William Alan Doolittle

List of Publications by Year
in descending order

96 papers	1,848 citations	218592 26 h-index	330025 37 g-index
97 all docs	97 docs citations	97 times ranked	1749 citing authors

#	Article	IF	Citations
1	Wet-based digital etching on GaN and AlGaN. Applied Physics Letters, 2022, 120, .	1.5	4
2	GaN:Be I-Layer-Based High-Power p-i-n Diodes Achieving Large Quasi-Vertical MBE Breakdown Performance. IEEE Transactions on Electron Devices, 2022, , 1-7.	1.6	0
3	Realization of homojunction PN AlN diodes. Journal of Applied Physics, 2022, 131, .	1.1	16
4	Stable and High Performance AlGaN Self-Aligned-Gate Field Emitter Arrays. IEEE Electron Device Letters, 2022, 43, 1351-1354.	2.2	8
5	Upper limits to thermal conductance across gallium nitride interfaces: Predictions and measurements. , 2022, , 83-102.		0
6	Epitaxy of LiNbO3: Historical Challenges and Recent Success. Crystals, 2021, 11, 397.	1.0	11
7	Quantum Statistical Transport Phenomena in Memristive Computing Architectures. Physical Review Applied, 2021, 15, .	1.5	2
8	Thermal conductivity measurements of sub-surface buried substrates by steady-state thermoreflectance. Review of Scientific Instruments, 2021, 92, 064906.	0.6	17
9	Substantial Pâ€Type Conductivity of AlN Achieved via Beryllium Doping. Advanced Materials, 2021, 33, e2104497.	11.1	33
10	High thermal conductivity and thermal boundary conductance of homoepitaxially grown gallium nitride (GaN) thin films. Physical Review Materials, 2021, 5, .	0.9	10
11	Adlayer control for tunable AlGaN self-assembled superlattices. Journal of Applied Physics, 2021, 130, .	1.1	5
12	p-type AlN based heteroepitaxial diodes with Schottky, Pin, and junction barrier Schottky character achieving significant breakdown performance. Journal of Applied Physics, 2021, 130, 195702.	1.1	3
13	Thermal conductance across harmonic-matched epitaxial Al-sapphire heterointerfaces. Communications Physics, 2020, 3, .	2.0	41
14	Comprehensive Analysis of Metal Modulated Epitaxial GaN. ACS Applied Materials & Interfaces, 2020, 12, 37693-37712.	4.0	15
15	Thermal boundary conductance across epitaxial metal/sapphire interfaces. Physical Review B, 2020, 102, .	1.1	26
16	Communicationâ€"Impact of Electrode Chemistry on the Non-Volatile Performance of Lithium Niobite Memristors for Neuromorphic Computing. ECS Journal of Solid State Science and Technology, 2020, 9, 055018.	0.9	3
17	Beryllium doped semi-insulating GaN without surface accumulation for homoepitaxial high power devices. Journal of Applied Physics, 2020, 127, 215703.	1.1	13
18	Temporal versatility from intercalation-based neuromorphic devices exhibiting 150â€‰mV non-volatile operation. Journal of Applied Physics, 2020, 127, .	1.1	12

