

# Shu Yang

## List of Publications by Year in descending order

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83  
papers

3,630  
citations

172386

29  
h-index

155592

55  
g-index

84  
all docs

84  
docs citations

84  
times ranked

2545  
citing authors

#	ARTICLE	IF	CITATIONS
1	The 2018 GaN power electronics roadmap. Journal Physics D: Applied Physics, 2018, 51, 163001.	1.3	843
2	600-V Normally Off $\text{SiN}_x/\text{AlGaIn}/\text{GaN}$ MIS-HEMT With Large Gate Swing and Low Current Collapse. IEEE Electron Device Letters, 2013, 34, 1373-1375.	2.2	223
3	Effective Passivation of AlGaIn/GaN HEMTs by ALD-Grown AlN Thin Film. IEEE Electron Device Letters, 2012, 33, 516-518.	2.2	213
4	High-Quality Interface in $\text{Al}_2\text{O}_3/\text{GaN}/\text{AlGaIn}/\text{GaN}$ MIS Structures With In Situ Pre-Gate Plasma Nitridation. IEEE Electron Device Letters, 2013, 34, 1497-1499.	2.2	160
5	Dynamic on-State Resistance Test and Evaluation of GaN Power Devices Under Hard- and Soft-Switching Conditions by Double and Multiple Pulses. IEEE Transactions on Power Electronics, 2019, 34, 1044-1053.	5.4	126
6	Mechanism of PEALD-Grown AlN Passivation for AlGaIn/GaN HEMTs: Compensation of Interface Traps by Polarization Charges. IEEE Electron Device Letters, 2013, 34, 193-195.	2.2	110
7	High-Voltage and High- $I_{\text{ON}}/I_{\text{OFF}}$ Vertical GaN-on-GaN Schottky Barrier Diode With Nitridation-Based Termination. IEEE Electron Device Letters, 2018, 39, 572-575.	2.2	105
8	$\text{Al}_2\text{O}_3/\text{AlN}/\text{GaN}$ MOS-Channel-HEMTs With an AlN Interfacial Layer. IEEE Electron Device Letters, 2014, 35, 723-725.	2.2	104
9	Characterization of Leakage and Reliability of $\text{SiN}_x$ Gate Dielectric by Low-Pressure Chemical Vapor Deposition for GaN-based MIS-HEMTs. IEEE Transactions on Electron Devices, 2015, 62, 3215-3222.	1.6	89
10	Dynamic On-Resistance in GaN Power Devices: Mechanisms, Characterizations, and Modeling. IEEE Journal of Emerging and Selected Topics in Power Electronics, 2019, 7, 1425-1439.	3.7	85
11	GaN-Based Metal-Insulator-Semiconductor High-Electron-Mobility Transistors Using Low-Pressure Chemical Vapor Deposition $\text{SiN}_x$ as Gate Dielectric. IEEE Electron Device Letters, 2015, 36, 448-450.	2.2	84
12	Threshold Voltage Instability in $\text{Al}_2\text{O}_3/\text{GaN}/\text{AlGaIn}/\text{GaN}$ Metal-Insulator-Semiconductor High-Electron Mobility Transistors. Japanese Journal of Applied Physics, 2011, 50, 110202.	0.8	79
13	AC-Capacitance Techniques for Interface Trap Analysis in GaN-Based Buried-Channel MIS-HEMTs. IEEE Transactions on Electron Devices, 2015, 62, 1870-1878.	1.6	79
14	Interface/border trap characterization of $\text{Al}_2\text{O}_3/\text{AlN}/\text{GaN}$ metal-oxide-semiconductor structures with an AlN interfacial layer. Applied Physics Letters, 2015, 106, .	1.5	74
15	Threshold Voltage Instability in $\text{Al}_2\text{O}_3/\text{GaN}/\text{AlGaIn}/\text{GaN}$ Metal-Insulator-Semiconductor High-Electron Mobility Transistors. Japanese Journal of Applied Physics, 2011, 50, 110202.	0.8	71
16	Impact of Substrate Bias Polarity on Buffer-Related Current Collapse in AlGaIn/GaN-on-Si Power Devices. IEEE Transactions on Electron Devices, 2017, 64, 5048-5056.	1.6	69
17	Characterization of VT-instability in enhancement-mode $\text{Al}_2\text{O}_3\text{-AlGaIn}/\text{GaN}$ MIS-HEMTs. Physica Status Solidi C: Current Topics in Solid State Physics, 2013, 10, 1397-1400.	0.8	66
18	Fluorine-Implanted Termination for Vertical GaN Schottky Rectifier With High Blocking Voltage and Low Forward Voltage Drop. IEEE Electron Device Letters, 2019, 40, 1040-1043.	2.2	61

