

Lei Liao

List of Publications by Year in Descending Order

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Version: 2024-04-28

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

126
papers

5,448
citations

35
h-index

72
g-index

139
ext. papers

6,782
ext. citations

9.8
avg, IF

5.73
L-index

#	Paper	IF	Citations
126	Ultra-Steep-Slope High-Gain MoS Transistors with Atomic Threshold-Switching Gate.. <i>Advanced Science</i> , 2022 , e2104439	13.6	4
125	High-Current Omega-Shaped Gated MoS ₂ Transistors. <i>IEEE Transactions on Electron Devices</i> , 2022 , 69, 816-819	2.9	
124	Strain-Plasmonic Coupled Broadband Photodetector Based on Monolayer MoS ₂ . <i>Small</i> , 2022 , e2107104	11	3
123	Solution-Processed CsPbBr ₃ Quantum Dots/Organic Semiconductor Planar Heterojunctions for High-Performance Photodetectors.. <i>Advanced Science</i> , 2022 , e2105856	13.6	4
122	Schottky-Contacted High-Performance GaSb Nanowires Photodetectors Enabled by Lead-Free All-Inorganic Perovskites Decoration.. <i>Small</i> , 2022 , e2200415	11	1
121	Doping of Sn-based two-dimensional perovskite semiconductor for high-performance field-effect transistors and thermoelectric devices.. <i>IScience</i> , 2022 , 25, 104109	6.1	2
120	Schottky-Contacted WSe ₂ Hot-Electron Photodetectors with Fast Response and High Sensitivity. <i>ACS Photonics</i> , 2022 , 9, 132-137	6.3	4
119	Next-generation machine vision systems incorporating two-dimensional materials: Progress and perspectives. <i>Information Materials</i> , 2022 , 4,	23.1	7
118	Solution-Processed Quantum-Dots Light-Emitting Transistors With Equivalent Efficiency of Light-Emitting Diodes. <i>IEEE Transactions on Electron Devices</i> , 2021 , 1-4	2.9	0
117	Transferred metal gate to 2D semiconductors for sub-1 V operation and near ideal subthreshold slope. <i>Science Advances</i> , 2021 , 7, eabf8744	14.3	3
116	Van der Waals epitaxy of ultrathin crystalline PbTe nanosheets with high near-infrared photoelectric response. <i>Nano Research</i> , 2021 , 14, 1955-1960	10	5
115	Polarization-Resolved Broadband MoS ₂ /Black Phosphorus/MoS ₂ Optoelectronic Memory with Ultralong Retention Time and Ultrahigh Switching Ratio. <i>Advanced Functional Materials</i> , 2021 , 31, 2100781	15.6	10
114	Reconfigurable electronics by disassembling and reassembling van der Waals heterostructures. <i>Nature Communications</i> , 2021 , 12, 1825	17.4	10
113	Van der Waals epitaxial growth of air-stable CrSe nanosheets with thickness-tunable magnetic order. <i>Nature Materials</i> , 2021 , 20, 818-825	27	68
112	Transferred van der Waals metal electrodes for sub-1-nm MoS ₂ vertical transistors. <i>Nature Electronics</i> , 2021 , 4, 342-347	28.4	36
111	Electronic Fluctuation of Graphene Nanoribbon MOSFETs Under a Full Quantum Dynamics Framework. <i>IEEE Transactions on Electron Devices</i> , 2021 , 68, 1980-1985	2.9	0
110	Recent Progress on Electrical and Optical Manipulations of Perovskite Photodetectors. <i>Advanced Science</i> , 2021 , 8, e2100569	13.6	37

