Lei Liao

List of Publications by Year
in descending order

133	8,286	71061 41	48277 88
papers	citations	h-index	g-index

139	139	139	11582
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Approaching the Schottkyâ€“Mott limit in van der Waals metalâ€“semiconductor junctions. Nature, 2018, 557, 696-700.	13.7	1,279
2	Two-dimensional antimonene single crystals grown by van der Waals epitaxy. Nature Communications, 2016, 7, 13352.	5.8	798
3	Ultrafast growth of single-crystal graphene assisted by a continuous oxygen supply. Nature Nanotechnology, 2016, 11, 930-935.	15.6	330
4	Monolayer atomic crystal molecular superlattices. Nature, 2018, 555, 231-236.	13.7	323
5	Direct growth of SnO2 nanorod array electrodes for lithium-ion batteries. Journal of Materials Chemistry, 2009, 19, 1859.	6.7	273
6	Recent Advances in Optoelectronic Devices Based on 2D Materials and Their Heterostructures. Advanced Optical Materials, 2019, 7, 1800441.	3.6	229
7	Efficient strain modulation of 2D materials via polymer encapsulation. Nature Communications, 2020, 11, 1151.	5.8	215
8	Van der Waals epitaxial growth of air-stable CrSe2 nanosheets with thickness-tunable magnetic order. Nature Materials, 2021, 20, 818-825.	13.3	206
9	High- Î² oxide nanoribbons as gate dielectrics for high mobility top-gated graphene transistors. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 6711-6715.	3.3	187
10	Plasmon-driven reaction controlled by the number of graphene layers and localized surface plasmon distribution during optical excitation. Light: Science and Applications, 2015, 4, e342-e342.	7.7	178
11	From Copper Nanocrystalline to CuO Nanoneedle Array:â€‰ Synthesis, Growth Mechanism, and Properties. Journal of Physical Chemistry C, 2007, 111, 5050-5056.	1.5	173
12	Sub-100 nm Channel Length Graphene Transistors. Nano Letters, 2010, 10, 3952-3956.	4.5	167
13	Top-Gated Graphene Nanoribbon Transistors with Ultrathin High-k Dielectrics. Nano Letters, 2010, 10, 1917-1921.	4.5	160
14	Doping-free complementary WSe2 circuit via van der Waals metal integration. Nature Communications, 2020, 11, 1866.	5.8	153
15	Confining Cation Injection to Enhance CBRAM Performance by Nanopore Graphene Layer. Small, 2017, 13, 1603948.	5.2	147
16	Transferred van der Waals metal electrodes for sub-1-nm MoS2 vertical transistors. Nature Electronics, 2021, 4, 342-347.	13.1	140
17	Recent Progress on Electrical and Optical Manipulations of Perovskite Photodetectors. Advanced Science, 2021, 8, e2100569.	5.6	118
18	Direct Vapor Growth of Perovskite CsPbBr₃ Nanoplate Electroluminescence Devices. ACS Nano, 2017, 11, 9869-9876.	7.3	117

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19	Ultrafine Graphene Nanomesh with Large On/Off Ratio for Highâ€Performance Flexible Biosensors. Advanced Functional Materials, 2017, 27, 1604096.	7.8	111
20	Enhancing Performance of a GaAs/AlGaAs/GaAs Nanowire Photodetector Based on the Two-Dimensional Electronâ€“Hole Tube Structure. Nano Letters, 2020, 20, 2654-2659.	4.5	106
21	Possible absence of critical thickness and size effect in ultrathin perovskite ferroelectric films. Nature Communications, 2017, 8, 15549.	5.8	104
22	High-Performance Near-Infrared Photodetectors Based on p-Type SnX (X = S, Se) Nanowires Grown via Chemical Vapor Deposition. ACS Nano, 2018, 12, 7239-7245.	7.3	101
23	200 GHz Maximum Oscillation Frequency in CVD Graphene Radio Frequency Transistors. ACS Applied Materials & Interfaces, 2016, 8, 25645-25649.	4.0	97
