

# Matthew Charles

## List of Publications by Year in descending order

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Version: 2024-02-01

60  
papers

1,248  
citations

840585

11  
h-index

377752

34  
g-index

60  
all docs

60  
docs citations

60  
times ranked

1523  
citing authors

#	ARTICLE	IF	CITATIONS
1	H3PO4-based wet chemical etching for recovery of dry-etched GaN surfaces. Applied Surface Science, 2022, 582, 152309.	3.1	13
2	Impact of Substrate Biasing During AlN Growth by PEALD on Al <sub>2</sub> O <sub>3</sub> /AlN/GaN MOS Capacitors. Advanced Materials Interfaces, 2022, 9, 2101731.	1.9	2
3	H2 based etching of GaN for re-grown gallium-free InAlN barriers giving very low 2DEG sheet resistance of 185Ω/sq. Journal of Crystal Growth, 2022, 588, 126674.	0.7	2
4	Accurate statistical extraction of AlGaIn/GaN HEMT device parameters using the Y-function. Solid-State Electronics, 2021, 184, 108078.	0.8	7
5	Thermoelectric Properties of n-type GaN and 2D Electron Gas in AlGaIn-GaN Heterostructure. Journal of Electronic Materials, 2021, 50, 1301-1306.	1.0	3
6	Parasitic Capacitance Analysis in Short Channel GaN MIS-HEMTs. , 2021, , .		0
7	Thorough Investigation of Low Frequency Noise Mechanisms in Al <sub>2</sub> O <sub>3</sub> /GaN HEMTs. , 2021, , .		0
8	Simple and Accurate Prediction of AlGaIn Metal-Organic Vapor Phase Epitaxy Growth. Physica Status Solidi (B): Basic Research, 2020, 257, 1900576.	0.7	0
9	Analysis of MIS-HEMT Device Edge Behavior for GaN Technology Using New Differential Method. IEEE Transactions on Electron Devices, 2020, 67, 4649-4653.	1.6	4
10	Unravelling the unwanted Ga incorporation effect on InGaIn epilayers grown in CCS MOVPE reactors. Journal of Crystal Growth, 2020, 536, 125596.	0.7	3
11	Analysis of hole-like traps in deep level transient spectroscopy spectra of AlGaIn/GaN heterojunctions. Journal Physics D: Applied Physics, 2020, 53, 185105.	1.3	2
12	X-Ray Diffraction Microstrain Analysis for Extraction of Threading Dislocation Density of GaN Films Grown on Silicon, Sapphire, and SiC Substrates. Physica Status Solidi (B): Basic Research, 2020, 257, 1900579.	0.7	8
13	Y-Function Based Methodology for Accurate Statistical Extraction of HEMT Device Parameters for GaN Technology. , 2020, , .		4
14	Advanced Substrates for GaN-Based Power Devices. , 2019, , .		1
15	SiGe nano-heteroepitaxy: An investigation of the nano-template. Journal of Crystal Growth, 2019, 527, 125232.	0.7	1
16	Doping of GaN grown on silicon via ion implantation. , 2019, , .		0
17	Study of deep traps in AlGaIn/GaN high-electron mobility transistors by electrical characterization and simulation. Journal of Applied Physics, 2019, 125, .	1.1	9
18	V-pit pinning at the interface of high and low-temperature gallium nitride growth. Japanese Journal of Applied Physics, 2019, 58, SC1035.	0.8	4

#	ARTICLE	IF	CITATIONS
19	Characterization and modeling of 2DEG mobility in AlGa <sub>N</sub> /AlN/GaN MIS-HEMT. Microelectronic Engineering, 2019, 215, 110976.	1.1	24
20	Nano-Heteroepitaxy: An Investigation of SiGe Pillars Coalescence. ECS Journal of Solid State Science and Technology, 2019, 8, P180-P185.	0.9	0
21	Extraction of stress and dislocation density using in-situ curvature measurements for AlGa <sub>N</sub> and GaN on silicon growth. Journal of Crystal Growth, 2019, 517, 64-67.	0.7	4
22	Solving the problem of gallium contamination problem in InAlN layers in close coupled showerhead reactors. Applied Physics Express, 2019, 12, 045504.	1.1	6
23	Impact of growth conditions on AlN/GaN heterostructures with in-situ SiN capping layer. Journal of Crystal Growth, 2019, 515, 48-52.	0.7	2
24	Gate length effect on trapping properties in AlGa <sub>N</sub> /GaN high-electron-mobility transistors. Semiconductor Science and Technology, 2019, 34, 045011.	1.0	4
25	Understanding and controlling Ga contamination in InAlN barrier layers. Journal of Crystal Growth, 2019, 507, 139-142.	0.7	9
26	High growth rate GaN on 200mm silicon by metal-organic vapor phase epitaxy for high electron mobility transistors. Journal of Crystal Growth, 2018, 483, 89-93.	0.7	9
27	SiGe nano-heteroepitaxy on Si and SiGe nano-pillars. Nanotechnology, 2018, 29, 275702.	1.3	6
28	The Characterization and Optimization of GaN Cap Layers and SiN Cap Layers on AlGa <sub>N</sub> /GaN HEMT Structures Grown on 200mm GaN on Silicon. Physica Status Solidi (B): Basic Research, 2018, 255, 1700406.	0.7	21
29	The 2018 GaN power electronics roadmap. Journal Physics D: Applied Physics, 2018, 51, 163001.	1.3	843
30	Multitechnique elemental depth profiling of InAlGa <sub>N</sub> and InAlN films. Journal of Vacuum Science and Technology B: Nanotechnology and Microelectronics, 2018, 36, .	0.6	10
31	Nano-Heteroepitaxy: An Investigation of SiGe Nano-Pillars Coalescence. ECS Transactions, 2018, 86, 249-258.	0.3	1
32	<i>(Invited)</i> Epitaxy of GaN on Si (111) for Power Electronics, RF and LEDs. ECS Transactions, 2018, 86, 233-247.	0.3	4
33	III-N Epitaxy on Si for Power Electronics. , 2018, , 115-158.		1
34	Performance enhancement of CMOS compatible 600V rated AlGa <sub>N</sub> /GaN Schottky diodes on 200mm silicon wafers. , 2018, , .		2
35	On the Understanding of Cathode Related Trapping Effects in GaN-on-Si Schottky Diodes. IEEE Journal of the Electron Devices Society, 2018, 6, 956-964.	1.2	8
36	Characterization of 2DEG in AlGa <sub>N</sub> /GaN heterostructure by Hall effect. Microelectronic Engineering, 2017, 178, 128-131.	1.1	12