109	Down-Scalable and Ultra-fast Memristors with Ultra-high Density Three-Dimensional Arrays of Perovskite Quantum Wires. <i>Nano Letters</i> , 2021 , 21, 5036-5044	11.5	11
108	High-Resolution Van der Waals Stencil Lithography for 2D Transistors. <i>Small</i> , 2021 , 17, e2101209	11	4
107	Toward Unusual-High Hole Mobility of p-Channel Field-Effect-Transistors. <i>Small</i> , 2021 , 17, e2102323	11	6
106	Photoresponse improvement of mixed-dimensional 1D-2D GaAs photodetectors by incorporating constructive interface states. <i>Nanoscale</i> , 2021 , 13, 1086-1092	7.7	35
105	High-Performance WSe ₂ -Type Field-Effect Transistors Enabled by InOx Damage-Free Doping. <i>IEEE Electron Device Letters</i> , 2021 , 1-1	4.4	1
104	15.3: Defect Engineering in n-Type Oxide Semiconductor TFTs. <i>Digest of Technical Papers SID International Symposium</i> , 2021 , 52, 101-101	0.5	
103	Origin of low-temperature negative transconductance in multilayer MoS ₂ transistors. <i>Applied Physics Letters</i> , 2021 , 119, 043502	3.4	1
102	Dry Exfoliation of Large-Area 2D Monolayer and Heterostructure Arrays. <i>ACS Nano</i> , 2021 ,	16.7	5
101	MoS ₂ Homojunctions Transistors Enabled by Dimension Tailoring Strategy. <i>Advanced Electronic Materials</i> , 2021 , 7, 2100703	6.4	2
100	29.3: Invited Paper: Defect Engineering in n-Type Oxide Semiconductor TFTs. <i>Digest of Technical Papers SID International Symposium</i> , 2021 , 52, 400-400	0.5	
99	Fast Response GaAs Photodetector Based on Constructing Electron Transmission Channel. <i>Crystals</i> , 2021 , 11, 1160	2.3	0
98	Non-Linear Output-Conductance Function for Robust Analysis of Two-Dimensional Transistors. <i>IEEE Electron Device Letters</i> , 2021 , 42, 94-97	4.4	1
97	Strain Effect Enhanced Ultrasensitive MoS Nanoscroll Avalanche Photodetector. <i>Journal of Physical Chemistry Letters</i> , 2020 , 11, 4490-4497	6.4	6
96	High Voltage Gain WSe ₂ Complementary Compact Inverter With Buried Gate for Local Doping. <i>IEEE Electron Device Letters</i> , 2020 , 41, 944-947	4.4	10
95	Vapor phase growth of two-dimensional PdSe ₂ nanosheets for high-photoresponsivity near-infrared photodetectors. <i>Nano Research</i> , 2020 , 13, 2091-2097	10	26
94	Effect of Backbone Fluorine and Chlorine Substitution on Charge-Transport Properties of Naphthalenediimide-Based Polymer Semiconductors. <i>Advanced Electronic Materials</i> , 2020 , 6, 1901241	6.4	12
93	Efficient strain modulation of 2D materials via polymer encapsulation. <i>Nature Communications</i> , 2020 , 11, 1151	17.4	81
92	Enhancing Performance of a GaAs/AlGaAs/GaAs Nanowire Photodetector Based on the Two-Dimensional Electron-Hole Tube Structure. <i>Nano Letters</i> , 2020 , 20, 2654-2659	11.5	74