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19	O3-sourced atomic layer deposition of high quality Al <sub>2</sub> O <sub>3</sub> gate dielectric for normally-off GaN metal-insulator-semiconductor high-electron-mobility transistors. Applied Physics Letters, 2015, 106, .	1.5	58
20	Current-Collapse-Free and Fast Reverse Recovery Performance in Vertical GaN-on-GaN Schottky Barrier Diode. IEEE Transactions on Power Electronics, 2019, 34, 5012-5018.	5.4	56
21	Thermally Stable Enhancement-Mode GaN Metal-Insulator-Semiconductor High-Electron-Mobility Transistor With Partially Recessed Fluorine-Implanted Barrier. IEEE Electron Device Letters, 2015, 36, 318-320.	2.2	55
22	Investigation of buffer traps in AlGaIn/GaN-on-Si devices by thermally stimulated current spectroscopy and back-gating measurement. Applied Physics Letters, 2014, 104, .	1.5	50
23	High- $f_{MAX}$ High Johnson's Figure-of-Merit 0.2- $\mu m$ Gate AlGaIn/GaN HEMTs on Silicon Substrate With $AlN/SiN_x$ Passivation. IEEE Electron Device Letters, 2014, 35, 315-317.	2.2	50
24	High RF Performance Enhancement-Mode Al <sub>0.2</sub> O <sub>3</sub> /AlGaIn/GaN MIS-HEMTs Fabricated With High-Temperature Gate-Recess Technique. IEEE Electron Device Letters, 2015, 36, 754-756.	2.2	49
25	Fabrication and Characterization of Enhancement-Mode High- $\kappa$ -AlGaIn/GaN MIS-HEMTs. IEEE Transactions on Electron Devices, 2013, 60, 3040-3046.	1.6	46
26	Surface nitridation for improved dielectric/nitride interfaces in GaN MIS-HEMTs. Physica Status Solidi (A) Applications and Materials Science, 2015, 212, 1059-1065.	0.8	41
27	AlGaIn/GaN MISHEMTs With High- $\kappa$ Al <sub>2</sub> O <sub>3</sub> Gate Dielectric. IEEE Electron Device Letters, 2012, 33, 979-981.	2.2	40
28	Dynamic Gate Stress-Induced $V_{TH}$ Shift and Its Impact on Dynamic $R_{ON}$ in GaN MIS-HEMTs. IEEE Electron Device Letters, 2016, 37, 157-160.	2.2	36
29	Mapping of interface traps in high-performance Al <sub>0.2</sub> O <sub>3</sub> /AlGaIn/GaN MIS-heterostructures using frequency- and temperature-dependent C-V techniques. , 2013, , .		32
30	Substrate-Coupled Cross-Talk Effects on an AlGaIn/GaN-on-Si Smart Power IC Platform. IEEE Transactions on Electron Devices, 2014, 61, 3808-3813.	1.6	32
31	Characterization of $V_{th}$ instability in Al <sub>0.2</sub> O <sub>3</sub> /GaIn/AlGaIn/GaN MIS-HEMTs by quasi-static $C-V$ measurement. Physica Status Solidi C: Current Topics in Solid State Physics, 2012, 9, 923-926.	0.8	29
32	Thermally induced threshold voltage instability of III-Nitride MIS-HEMTs and MOSC-HEMTs: Underlying mechanisms and optimization schemes. , 2014, , .		28
33	Optimization of gate geometry towards high-sensitivity AlGaIn/GaN pH sensor. Talanta, 2019, 205, 120134.	2.9	22
34	1 MHz 48V 12 V Regulated DCX With Single Transformer. IEEE Journal of Emerging and Selected Topics in Power Electronics, 2021, 9, 38-47.	3.7	20
35	Mechanisms of thermally induced threshold voltage instability in GaN-based heterojunction transistors. Applied Physics Letters, 2014, 105, .	1.5	19
36	High-Temperature Characterization of a 1.2-kV SiC MOSFET Using Dynamic Short-Circuit Measurement Technique. IEEE Journal of Emerging and Selected Topics in Power Electronics, 2020, 8, 215-222.	3.7	19