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37	Effects of negative bias stress on trapping properties of AlGaIn/GaN Schottky barrier diodes. Microelectronic Engineering, 2017, 178, 158-163.	1.1	11
38	Invited Paper: A Novel Process for Fabricating High-Resolution and Very Small Pixel-Pitch GaN LED Microdisplays. Digest of Technical Papers SID International Symposium, 2017, 48, 268-271.	0.1	16
39	Developments in understanding the nucleation of AlN on silicon by MOCVD and its effects on defects. Physica Status Solidi (A) Applications and Materials Science, 2017, 214, 1600431.	0.8	5
40	Coherent tunneling in an AlGaIn/AlN/GaN heterojunction captured through an analogy with a MOS contact. Scientific Reports, 2017, 7, 8177.	1.6	14
41	A microsecond time resolved current collapse test setup dedicated to GaN-based Schottky diode characterization. , 2017, , .		2
42	Novel C-V measurements based method for the extraction of GaN buffer layer residual doping level in HEMT. , 2017, , .		1
43	The effect of AlN nucleation temperature on inverted pyramid defects in GaN layers grown on 200 mm silicon wafers. Journal of Crystal Growth, 2017, 464, 164-167.	0.7	20
44	Capping stability of Mg-implanted GaN layers grown on silicon. Physica Status Solidi (A) Applications and Materials Science, 2017, 214, 1600487.	0.8	5
45	Ion-assisted gate recess process induced damage in GaN channel of AlGaIn/GaN Schottky barrier diodes studied by deep level transient spectroscopy. Japanese Journal of Applied Physics, 2017, 56, 04CG01.	0.8	12
46	Thermal Evolution of Implantation Damages in Mg-Implanted GaN Layers Grown on Si. ECS Transactions, 2017, 80, 131-138.	0.3	6
47	On the understanding of cathode related trapping effects in GaN-on-Si Schottky diodes. , 2017, , .		3
48	TCAD for gate stack optimization in pGaN Gate HEMT devices. , 2017, , .		2
49	Leakage Current Paths in Isolated AlGaIn/GaN Heterostructures. IEEE Transactions on Semiconductor Manufacturing, 2016, 29, 363-369.	1.4	6
50	From epitaxy to converters topologies what issues for 200 mm GaN/Si?. , 2015, , .		9
51	Power electronics with wide bandgap materials: Toward greener, more efficient technologies. MRS Bulletin, 2015, 40, 390-395.	1.7	71
52	Influence of epitaxy and gate deposition process on Ron resistance of AlGaIn/GaN-on-Si HEMT. , 2015, , .		3
53	Novel sheet resistance measurement on AlGaIn/GaN HEMT wafer adapted from four-point probe technique. , 2015, , .		7
54	Complete solid state lighting (SSL) line at CEA LETI. Proceedings of SPIE, 2014, , .	0.8	1

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55	AlGaIn/GaN MIS-HEMT gate structure improvement using Al <sub>2</sub> O <sub>3</sub> deposited by plasma-enhanced ALD. Microelectronic Engineering, 2013, 109, 378-380.	1.1	7
56	Sheet resistance measurement on AlGaIn/GaN wafers and dispersion study. Microelectronic Engineering, 2013, 109, 334-337.	1.1	6
57	Modification of the surface morphology of silicon(111) with growth temperature. Surface Science, 2013, 608, 199-203.	0.8	1
58	AlGaIn/GaN MIS-HEMT Gate Structure Improvement Using Al <sub>2</sub> O <sub>3</sub> Deposited by PEALD and BCl <sub>3</sub> Gate Recess Etching. ECS Transactions, 2013, 58, 269-277.	0.3	2
59	XPS Analysis of AlGaIn/GaN Surface after Chemical and N-Containing Plasma Treatments. ECS Transactions, 2013, 50, 451-460.	0.3	8
60	GaN HEMTs on silicon for power devices. , 2012, , .		1