24	Multiwall Boron Carbonitride/Carbon Nanotube Junction and Its Rectification Behavior. Journal of the American Chemical Society, 2007, 129, 9562-9563.	6.6	93
25	Flexible Quasiâ€2D Perovskite/IGZO Phototransistors for Ultrasensitive and Broadband Photodetection. Advanced Materials, 2020, 32, e1907527.	11.1	88
26	Single-layer graphene on Al₂O₃/Si substrate: better contrast and higher performance of graphene transistors. Nanotechnology, 2010, 21, 015705.	1.3	87
27	MoS₂ Negativeâ€Capacitance Fieldâ€Effect Transistors with Subthreshold Swing below the Physics Limit. Advanced Materials, 2018, 30, e1800932.	11.1	87
28	Perovskite/Black Phosphorus/MoS₂ Photogate Reversed Photodiodes with Ultrahigh Light On/Off Ratio and Fast Response. ACS Nano, 2019, 13, 4804-4813.	7.3	81
29	Two-dimensional negative capacitance transistor with polyvinylidene fluoride-based ferroelectric polymer gating. Npj 2D Materials and Applications, 2017, 1, .	3.9	77
30	Integration of Highâ€k Oxide on MoS₂ by Using Ozone Pretreatment for Highâ€Performance MoS₂ Topâ€Gated Transistor with Thicknessâ€Dependent Carrier Scattering Investigation. Small, 2015, 11, 5932-5938.	5.2	74
31	Dependence of Ion-Implant-Induced LBIC Novel Characteristic on Excitation Intensity for Long-Wavelength HgCdTe-Based Photovoltaic Infrared Detector Pixel Arrays. IEEE Journal of Selected Topics in Quantum Electronics, 2013, 19, 1-7.	1.9	64
32	Coaxialâ€Structured Weavable and Wearable Electroluminescent Fibers. Advanced Electronic Materials, 2017, 3, 1700401.	2.6	63
33	Rational design of Al2O3/2D perovskite heterostructure dielectric for high performance MoS2 phototransistors. Nature Communications, 2020, 11, 4266.	5.8	59
34	High-Resolution Tracking Asymmetric Lithium Insertion and Extraction and Local Structure Ordering in SnS₂. Nano Letters, 2016, 16, 5582-5588.	4.5	58
35	Nextâ€generation machine vision systems incorporating twoâ€dimensional materials: Progress and perspectives. InformaÄnÃ-MateriÃ¡ly, 2022, 4, .	8.5	58
36	Highly Flexible and Bright Electroluminescent Devices Based on Ag Nanowire Electrodes and Topâ€Emission Structure. Advanced Electronic Materials, 2017, 3, 1600535.	2.6	54

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37	Recent Advances in Lowâ€Dimensional Heterojunctionâ€Based Tunnel Field Effect Transistors. Advanced Electronic Materials, 2019, 5, 1800569.	2.6	53
38	Down-Scalable and Ultra-fast Memristors with Ultra-high Density Three-Dimensional Arrays of Perovskite Quantum Wires. Nano Letters, 2021, 21, 5036-5044.	4.5	53
39	Ferroelectric polymer tuned two dimensional layered MoTe₂ photodetector. RSC Advances, 2016, 6, 87416-87421.	1.7	51
40	Broadband photodetection of 2D Bi2O2Seâ€“MoSe2 heterostructure. Journal of Materials Science, 2019, 54, 14742-14751.	1.7	46
41	Vapor phase growth of two-dimensional PdSe2 nanosheets for high-photoresponsivity near-infrared photodetectors. Nano Research, 2020, 13, 2091-2097.	5.8	44
42	Defect Selfâ€Compensation for Highâ€Mobility Bilayer InGaZnO/In₂O₃ Thinâ€Film Transistor. Advanced Electronic Materials, 2019, 5, 1900125.	2.6	43
43	Photoresponse improvement of mixed-dimensional 1Dâ€“2D GaAs photodetectors by incorporating constructive interface states. Nanoscale, 2021, 13, 1086-1092.	2.8	43
44	High on/off ratio black phosphorus based memristor with ultra-thin phosphorus oxide layer. Applied Physics Letters, 2019, 115, .	1.5	42
45	Large-area, well-ordered, uniform-sized bowtie nanoantenna arrays for surface enhanced Raman scattering substrate with ultra-sensitive detection. Applied Physics Letters, 2013, 103, .	1.5	39