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37	Conductivity Modulation in Vertical GaN PiN Diode: Evidence and Impact. IEEE Electron Device Letters, 2021, 42, 300-303.	2.2	19
38	Normally off Al <sub>0.2</sub> Ga <sub>0.8</sub> N/GaN MIS-HEMT With Transparent Gate Electrode for Gate Degradation Investigation. IEEE Transactions on Electron Devices, 2015, 62, 821-827.	1.6	18
39	GaN vertical conduction mechanisms in AlGaIn/GaN lateral heterojunction FET structures. Physica Status Solidi C: Current Topics in Solid State Physics, 2014, 11, 949-952.	0.8	17
40	Photon-Enhanced Conductivity Modulation and Surge Current Capability in Vertical GaN Power Rectifiers. , 2019, , .		17
41	Effects of interface oxidation on the transport behavior of the two-dimensional-electron-gas in AlGaIn/GaN heterostructures by plasma-enhanced-atomic-layer-deposited AlN passivation. Journal of Applied Physics, 2013, 114, .	1.1	16
42	Characterization of SiN <sub>x</sub> /AlN passivation stack with epitaxial AlN grown on AlGaIn/GaN heterojunctions by plasma-enhanced atomic layer deposition. Applied Physics Express, 2015, 8, 064101.	1.1	16
43	Trench Termination With SiO <sub>2</sub> -Encapsulated Dielectric for Near-Ideal Breakdown Voltage in 4H-SiC Devices. IEEE Electron Device Letters, 2018, 39, 1900-1903.	2.2	16
44	Investigation of Temperature-Dependent Dynamic R <sub>ON</sub> of GaN HEMT with Hybrid-Drain under Hard and Soft Switching. , 2020, , .		14
45	Investigation of Surge Current Capability of GaN E-HEMTs in The Third Quadrant: The Impact of P-GaN Contact. IEEE Journal of Emerging and Selected Topics in Power Electronics, 2019, 7, 1465-1474.	3.7	13
46	Characterization of high- $\hat{\rho}$ LaLuO <sub>3</sub> thin film grown on AlGaIn/GaN heterostructure by molecular beam deposition. Applied Physics Letters, 2011, 99, 182103.	1.5	12
47	Trapping mechanisms in insulated-gate GaN power devices: Understanding and characterization techniques. Physica Status Solidi (A) Applications and Materials Science, 2017, 214, 1600607.	0.8	10
48	Toward reliable MIS- and MOS-gate structures for GaN lateral power devices. Physica Status Solidi (A) Applications and Materials Science, 2016, 213, 861-867.	0.8	9
49	Low limit of detection of the AlGaIn/GaN-based sensor by the Kelvin connection detection technique. Microsystems and Nanoengineering, 2021, 7, 51.	3.4	9
50	650-V GaN-based MIS-HEMTs using LPCVD-SiN <sub>x</sub> as passivation and gate dielectric. , 2015, , .		8
51	Gate stack engineering for GaN lateral power transistors. Semiconductor Science and Technology, 2016, 31, 024001.	1.0	8
52	A MHz Regulated DC Transformer with Wide Voltage Range. , 2018, , .		8
53	A Wide Output LLC Converter Based on Full Bridge and Half Bridge Topology Morphing Method Using Trajectory Transition. , 2018, , .		8
54	Performance enhancement of normally-off Al <sub>2</sub> O <sub>3</sub> /AlN/GaN MOS-Channel-HEMTs with an ALD-grown AlN interfacial layer. , 2014, , .		7