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19	Controlling surface adatom kinetics for improved structural and optical properties of high indium content aluminum indium nitride. Journal of Applied Physics, 2020, 127, .	1.1	7
20	Experimental and computational analysis of thermal environment in the operation of HfO2 memristors. AIP Advances, 2020, 10, .	0.6	13
21	Computational Investigation of Nanoscale Memristor Devices for Neuromorphic Computing. , 2019, , .		1
22	Observation and mitigation of RF-plasma-induced damage to III-nitrides grown by molecular beam epitaxy. Journal of Applied Physics, 2019, 126, .	1.1	9
23	Ultra-wide-bandgap AlGaN homojunction tunnel diodes with negative differential resistance. Applied Physics Letters, 2019, 115, .	1.5	23
24	The role of Mg bulk hyper-doping and delta-doping in low-resistance GaN homojunction tunnel diodes with negative differential resistance. Journal of Applied Physics, 2019, 126, 083110.	1.1	7
25	Thinâ€Film Lithium Niobites and Their Chemical Properties for Lithiumâ€Ion Storage and Diffusion. ChemElectroChem, 2019, 6, 5109-5115.	1.7	6
26	Evidence of a second-order Peierls-driven metal-insulator transition in crystalline NbO2. Physical Review Materials, 2019, 3, .	0.9	18
27	Scalable Memdiodes Exhibiting Rectification and Hysteresis for Neuromorphic Computing. Scientific Reports, 2018, 8, 12935.	1.6	17
28	Negative differential resistance in GaN homojunction tunnel diodes and low voltage loss tunnel contacts. Applied Physics Letters, 2018, 112, .	1.5	27
29	InGaN solar cells with regrown GaN homojunction tunnel contacts. Applied Physics Express, 2018, 11, 082304.	1.1	22
30	Molecular Beam Epitaxy of lithium niobium oxide multifunctional materials. Journal of Crystal Growth, 2017, 463, 156-161.	0.7	9
31	A review of the synthesis of reduced defect density InxGa1âˆ’xN for all indium compositions. Solid-State Electronics, 2017, 136, 3-11.	0.8	19
32	The crystallization and properties of sputter deposited lithium niobite. Thin Solid Films, 2016, 609, 6-11.	0.8	7
33	Molecular Beam Epitaxy Growth of High Crystalline Quality LiNbO3. Journal of Electronic Materials, 2016, 45, 6292-6299.	1.0	15
34	III-Nitride Double-Heterojunction Solar Cells With High In-Content InGaN Absorbing Layers: Comparison of Large-Area and Small-Area Devices. IEEE Journal of Photovoltaics, 2016, 6, 460-464.	1.5	23
35	Defect reduction in MBE-grown AlN by multicycle rapid thermal annealing. Electronic Materials Letters, 2016, 12, 133-138.	1.0	12
36	Control of ion content and nitrogen species using a mixed chemistry plasma for GaN grown at extremely high growth rates >9â€‰<i>Î¼</i>m/h by plasma-assisted molecular beam epitaxy. Journal of Applied Physics, 2015, 118, .	1.1	28

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37	Molecular beam epitaxy growth of niobium oxides by solid/liquid state oxygen source and lithium assisted metal-halide chemistry. Journal of Crystal Growth, 2015, 425, 225-229.	0.7	8
38	Low-temperature growth of InGaN films over the entire composition range by MBE. Journal of Crystal Growth, 2015, 425, 115-118.	0.7	36
39	Self-Healing of Proton Damage in Lithium Niobite (<formula formulatype="inline"><tex) Tj ETQq1 1 0.784314 rgBT /Overlock 10 Science, 2015, 62, 542-547.	1.2	1
40	Comprehensive study of the electronic and optical behavior of highly degenerate p-type Mg-doped GaN and AlGaN. Journal of Applied Physics, 2015, 117, .	1.1	49
41	Evidence of ion intercalation mediated band structure modification and opto-ionic coupling in lithium niobite. Journal of Applied Physics, 2015, 117, .	1.1	9
42	Simulations, Practical Limitations, and Novel Growth Technology for InGaN-Based Solar Cells. IEEE Journal of Photovoltaics, 2014, 4, 601-606.	1.5	28
43	Guidelines and limitations for the design of high-efficiency InGaN single-junction solar cells. Solar Energy Materials and Solar Cells, 2014, 130, 354-363.	3.0	49
44	Liquid Phase Electro-Epitaxy of Memristive LiNbO₂ Crystals. Crystal Growth and Design, 2014, 14, 2218-2222.	1.4	13
45	Radiation Effects on LiNbO$_2$ Memristors for Neuromorphic Computing Applications. IEEE Transactions on Nuclear Science, 2013, 60, 4555-4562.	1.2	15
46	Spatiotemporal drift-diffusion simulations of analog ionic memristors. Journal of Applied Physics, 2013, 114, .	1.1	8
47	Comparison of Interfacial and Bulk Ionic Motion in Analog Memristors. IEEE Transactions on Electron Devices, 2013, 60, 427-432.	1.6	28
48	In situ Auger probe enabling epitaxy composition control of alloys by elemental surface analysis. Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics, 2013, 31, 03C126.	0.6	2
49	Structural and electrical characterization of InN, InGaN, and p-InGaN grown by metal-modulated epitaxy. Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics, 2013, 31, .	0.6	13
50	<i>In situ</i> investigation of the channel conductance of a Li1â^'xCoO2 (0â€‰<â€‰xâ€‰<â€‰0.5) ionic-electronic transistor. Applied Physics Letters, 2013, 102, .	1.5	18
51	<i>In-situ</i> oxygen x-ray absorption spectroscopy investigation of the resistance modulation mechanism in LiNbO2 memristors. Applied Physics Letters, 2012, 100, .	1.5	31
52	Observation and control of the surface kinetics of InGaN for the elimination of phase separation. Journal of Applied Physics, 2012, 112, .	1.1	38
53	Negligible carrier freeze-out facilitated by impurity band conduction in highly p-type GaN. Applied Physics Letters, 2012, 101, 082106.	1.5	68
54	Halide based MBE of crystalline metals and oxides. Physica Status Solidi C: Current Topics in Solid State Physics, 2012, 9, 155-160.	0.8	20