91	An Electrically Controlled Wavelength-Tunable Nanoribbon Laser. <i>ACS Nano</i> , 2020 , 14, 3397-3404	16.7	17
90	Microfluidic solution-processed organic and perovskite nanowires fabricated for field-effect transistors and photodetectors. <i>Journal of Materials Chemistry C</i> , 2020 , 8, 2353-2362	7.1	9
89	Doping High-Mobility Donor-Acceptor Copolymer Semiconductors with an Organic Salt for High-Performance Thermoelectric Materials. <i>Advanced Electronic Materials</i> , 2020 , 6, 1900945	6.4	22
88	Possible Luttinger liquid behavior of edge transport in monolayer transition metal dichalcogenide crystals. <i>Nature Communications</i> , 2020 , 11, 659	17.4	12
87	The photovoltaic and photoconductive photodetector based on GeSe/2D semiconductor van der Waals heterostructure. <i>Applied Physics Letters</i> , 2020 , 116, 141101	3.4	16
86	Impact of hydrogen dopant incorporation on InGaZnO, ZnO and InO thin film transistors. <i>Physical Chemistry Chemical Physics</i> , 2020 , 22, 1591-1597	3.6	8
85	Flexible Quasi-2D Perovskite/IGZO Phototransistors for Ultrasensitive and Broadband Photodetection. <i>Advanced Materials</i> , 2020 , 32, e1907527	24	54
84	InGaZnO Tunnel and Junction Transistors Based on Vertically Stacked Black Phosphorus/InGaZnO Heterojunctions. <i>Advanced Electronic Materials</i> , 2020 , 6, 2000291	6.4	6
83	High-throughput isolation of fetal nucleated red blood cells by multifunctional microsphere-assisted inertial microfluidics. <i>Biomedical Microdevices</i> , 2020 , 22, 75	3.7	4
82	Black phosphorus field effect transistors stable in harsh conditions via surface engineering. <i>Applied Physics Letters</i> , 2020 , 117, 111602	3.4	1
81	Rational design of AlO ₂ /2D perovskite heterostructure dielectric for high performance MoS ₂ phototransistors. <i>Nature Communications</i> , 2020 , 11, 4266	17.4	21
80	Doping-free complementary WSe ₂ circuit via van der Waals metal integration. <i>Nature Communications</i> , 2020 , 11, 1866	17.4	68
79	Hysteresis-Free MoS ₂ Metal Semiconductor Field-Effect Transistors with van der Waals Schottky Junction. <i>Nanotechnology</i> , 2020 ,	3.4	4
78	Broadband photodetection of 2D Bi ₂ O ₂ Se/MoSe ₂ heterostructure. <i>Journal of Materials Science</i> , 2019 , 54, 14742-14751	4.3	24
77	Efficient Gate Modulation in a Screening-Engineered MoS ₂ /Single-Walled Carbon Nanotube Network Heterojunction Vertical Field-Effect Transistor. <i>ACS Applied Materials & Interfaces</i> , 2019 , 11, 25516-25523	9.5	12
76	Defect Self-Compensation for High-Mobility Bilayer InGaZnO/In ₂ O ₃ Thin-Film Transistor. <i>Advanced Electronic Materials</i> , 2019 , 5, 1900125	6.4	27
75	Prediction of Stable and High-Performance Charge Transport in Zigzag Tellurene Nanoribbons. <i>IEEE Transactions on Electron Devices</i> , 2019 , 66, 2365-2369	2.9	8
74	Perovskite/Black Phosphorus/MoS ₂ Photogate Reversed Photodiodes with Ultrahigh Light On/Off Ratio and Fast Response. <i>ACS Nano</i> , 2019 , 13, 4804-4813	16.7	53

73	Interface Engineering via MoS ₂ Insertion Layer for Improving Resistive Switching of Conductive-Bridging Random Access Memory. <i>Advanced Electronic Materials</i> , 2019 , 5, 1800747	6.4	16
72	Pulsed Laser Deposition Assisted van der Waals Epitaxial Large Area Quasi-2D ZnO Single-Crystal Plates on Fluorophlogopite Mica. <i>Advanced Materials Interfaces</i> , 2019 , 6, 1901156	4.6	9
71	Low-Power, High-Sensitivity Temperature Sensor Based on Ultrathin SOI Lateral p-i-n Gated Diode. <i>IEEE Transactions on Electron Devices</i> , 2019 , 66, 4001-4007	2.9	1
70	Atomic mechanism of strong interactions at the graphene/sapphire interface. <i>Nature Communications</i> , 2019 , 10, 5013	17.4	13
69	Comprehensive insights into effect of van der Waals contact on carbon nanotube network field-effect transistors. <i>Applied Physics Letters</i> , 2019 , 115, 173503	3.4	2
68	High on/off ratio black phosphorus based memristor with ultra-thin phosphorus oxide layer. <i>Applied Physics Letters</i> , 2019 , 115, 193503	3.4	22
67	Recent Advances in Optoelectronic Devices Based on 2D Materials and Their Heterostructures. <i>Advanced Optical Materials</i> , 2019 , 7, 1800441	8.1	132
66	Recent Advances in Low-Dimensional Heterojunction-Based Tunnel Field Effect Transistors. <i>Advanced Electronic Materials</i> , 2019 , 5, 1800569	6.4	39
65	Monolayer atomic crystal molecular superlattices. <i>Nature</i> , 2018 , 555, 231-236	50.4	220
64	Manganese(ii) enhanced fluorescent nitrogen-doped graphene quantum dots: a facile and efficient synthesis and their applications for bioimaging and detection of Hg ions.. <i>RSC Advances</i> , 2018 , 8, 5902-5911	3.7	20
63	Design of Highly Stable Tungsten-Doped IZO Thin-Film Transistors With Enhanced Performance. <i>IEEE Transactions on Electron Devices</i> , 2018 , 65, 1018-1022	2.9	19
62	Hydrogen Annealing Effect on the Magnetic Properties of ZnCoO/MoS ₂ Hybrid. <i>Journal of Superconductivity and Novel Magnetism</i> , 2018 , 31, 1241-1245	1.5	1
61	Impact of Thickness on Contact Issues for Pinning Effect in Black Phosphorus Field-Effect Transistors. <i>Advanced Functional Materials</i> , 2018 , 28, 1801398	15.6	32
60	Enhanced Reliability of InGaZnO Thin-Film Transistors Through Design of Dual Passivation Layers. <i>IEEE Transactions on Electron Devices</i> , 2018 , 65, 2844-2849	2.9	26
59	High-Performance Near-Infrared Photodetectors Based on p-Type SnX (X = S, Se) Nanowires Grown via Chemical Vapor Deposition. <i>ACS Nano</i> , 2018 , 12, 7239-7245	16.7	62
58	MoS Negative-Capacitance Field-Effect Transistors with Subthreshold Swing below the Physics Limit. <i>Advanced Materials</i> , 2018 , 30, e1800932	24	61
57	Approaching the Schottky-Mott limit in van der Waals metal-semiconductor junctions. <i>Nature</i> , 2018 , 557, 696-700	50.4	766
56	Understanding hydrogen and nitrogen doping on active defects in amorphous In-Ga-Zn-O thin film transistors. <i>Applied Physics Letters</i> , 2018 , 112, 253504	3.4	15