46	Impact of Thickness on Contact Issues for Pinning Effect in Black Phosphorus Fieldâ€Effect Transistors. Advanced Functional Materials, 2018, 28, 1801398.	7.8	39
47	Enhanced Reliability of Inâ€“Gaâ€“ZnO Thin-Film Transistors Through Design of Dual Passivation Layers. IEEE Transactions on Electron Devices, 2018, 65, 2844-2849.	1.6	38
48	Transferred metal gate to 2D semiconductors for sub-1 V operation and near ideal subthreshold slope. Science Advances, 2021, 7, eabf8744.	4.7	37
49	High performance top-gated ferroelectric field effect transistors based on two-dimensional ZnO nanosheets. Applied Physics Letters, 2017, 110, .	1.5	34
50	Improved performance of HgCdTe infrared detector focal plane arrays by modulating light field based on photonic crystal structure. Journal of Applied Physics, 2014, 115, .	1.1	33
51	Polarizationâ€Resolved Broadband MoS₂/Black Phosphorus/MoS₂ Optoelectronic Memory with Ultralong Retention Time and Ultrahigh Switching Ratio. Advanced Functional Materials, 2021, 31, 2100781.	7.8	33
52	Atomic mechanism of strong interactions at the graphene/sapphire interface. Nature Communications, 2019, 10, 5013.	5.8	31
53	Manganese(<scp>ii</scp>) enhanced fluorescent nitrogen-doped graphene quantum dots: a facile and efficient synthesis and their applications for bioimaging and detection of Hg²⁺ ions. RSC Advances, 2018, 8, 5902-5911.	1.7	30
54	Doping Highâ€Mobility Donorâ€“Acceptor Copolymer Semiconductors with an Organic Salt for Highâ€Performance Thermoelectric Materials. Advanced Electronic Materials, 2020, 6, 1900945.	2.6	30

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55	The photovoltaic and photoconductive photodetector based on GeSe/2D semiconductor van der Waals heterostructure. Applied Physics Letters, 2020, 116, .	1.5	30
56	Interface Engineering via MoS₂ Insertion Layer for Improving Resistive Switching of Conductiveâ€Bridging Random Access Memory. Advanced Electronic Materials, 2019, 5, 1800747.	2.6	29
57	Reconfigurable electronics by disassembling and reassembling van der Waals heterostructures. Nature Communications, 2021, 12, 1825.	5.8	29
58	Understanding hydrogen and nitrogen doping on active defects in amorphous In-Ga-Zn-O thin film transistors. Applied Physics Letters, 2018, 112, .	1.5	28
59	Design of Highly Stable Tungsten-Doped IZO Thin-Film Transistors With Enhanced Performance. IEEE Transactions on Electron Devices, 2018, 65, 1018-1022.	1.6	26
60	An Electrically Controlled Wavelength-Tunable Nanoribbon Laser. ACS Nano, 2020, 14, 3397-3404.	7.3	26
61	Strainâ€Plasmonic Coupled Broadband Photodetector Based on Monolayer MoS₂. Small, 2022, 18, e2107104.	5.2	25
62	Improving Charge Mobility of Polymer Transistors by Judicious Choice of the Molecular Weight of Insulating Polymer Additive. Journal of Physical Chemistry C, 2016, 120, 17282-17289.	1.5	24
63	A high energy output nanogenerator based on reduced graphene oxide. Nanoscale, 2015, 7, 18147-18151.	2.8	23
64	Strain Effect Enhanced Ultrasensitive MoS₂ Nanoscroll Avalanche Photodetector. Journal of Physical Chemistry Letters, 2020, 11, 4490-4497.	2.1	23
65	Possible Luttinger liquid behavior of edge transport in monolayer transition metal dichalcogenide crystals. Nature Communications, 2020, 11, 659.	5.8	23
66	Simultaneous Surface Display and Holography Enabled by Flat Liquid Crystal Elements. Laser and Photonics Reviews, 2022, 16, .	4.4	23