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55	Impact of $V_{th}$ shift on $R_{on}$ in E/D-mode GaN-on-Si power transistors: Role of dynamic stress and gate overdrive. , 2016, , .		7
56	GaN-on-Si lateral power devices with symmetric vertical leakage: The impact of floating substrate. , 2018, , .		7
57	Design and Characterization of Area-Efficient Trench Termination for 4H-SiC Devices. IEEE Journal of Emerging and Selected Topics in Power Electronics, 2019, 7, 1519-1526.	3.7	6
58	The Leakage Mechanism of the Package of the AlGaIn/GaN Liquid Sensor. Materials, 2020, 13, 1903.	1.3	6
59	Enhancement-Mode LaLuO <sub>3</sub> AlGaIn/GaN Metal-Insulator-Semiconductor High-Electron-Mobility Transistors Using Fluorine Plasma Ion Implantation. Japanese Journal of Applied Physics, 2013, 52, 08JN02.	0.8	5
60	Characterization of 1.2 kV SiC super-junction SBD implemented by trench and implantation technique. , 2018, , .		5
61	Surge capability of 1.2kV SiC diodes with high-temperature implantation. , 2018, , .		5
62	Surge Current Capability of GaN E-HEMTs in Reverse Conduction Mode. , 2019, , .		5
63	Vertical GaN power rectifiers: interface effects and switching performance. Semiconductor Science and Technology, 2021, 36, 024005.	1.0	5
64	Photolithographic Patterning of Cytop with Limited Contact Angle Degradation. Micromachines, 2018, 9, 509.	1.4	4
65	1 kV/1.3 m <sup>2</sup> vertical GaN-on-GaN Schottky barrier diodes with high switching performance. , 2018, , .		4
66	UIS Withstanding Capability of GaN E-HEMTs with Schottky and Ohmic p-GaN contact. , 2020, , .		4
67	Design and Optimization of Vertical GaN PiN Diodes With Fluorine-Implanted Termination. IEEE Journal of the Electron Devices Society, 2020, 8, 241-250.	1.2	4
68	High-resolution separation of DNA/proteins through nanorod sieving matrix. Biosensors and Bioelectronics, 2019, 137, 8-14.	5.3	3
69	The Safe Operating Area of AlGaIn/GaN-Based Sensor. IEEE Sensors Journal, 2021, 21, 6241-6247.	2.4	3
70	Correction to "Thermally Stable Enhancement-Mode GaN Metal-Insulator-Semiconductor High-Electron-Mobility Transistor With Partially Recessed Fluorine-Implanted Barrier" [Apr 15 318-320]. IEEE Electron Device Letters, 2015, 36, 624-624.	2.2	2
71	Buffer trapping-induced R <sub>on</sub> degradation in GaN-on-Si power transistors: Role of electron injection from Si substrate. , 2017, , .		2
72	Optimal design of SiC MOSFETs for 20kW DCDC converter. , 2017, , .		2

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73	Monolithically integrated 600-V E/D-mode SiN<sub>x</sub>/AlGaIn/GaN MIS-HEMTs and their applications in low-standby-power start-up circuit for switched-mode power supplies. , 2013, , .		1
74	Negative Dynamic RON in Vertical GaN PiN Diode: The Impact of Conductivity Modulation. , 2020, , .		1
75	Low ON-Resistance Fully-Vertical GaN-on-SiC Schottky Barrier Diode with Conductive Buffer Layer. , 2022, , .		1
76	Nitridation interfacial-layer technology: Enabling low interface trap density and high stability in III-nitride MIS-HEMTs. , 2014, , .		0
77	Surface nitridation for improved dielectric/III-nitride interfaces in GaN MIS-HEMTs (Phys. Status Solidi A) Tj ETQq <sub>1</sub> 1 0.784314 rgBT / 0.8	0.8	0
78	Nitridation interfacial-layer technology for enhanced stability in GaN-based power devices. , 2015, , .		0
79	Design of Fluorine-Ion-Based Junction Termination Extension for Vertical GaN Schottky Rectifier. , 2018, , .		0
80	Correction to "Trench Termination With SiO <sub>2</sub> -Encapsulated Dielectric for Near-Ideal Breakdown Voltage in 4H-SiC Devices" [Dec 18 1900-1903]. IEEE Electron Device Letters, 2019, 40, 353-353.	2.2	0
81	Investigation on Thermal Resistance and Capacitance Characteristics of a Highly Integrated Power Control Unit Module. Electronics (Switzerland), 2021, 10, 958.	1.8	0
82	Evaluation of Semicircular Bend Geometric Properties for Asphalt Concrete Testing. Journal of Materials in Civil Engineering, 2021, 33, 04021342.	1.3	0
83	Thermal Resistance and Capacitance Characteristics of A 4-in-1 Integrated Power Control Unit (PCU) Module for Hybrid Electrical Vehicle (HEV). , 2020, , .		0