55	Correlation of Molecular Structure and Charge Transport Properties: A Case Study in Naphthalenediimide-Based Copolymer Semiconductors. <i>Advanced Electronic Materials</i> , 2018 , 4, 1800203	6.4	6
54	High performance top-gated ferroelectric field effect transistors based on two-dimensional ZnO nanosheets. <i>Applied Physics Letters</i> , 2017 , 110, 043505	3.4	24
53	Highly Flexible and Bright Electroluminescent Devices Based on Ag Nanowire Electrodes and Top-Emission Structure. <i>Advanced Electronic Materials</i> , 2017 , 3, 1600535	6.4	42
52	Confining Cation Injection to Enhance CBRAM Performance by Nanopore Graphene Layer. <i>Small</i> , 2017 , 13, 1603948	11	113
51	Ultrafine Graphene Nanomesh with Large On/Off Ratio for High-Performance Flexible Biosensors. <i>Advanced Functional Materials</i> , 2017 , 27, 1604096	15.6	78
50	Possible absence of critical thickness and size effect in ultrathin perovskite ferroelectric films. <i>Nature Communications</i> , 2017 , 8, 15549	17.4	74
49	Coaxial-Structured Weavable and Wearable Electroluminescent Fibers. <i>Advanced Electronic Materials</i> , 2017 , 3, 1700401	6.4	38
48	Two-dimensional negative capacitance transistor with polyvinylidene fluoride-based ferroelectric polymer gating. <i>Npj 2D Materials and Applications</i> , 2017 , 1,	8.8	57
47	Graphene: Confining Cation Injection to Enhance CBRAM Performance by Nanopore Graphene Layer (Small 35/2017). <i>Small</i> , 2017 , 13,	11	1
46	Direct Vapor Growth of Perovskite CsPbBr Nanoplate Electroluminescence Devices. <i>ACS Nano</i> , 2017 , 11, 9869-9876	16.7	96
45	Positive Shift in Threshold Voltage Induced by CuO and NiOx Gate in AlGaN/GaN HEMTs. <i>IEEE Transactions on Electron Devices</i> , 2017 , 64, 3139-3144	2.9	14
44	Improving Charge Mobility of Polymer Transistors by Judicious Choice of the Molecular Weight of Insulating Polymer Additive. <i>Journal of Physical Chemistry C</i> , 2016 , 120, 17282-17289	3.8	23
43	Two-dimensional antimonene single crystals grown by van der Waals epitaxy. <i>Nature Communications</i> , 2016 , 7, 13352	17.4	633
42	Transparent megahertz circuits from solution-processed composite thin films. <i>Nanoscale</i> , 2016 , 8, 7978-837	8.7	2
41	Comment on "Metal Semiconductor Field-Effect Transistor with MoS ₂ /Conducting NiOx van der Waals Schottky Interface for Intrinsic High Mobility and Photoswitching Speed". <i>ACS Nano</i> , 2016 , 10, 1714-5	16.7	1
40	Ferroelectric polymer tuned two dimensional layered MoTe ₂ photodetector. <i>RSC Advances</i> , 2016 , 6, 87436-87437	3.6	34
39	200 GHz Maximum Oscillation Frequency in CVD Graphene Radio Frequency Transistors. <i>ACS Applied Materials & Interfaces</i> , 2016 , 8, 25645-25649	9.5	80
38	Ultrafast growth of single-crystal graphene assisted by a continuous oxygen supply. <i>Nature Nanotechnology</i> , 2016 , 11, 930-935	28.7	277