67	High-Mobility Solution-Processed Amorphous Indium Zinc $hbox{Oxide/In}_{2}hbox{O}_{3}$ Nanocrystal Hybrid Thin-Film Transistor. IEEE Electron Device Letters, 2013, 34, 72-74.	2.2	22
68	Microâ€“Nanosized Nontraditional Evaporated Structures Based on Closely Packed Monolayer Binary Colloidal Crystals and Their Fine Structure Enhanced Properties. Journal of Physical Chemistry C, 2014, 118, 20521-20528.	1.5	22
69	Positive Shift in Threshold Voltage Induced by CuO and NiO_{<italic>x</italic>} Gate in AlGaN/GaN HEMTs. IEEE Transactions on Electron Devices, 2017, 64, 3139-3144.	1.6	22
70	Effect of Backbone Fluorine and Chlorine Substitution on Chargeâ€Transport Properties of Naphthalenediimideâ€Based Polymer Semiconductors. Advanced Electronic Materials, 2020, 6, 1901241.	2.6	21
71	Dry Exfoliation of Large-Area 2D Monolayer and Heterostructure Arrays. ACS Nano, 2021, 15, 13839-13846.	7.3	21
72	Modulating the threshold voltage of oxide nanowire field-effect transistors by a Ga+ ion beam. Nano Research, 2014, 7, 1691-1698.	5.8	20

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73	Efficient Gate Modulation in a Screening-Engineered MoS₂/Single-Walled Carbon Nanotube Network Heterojunction Vertical Field-Effect Transistor. ACS Applied Materials & Interfaces, 2019, 11, 25516-25523.	4.0	20
74	Van der Waals epitaxy of ultrathin crystalline PbTe nanosheets with high near-infrared photoelectric response. Nano Research, 2021, 14, 1955-1960.	5.8	19
75	Schottkyâ€Contacted Highâ€Performance GaSb Nanowires Photodetectors Enabled by Leadâ€Free Allâ€Inorganic Perovskites Decoration. Small, 2022, 18, e2200415.	5.2	19
76	Toward Unusualâ€High Hole Mobility of pâ€Channel Fieldâ€Effectâ€Transistors. Small, 2021, 17, 2102323.	5.2	18
77	High mobility amorphous InGaZnO thin film transistor with single wall carbon nanotubes enhanced-current path. Applied Physics Letters, 2013, 103, 223108.	1.5	17
78	Microfluidic solution-processed organic and perovskite nanowires fabricated for field-effect transistors and photodetectors. Journal of Materials Chemistry C, 2020, 8, 2353-2362.	2.7	17
79	Amorphous B-doped graphitic carbon nitride quantum dots with high photoluminescence quantum yield of near 90% and their sensitive detection of Fe2+/Cd2+. Science China Materials, 2021, 64, 3037-3050.	3.5	17
80	Impact of hydrogen dopant incorporation on InGaZnO, ZnO and In₂O₃ thin film transistors. Physical Chemistry Chemical Physics, 2020, 22, 1591-1597.	1.3	16
81	Realization of Ultra-Scaled MoS₂ Vertical Diodes via Double-Side Electrodes Lamination. Nano Letters, 2022, 22, 4429-4436.	4.5	16
82	Pulsed Laser Deposition Assisted van der Waals Epitaxial Large Area Quasiâ€2D ZnO Singleâ€Crystal Plates on Fluorophlogopite Mica. Advanced Materials Interfaces, 2019, 6, 1901156.	1.9	15
83	Solutionâ€Processed CsPbBr₃ Quantum Dots/Organic Semiconductor Planar Heterojunctions for Highâ€Performance Photodetectors. Advanced Science, 2022, 9, e2105856.	5.6	15
84	Doping of Sn-based two-dimensional perovskite semiconductor for high-performance field-effect transistors and thermoelectric devices. IScience, 2022, 25, 104109.	1.9	15
85	Hollow MgO Nanotube Arrays by Using ZnO Nanorods as Templates. European Journal of Inorganic Chemistry, 2008, 2008, 2727-2732.	1.0	14
86	High-throughput isolation of fetal nucleated red blood cells by multifunctional microsphere-assisted inertial microfluidics. Biomedical Microdevices, 2020, 22, 75.	1.4	14
87	High Voltage Gain WSe₂ Complementary Compact Inverter With Buried Gate for Local Doping. IEEE Electron Device Letters, 2020, 41, 944-947.	2.2	14