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55	Effect of IIIâ€nitride polarization on <i>V</i>_{OC} in pâ€"iâ€"n and MQW solar cells. Physica Status Solidi - Rapid Research Letters, 2011, 5, 86-88.	1.2	14
56	A versatile metal-halide vapor chemistry for the epitaxial growth of metallic, insulating and semiconducting films. Journal of Crystal Growth, 2011, 324, 134-141.	0.7	17
57	Passivation and activation of Mg acceptors in heavily doped GaN. Journal of Applied Physics, 2011, 110, .	1.1	17
58	High-Temperature Growth of GaN and Al x Ga1âˆ’x N via Ammonia-Based Metalorganic Molecular-Beam Epitaxy. Journal of Electronic Materials, 2010, 39, 473-477.	1.0	0
59	Control of surface adatom kinetics for the growth of high-indium content InGaN throughout the miscibility gap. Applied Physics Letters, 2010, 97, .	1.5	45
60	Complementary oxide memristor technology facilitating both inhibitory and excitatory synapses for potential neuromorphic computing applications. , 2009, , .		12
61	Extremely high hole concentrations in câ€plane GaN. Physica Status Solidi C: Current Topics in Solid State Physics, 2009, 6, S788.	0.8	27
62	The origin of the residual conductivity of GaN films on ferroelectric materials. Journal of Crystal Growth, 2009, 311, 4001-4006.	0.7	4
63	Transient atomic behavior and surface kinetics of GaN. Journal of Applied Physics, 2009, 106, .	1.1	41
64	Deeply degenerate p-type GaN grown by metal modulated epitaxy. , 2009, , .		1
65	Investigation into the use of molecular hydrogen on the growth of gallium nitride via metal-organic molecular beam epitaxy. Physica Status Solidi C: Current Topics in Solid State Physics, 2008, 5, 1723-1725.	0.8	1
66	Metal modulation epitaxy growth for extremely high hole concentrations above 1019cmâˆ’3 in GaN. Applied Physics Letters, 2008, 93, .	1.5	68
67	Reproducible increased Mg incorporation and large hole concentration in GaN using metal modulated epitaxy. Journal of Applied Physics, 2008, 104, .	1.1	54
68	Reproducible reflection high energy electron diffraction signatures for improvement of AlN using in situ growth regime characterization. Journal of Vacuum Science & Technology B, 2007, 25, 1009.	1.3	30
69	III-Nitrides growth and AlGaN/GaN heterostructures on ferroelectric materials. Materials Science and Engineering B: Solid-State Materials for Advanced Technology, 2007, 140, 203-211.	1.7	8
70	In situ growth regime characterization of AlN using reflection high energy electron diffraction. Journal of Vacuum Science & Technology B, 2006, 24, 2100.	1.3	25
71	Energetics of Mg incorporation at GaN(0001) andGaN(0001Â¯)surfaces. Physical Review B, 2006, 73, .	1.1	46
72	InN: A material with photovoltaic promise and challenges. Journal of Crystal Growth, 2006, 288, 218-224.	0.7	82