37	High-Resolution Tracking Asymmetric Lithium Insertion and Extraction and Local Structure Ordering in SnS ₂ . <i>Nano Letters</i> , 2016 , 16, 5582-8	11.5	48
36	Photodetectors: High-Responsivity Graphene/InAs Nanowire Heterojunction Near-Infrared Photodetectors with Distinct Photocurrent On/Off Ratios (Small 8/2015). <i>Small</i> , 2015 , 11, 890-890	11	2
35	Triblock copolymer-assisted construction of 20 nm-sized ytterbium-doped TiO ₂ hollow nanostructures for enhanced solar energy utilization efficiency. <i>Science China Chemistry</i> , 2015 , 58, 850-857	7.9	3
34	A high energy output nanogenerator based on reduced graphene oxide. <i>Nanoscale</i> , 2015 , 7, 18147-51	7.7	18
33	Au Nanoarrays: Surface Plasmon-Enhanced Photodetection in Few Layer MoS ₂ Phototransistors with Au Nanostructure Arrays (Small 20/2015). <i>Small</i> , 2015 , 11, 2346-2346	11	3
32	Photodetectors: Ultrasensitive and Broadband MoS ₂ Photodetector Driven by Ferroelectrics (Adv. Mater. 42/2015). <i>Advanced Materials</i> , 2015 , 27, 6538-6538	24	5
31	51.4: Invited Paper: High Performance Flexible TFTs from Oxide/Carbon Heterostructures. <i>Digest of Technical Papers SID International Symposium</i> , 2015 , 46, 775-777	0.5	
30	Integration of High-k Oxide on MoS ₂ by Using Ozone Pretreatment for High-Performance MoS ₂ Top-Gated Transistor with Thickness-Dependent Carrier Scattering Investigation. <i>Small</i> , 2015 , 11, 5932-8 ¹¹	8 ¹¹	48
29	Graphene, Nanotube, and NANOWIRE-Based Electronics 2015 , 413-500		
28	Electrical Properties in Group IV Elements-Doped ZnO Thin-Film Transistors. <i>Journal of Display Technology</i> , 2015 , 11, 670-673		3
27	Plasmon-driven reaction controlled by the number of graphene layers and localized surface plasmon distribution during optical excitation. <i>Light: Science and Applications</i> , 2015 , 4, e342-e342	16.7	154
26	Ladder-like metal oxide nanowires: Synthesis, electrical transport, and enhanced light absorption properties. <i>Nano Research</i> , 2014 , 7, 272-283	10	6
25	Tunable Electrical Properties in High-Valent Transition-Metal-Doped ZnO Thin-Film Transistors. <i>IEEE Electron Device Letters</i> , 2014 , 35, 759-761	4.4	7
24	Micro/Nanosized Nontraditional Evaporated Structures Based on Closely Packed Monolayer Binary Colloidal Crystals and Their Fine Structure Enhanced Properties. <i>Journal of Physical Chemistry C</i> , 2014 , 118, 20521-20528	3.8	20
23	Directly Grown K _{0.33} WO ₃ Nanosheet Film Electrode for Fast Direct Electron Transfer of Protein. <i>ChemElectroChem</i> , 2014 , 1, 463-470	4.3	3
22	Modulating the threshold voltage of oxide nanowire field-effect transistors by a Ga ⁺ ion beam. <i>Nano Research</i> , 2014 , 7, 1691-1698	10	19
21	Nanowires: Anomalous and Highly Efficient InAs Nanowire Phototransistors Based on Majority Carrier Transport at Room Temperature (Adv. Mater. 48/2014). <i>Advanced Materials</i> , 2014 , 26, 8232-8232 ²⁴		8
20	Improved performance of HgCdTe infrared detector focal plane arrays by modulating light field based on photonic crystal structure. <i>Journal of Applied Physics</i> , 2014 , 115, 184504	2.5	29