88	Ultraâ€Steepâ€Slope Highâ€Gain MoS₂ Transistors with Atomic Thresholdâ€Switching Gate. Advanced Science, 2022, 9, e2104439.	5.6	14
89	Highâ€Resolution Van der Waals Stencil Lithography for 2DÂTransistors. Small, 2021, 17, e2101209.	5.2	13
90	Ultimate dielectric scaling of 2D transistors via van der Waals metal integration. Nano Research, 2022, 15, 1603-1608.	5.8	13

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91	Schottky-Contacted WSe₂ Hot-Electron Photodetectors with Fast Response and High Sensitivity. ACS Photonics, 2022, 9, 132-137.	3.2	13
92	InGaZnO Tunnel and Junction Transistors Based on Vertically Stacked Black Phosphorus/InGaZnO Heterojunctions. Advanced Electronic Materials, 2020, 6, 2000291.	2.6	11
93	Tuning the Electrical Performance of 2D Perovskite Fieldâ€Effect Transistors by Forming Organic Semiconductor/Perovskite van der Waals Heterojunctions. Advanced Electronic Materials, 2022, 8, .	2.6	10
94	Promoting the optoelectronic and ferromagnetic properties of Cr2S3 nanosheets via Se doping. Science China: Physics, Mechanics and Astronomy, 2022, 65, .	2.0	10
95	Nanowires: Anomalous and Highly Efficient InAs Nanowire Phototransistors Based on Majority Carrier Transport at Room Temperature (Adv. Mater. 48/2014). Advanced Materials, 2014, 26, 8232-8232.	11.1	9
96	Hysteresis-free MoS₂ metal semiconductor field-effect transistors with van der Waals Schottky junction. Nanotechnology, 2021, 32, 135201.	1.3	9
97	Synergistic effect of V/N codoping by ion implantation on the electronic and optical properties of TiO2. Journal of Applied Physics, 2014, 115, 143106.	1.1	8
98	Photodetectors: Ultrasensitive and Broadband MoS₂ Photodetector Driven by Ferroelectrics (Adv. Mater. 42/2015). Advanced Materials, 2015, 27, 6538-6538.	11.1	8
99	Prediction of Stable and High-Performance Charge Transport in Zigzag Tellurene Nanoribbons. IEEE Transactions on Electron Devices, 2019, 66, 2365-2369.	1.6	8
100	Tunable Electrical Properties in High-Valent Transition-Metal-Doped ZnO Thin-Film Transistors. IEEE Electron Device Letters, 2014, 35, 759-761.	2.2	7
101	Black phosphorus field effect transistors stable in harsh conditions via surface engineering. Applied Physics Letters, 2020, 117, .	1.5	7
102	Ladder-like metal oxide nanowires: Synthesis, electrical transport, and enhanced light absorption properties. Nano Research, 2014, 7, 272-283.	5.8	6
103	Correlation of Molecular Structure and Charge Transport Properties: A Case Study in Naphthalenediimideâ€“Based Copolymer Semiconductors. Advanced Electronic Materials, 2018, 4, 1800203.	2.6	6
104	Ultrathin dielectrics for 2D devices. Nature Electronics, 2019, 2, 559-560.	13.1	6
105	Themed issue: flexible electronics. Journal of Materials Chemistry C, 2014, 2, 1176.	2.7	5
106	MoS₂ Homojunctions Transistors Enabled by Dimension Tailoring Strategy. Advanced Electronic Materials, 2021, 7, 2100703.	2.6	5
107	Electrical Properties in Group IV Elements-Doped ZnO Thin-Film Transistors. Journal of Display Technology, 2015, 11, 670-673.	1.3	4
108	Comprehensive insights into effect of van der Waals contact on carbon nanotube network field-effect transistors. Applied Physics Letters, 2019, 115, .	1.5	4

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109	High-Performance WSeâ„‚ n-Type Field-Effect Transistors Enabled by InOâ„‚ Damage-Free Doping. IEEE Electron Device Letters, 2021, 42, 1081-1084.	2.2	4