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73	Influence of growth conditions and surface reaction byproducts on GaN grown via metal organic molecular beam epitaxy: Toward an understanding of surface reaction chemistry. Journal of Electronic Materials, 2006, 35, 562-567.	1.0	7
74	III-nitride growth and characteristics on ferroelectric materials using plasma-assisted molecular beam epitaxy. Journal of Vacuum Science & Technology B, 2006, 24, 2093.	1.3	8
75	Resistivity analysis of epitaxially grown, doped semiconductors using energy dependent secondary ion mass spectroscopy. Journal of Applied Physics, 2006, 100, 113719.	1.1	2
76	Oxygen adsorption and incorporation at irradiatedGaN(0001)andGaN(0001Â¯)surfaces: First-principles density-functional calculations. Physical Review B, 2006, 74, .	1.1	36
77	Mg doped GaN using a valved, thermally energetic source: enhanced incorporation, and control. Journal of Crystal Growth, 2005, 279, 26-30.	0.7	18
78	Growth of InN on Ge substrate by molecular beam epitaxy. Journal of Crystal Growth, 2005, 279, 311-315.	0.7	14
79	Photoluminescence study of MBE grown InGaN with intentional indium segregation. Physica Status Solidi C: Current Topics in Solid State Physics, 2005, 2, 2779-2782.	0.8	6
80	Molecular beam epitaxy of complex metal-oxides: Where have we come, where are we going, and how are we going to get there?. Journal of Vacuum Science & Technology an Official Journal of the American Vacuum Society B, Microelectronics Processing and Phenomena, 2005, 23, 1272.	1.6	32
81	III-nitride integration on ferroelectric materials of lithium niobate by molecular beam epitaxy. Applied Physics Letters, 2005, 87, 171107.	1.5	34
82	III-nitrides on oxygen- and zinc-face ZnO substrates. Applied Physics Letters, 2005, 87, 184104.	1.5	32
83	Interplay between GaN polarity and surface reactivity towards atomic hydrogen. Journal of Applied Physics, 2004, 95, 8408-8418.	1.1	22
84	The impact of substrate nitridation temperature and buffer design and synthesis on the polarity of GaN epitaxial films. Journal of Crystal Growth, 2003, 252, 159-166.	0.7	32
85	Mg Doped GaN Using a Valved, Thermally Energetic Source: Enhanced Incorporation, Control and Quantitative Optimization. Materials Research Society Symposia Proceedings, 2003, 798, 719.	0.1	4
86	III-Nitride Growth on Lithium Niobate: A New Substrate Material for Polarity Engineering in III-Nitride Heteroepitaxy. Materials Research Society Symposia Proceedings, 2002, 743, L1.4.1.	0.1	11
87	Molecular Beam Epitaxial Growth of AlN/GaN Multiple Quantum Wells. Materials Research Society Symposia Proceedings, 2002, 743, L6.2.1.	0.1	2
88	Role of sapphire nitridation temperature on GaN growth by plasma assisted molecular beam epitaxy: Part I. Impact of the nitridation chemistry on material characteristics. Journal of Applied Physics, 2002, 91, 2499-2507.	1.1	82
89	Role of sapphire nitridation temperature on GaN growth by plasma assisted molecular beam epitaxy: Part II. Interplay between chemistry and structure of layers. Journal of Applied Physics, 2002, 91, 2508-2518.	1.1	48
90	A Chemical Perspective of GaN Polarity: The use of Hydrogen Plasma Dry Etching Versus NaOH Wet Etching to Determine Polarity. Materials Research Society Symposia Proceedings, 2002, 722, 341.	0.1	3

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91	Characterization of AlGaN/GaN structures on various substrates grown by radio frequency-plasma assisted molecular beam epitaxy. Journal of Electronic Materials, 2001, 30, 156-161.	1.0	3
92	The growth of GaN on lithium gallate (LiGaO2) substrates for material integration. Journal of Electronic Materials, 2000, 29, 894-896.	1.0	3
93	Interfacial Structure and Defects in GaN/AlGaN Heterojunction Epitaxially Grown on LiGa02 Substrate by Molecular Beam Epitaxy. Microscopy and Microanalysis, 2000, 6, 1106-1107.	0.2	0
94	Incorporation of Mg in GaN grown by plasma-assisted molecular beam epitaxy. Applied Physics Letters, 2000, 77, 4386-4388.	1.5	25
95	Low Temperature Nitridation Combined With High Temperature Buffer Annealing for High Quality GaN Grown by Plasma-Assisted MBE. MRS Internet Journal of Nitride Semiconductor Research, 2000, 5, 1.	1.0	13
96	Cascaded Ni hard mask to create chlorine-based ICP dry etched deep mesas for high-power devices. Semiconductor Science and Technology, 0, , .	1.0	3