19	Synergistic effect of V/N codoping by ion implantation on the electronic and optical properties of TiO ₂ . <i>Journal of Applied Physics</i> , 2014 , 115, 143106	2.5	6
18	Large-area, well-ordered, uniform-sized bowtie nanoantenna arrays for surface enhanced Raman scattering substrate with ultra-sensitive detection. <i>Applied Physics Letters</i> , 2013 , 103, 041903	3.4	35
17	Dependence of Ion-Implant-Induced LBIC Novel Characteristic on Excitation Intensity for Long-Wavelength HgCdTe-Based Photovoltaic Infrared Detector Pixel Arrays. <i>IEEE Journal of Selected Topics in Quantum Electronics</i> , 2013 , 19, 1-7	3.8	43
16	More Recent Advances in One-Dimensional Metal Oxide Nanostructures: Optical and Optoelectronic Applications 2013 , 359-379		1
15	High-Mobility Solution-Processed Amorphous Indium Zinc $\text{In}_2\text{O}_3/\text{ZnO}$ Nanocrystal Hybrid Thin-Film Transistor. <i>IEEE Electron Device Letters</i> , 2013 , 34, 72-74	4.4	20
14	High mobility amorphous InGaZnO thin film transistor with single wall carbon nanotubes enhanced-current path. <i>Applied Physics Letters</i> , 2013 , 103, 223108	3.4	13
13	Top-gated graphene nanoribbon transistors with ultrathin high-k dielectrics. <i>Nano Letters</i> , 2010 , 10, 1917-1921	7.25	141
12	Single-layer graphene on Al ₂ O ₃ /Si substrate: better contrast and higher performance of graphene transistors. <i>Nanotechnology</i> , 2010 , 21, 015705	3.4	78
11	High-kappa oxide nanoribbons as gate dielectrics for high mobility top-gated graphene transistors. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2010 , 107, 6711-5	11.5	161
10	Sub-100 nm channel length graphene transistors. <i>Nano Letters</i> , 2010 , 10, 3952-6	11.5	145
9	Direct growth of SnO ₂ nanorod array electrodes for lithium-ion batteries. <i>Journal of Materials Chemistry</i> , 2009 , 19, 1859		263
8	Hollow MgO Nanotube Arrays by Using ZnO Nanorods as Templates. <i>European Journal of Inorganic Chemistry</i> , 2008 , 2008, 2727-2732	2.3	13
7	From Copper Nanocrystalline to CuO Nanoneedle Array: Synthesis, Growth Mechanism, and Properties. <i>Journal of Physical Chemistry C</i> , 2007 , 111, 5050-5056	3.8	153
6	Multiwall boron carbonitride/carbon nanotube junction and its rectification behavior. <i>Journal of the American Chemical Society</i> , 2007 , 129, 9562-3	16.4	83
5	Amorphous B-doped graphitic carbon nitride quantum dots with high photoluminescence quantum yield of near 90% and their sensitive detection of Fe ²⁺ /Cd ²⁺ . <i>Science China Materials</i> , 1	7.1	3
4	Ultimate dielectric scaling of 2D transistors via van der Waals metal integration. <i>Nano Research</i> , 1	10	4
3	Simultaneous Surface Display and Holography Enabled by Flat Liquid Crystal Elements. <i>Laser and Photonics Reviews</i> , 2100491	8.3	4
2	Tuning the Electrical Performance of 2D Perovskite Field-Effect Transistors by Forming Organic Semiconductor/Perovskite van der Waals Heterojunctions. <i>Advanced Electronic Materials</i> , 2200148	6.4	2

1 Realization of Ultra-Scaled MoS₂ Vertical Diodes via Double-Side Electrodes Lamination. *Nano Letters*, 11.5 1