conformational and aggregation properties of PffBT4T polymers: atomistic insight into the impact of alkyl-chain branching positions. Journal of Materials Chemistry C, 2019, 7, 14198-14204.	5.5	15
48	Suppressing charge recombination in small-molecule ternary organic solar cells by modulating donorâ€“acceptor interfacial arrangements. Physical Chemistry Chemical Physics, 2018, 20, 24570-24576.	2.8	13
49	Highâ€Yield and Damageâ€free Exfoliation of Layered Graphdiyne in Aqueous Phase. Angewandte Chemie, 2019, 131, 756-760.	2.0	10
50	Intra-chain and inter-chain synergistic effect gives rise to high electron mobilities for naphthalenediimide based copolymers. Journal of Materials Chemistry C, 2020, 8, 16527-16532.	5.5	10
51	Monolayer Twoâ€dimensional Molecular Crystals for an Ultrasensitive OFETâ€based Chemical Sensor. Angewandte Chemie, 2020, 132, 4410-4414.	2.0	10
52	Electronic and optical properties of Ï€-bridged perylenediimide derivatives: the role of Ï€-bridges. Journal of Materials Chemistry A, 2019, 7, 12532-12537.	10.3	9
53	Spectroscopic Study of Charge Transport at Organic Solidâ€“Water Interface. Chemistry of Materials, 2018, 30, 5422-5428.	6.7	7
54	Molecular Origin of Carbonâ€“Oxygenâ€Bridge Isomerization Induced Reverse Aggregation Ability in Acceptorâ€“Donorâ€“Acceptor Electron Acceptors for Organic Solar Cells. Solar Rrl, 2021, 5, 2000780.	5.8	5

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55	The Intrinsic Role of the Fusion Mode and Electronâ€Deficient Core in Fusedâ€Ring Electron Acceptors for Organic Photovoltaics. Angewandte Chemie, 2022, 134, .	2.0	4
56	Field-Effect Transistors: A Cofacially Stacked Electron-Deficient Small Molecule with a High Electron Mobility of over 10 cm2Vâ^'1sâ^'1in Air (Adv. Mater. 48/2015). Advanced Materials, 2015, 27, 8120-8120.	21.0	2
57	Impact of n-Doping Mechanisms on the Molecular Packing and Electron Mobilities of Molecular Semiconductors for Organic Thermoelectrics. Organic Materials, 2022, 4, 1-6.	2.0	0