110	Directly Grown K_{0.33}WO₃ Nanosheet Film Electrode for Fast Direct Electron Transfer of Protein. ChemElectroChem, 2014, 1, 463-470.	1.7	3
111	Au Nanoarrays: Surface Plasmon-Enhanced Photodetection in Few Layer MoS2Phototransistors with Au Nanostructure Arrays (Small 20/2015). Small, 2015, 11, 2346-2346.	5.2	3
112	Triblock copolymer-assisted construction of 20 nm-sized ytterbium-doped TiO2 hollow nanostructures for enhanced solar energy utilization efficiency. Science China Chemistry, 2015, 58, 850-857.	4.2	3
113	Transparent megahertz circuits from solution-processed composite thin films. Nanoscale, 2016, 8, 7978-7983.	2.8	3
114	Low-Power, High-Sensitivity Temperature Sensor Based on Ultrathin SOI Lateral p-i-n Gated Diode. IEEE Transactions on Electron Devices, 2019, 66, 4001-4007.	1.6	3
115	Photodetectors: High-Responsivity Graphene/InAs Nanowire Heterojunction Near-Infrared Photodetectors with Distinct Photocurrent On/Off Ratios (Small 8/2015). Small, 2015, 11, 890-890.	5.2	2
116	Hydrogen Annealing Effect on the Magnetic Properties of ZnCoO/MoS2 Hybrid. Journal of Superconductivity and Novel Magnetism, 2018, 31, 1241-1245.	0.8	2
117	Electronic Fluctuation of Graphene Nanoribbon MOSFETs Under a Full Quantum Dynamics Framework. IEEE Transactions on Electron Devices, 2021, 68, 1980-1985.	1.6	2
118	Non-Linear Output-Conductance Function for Robust Analysis of Two-Dimensional Transistors. IEEE Electron Device Letters, 2021, 42, 94-97.	2.2	2
119	Solution-Processed Quantum-Dots Light-Emitting Transistors With Equivalent Efficiency of Light-Emitting Diodes. IEEE Transactions on Electron Devices, 2022, 69, 521-524.	1.6	2
120	Interface engineering for high-performance top-gated MoS<inf>2</inf> field effect transistors. , 2014, , .		1
121	Comment on â€œMetal Semiconductor Field-Effect Transistor with MoS2/Conducting NiOx van der Waals Schottky Interface for Intrinsic High Mobility and Photoswitching Speedâ€• ACS Nano, 2016, 10, 1714-1715.	7.3	1
122	Graphene: Confining Cation Injection to Enhance CBRAM Performance by Nanopore Graphene Layer (Small 35/2017). Small, 2017, 13, .	5.2	1
123	More than Graphene. Small, 2017, 13, 1702559.	5.2	1
124	Origin of low-temperature negative transconductance in multilayer MoS2 transistors. Applied Physics Letters, 2021, 119, .	1.5	1
125	Fast Response GaAs Photodetector Based on Constructing Electron Transmission Channel. Crystals, 2021, 11, 1160.	1.0	1
126	High-Current Omega-Shaped Gated MoSâ„‚ Transistors. IEEE Transactions on Electron Devices, 2022, 69, 816-819.	1.6	1

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127	Strain Release Enabled Bandgap Scaling in Ge Nanowire and Tunnel FET Application. IEEE Transactions on Electron Devices, 2022, 69, 4725-4729.	1.6	1
128	Heterointegration of Pt/Si/Ag Nanowire Photodiodes and Their Photocatalytic Properties. Advanced Functional Materials, 2010, 20, n/a-n/a.	7.8	0
129	Research on vibration serviceability of the nonlinear tractor suspension system. , 2011, , .		0
130	51.4: Invited Paper: High Performance Flexible TFTs from Oxide/Carbon Heterostructures. Digest of Technical Papers SID International Symposium, 2015, 46, 775-777.	0.1	0
131	High-Performance MoS2 Field Effect Transistors. , 2018, , .		0
132	15.3: Defect Engineering in nâ€Type Oxide Semiconductor TFTs. Digest of Technical Papers SID International Symposium, 2021, 52, 101-101.	0.1	0
133	29.3: Invited Paper: Defect Engineering in n â€Type Oxide Semiconductor TFTs. Digest of Technical Papers SID International Symposium, 2021, 52, 400-400.	0.1	0