

Joachim Piprek

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100
papers

3,469
citations

27
h-index

58
g-index

122
ext. papers

3,883
ext. citations

2.6
avg, IF

6
L-index

#	Paper	IF	Citations
100	Origin of efficiency droop in GaN-based light-emitting diodes. <i>Applied Physics Letters</i> , 2007 , 91, 183507	3.4	1050
99	Efficiency droop in nitride-based light-emitting diodes. <i>Physica Status Solidi (A) Applications and Materials Science</i> , 2010 , 207, 2217-2225	1.6	619
98	Electron leakage effects on GaN-based light-emitting diodes. <i>Optical and Quantum Electronics</i> , 2010 , 42, 89-95	2.4	86
97	Thermionic emission cooling in single barrier heterostructures. <i>Applied Physics Letters</i> , 1999 , 74, 88-89	3.4	84
96	. <i>IEEE Journal of Quantum Electronics</i> , 2002 , 38, 1253-1259	2	79
95	On the uncertainty of the Auger recombination coefficient extracted from InGaN/GaN light-emitting diode efficiency droop measurements. <i>Applied Physics Letters</i> , 2015 , 106, 101101	3.4	76
94	Long-wavelength vertical-cavity lasers and amplifiers. <i>IEEE Journal of Selected Topics in Quantum Electronics</i> , 2000 , 6, 1244-1253	3.8	72
93	Self-consistent analysis of high-temperature effects on strained-layer multiquantum-well InGaAsP-InP lasers. <i>IEEE Journal of Quantum Electronics</i> , 2000 , 36, 366-374	2	71
92	Design and analysis of double-fused 1.55- μm vertical-cavity lasers. <i>IEEE Journal of Quantum Electronics</i> , 1997 , 33, 1369-1383	2	69
91	Material parameters of quaternary III - V semiconductors for multilayer mirrors at wavelength. <i>Modelling and Simulation in Materials Science and Engineering</i> , 1996 , 4, 349-357	2	67
90	Minimum temperature sensitivity of 1.55 μm vertical-cavity lasers at 80 nm gain offset. <i>Applied Physics Letters</i> , 1998 , 72, 1814-1816	3.4	62
89	Enhanced Thermionic Emission Cooling in High Barrier Superlattice Heterostructures. <i>Materials Research Society Symposia Proceedings</i> , 1998 , 545, 449		62
88	64/spl deg/C continuous-wave operation of 1.5- μm vertical-cavity laser. <i>IEEE Journal of Selected Topics in Quantum Electronics</i> , 1997 , 3, 359-365	3.8	55
87	How to decide between competing efficiency droop models for GaN-based light-emitting diodes. <i>Applied Physics Letters</i> , 2015 , 107, 031101	3.4	52
86	Origin of InGaN light-emitting diode efficiency improvements using chirped AlGaIn multi-quantum barriers. <i>Applied Physics Letters</i> , 2013 , 102, 023510	3.4	52
85	Sensitivity analysis of electron leakage in III-nitride light-emitting diodes. <i>Applied Physics Letters</i> , 2013 , 102, 131103	3.4	51
84	Thermal conductivity reduction in GaAs-AlAs distributed Bragg reflectors. <i>IEEE Photonics Technology Letters</i> , 1998 , 10, 81-83	2.2	51

83	High-power 1320-nm wafer-bonded VCSELs with tunnel junctions. <i>IEEE Photonics Technology Letters</i> , 2003 , 15, 1495-1497	2.2	50
82	Design and analysis of vertical-cavity semiconductor optical amplifiers. <i>IEEE Journal of Quantum Electronics</i> , 2001 , 37, 127-134	2	45
81	Simulation and analysis of 1.55 μm double-fused vertical-cavity lasers. <i>Journal of Applied Physics</i> , 1997 , 81, 3382-3390	2.5	37
80	Origin of InGaN/GaN light-emitting diode efficiency improvements using tunnel-junction-cascaded active regions. <i>Applied Physics Letters</i> , 2014 , 104, 051118	3-4	35
79	Spontaneous and Piezoelectric Polarization: Basic Theory vs. Practical Recipes	49-68	35
78	Carrier nonuniformity effects on the internal efficiency of multiquantum-well lasers. <i>Applied Physics Letters</i> , 1999 , 74, 489-491	3-4	35
77	Wafer bonded 1.55 μm vertical-cavity lasers with continuous-wave operation up to 105 $^{\circ}\text{C}$. <i>Applied Physics Letters</i> , 2001 , 78, 2632-2633	3-4	34
76	Introduction to Semiconductors	2003, 3-11	31
75	MODELING AND OPTIMIZATION OF SINGLE-ELEMENT BULK SiGe THIN-FILM COOLERS. <i>Microscale Thermophysical Engineering</i> , 2005 , 9, 99-118		29
74	Comparative efficiency analysis of GaN-based light-emitting diodes and laser diodes. <i>Applied Physics Letters</i> , 2016 , 109, 021104	3-4	29
73	Ultra-violet light-emitting diodes with quasi acceptor-free AlGaIn polarization doping. <i>Optical and Quantum Electronics</i> , 2012 , 44, 67-73	2.4	26
72	What Causes the Pulse Power Saturation of GaAs-Based Broad-Area Lasers?. <i>IEEE Photonics Technology Letters</i> , 2018 , 30, 963-966	2.2	24
71	AlGaIn polarization doping effects on the efficiency of blue LEDs	2012,	24
70	What Limits the Efficiency of High-Power InGaIn/GaN Lasers?. <i>IEEE Journal of Quantum Electronics</i> , 2017 , 53, 1-4	2	22
69	Numerical analysis of 1.54 μm double-fused vertical-cavity lasers operating continuous-wave up to 33 $^{\circ}\text{C}$. <i>Applied Physics Letters</i> , 1996 , 68, 2630-2632	3-4	22
68	Analysis of wavelength-dependent performance variations of GaN-based ultraviolet lasers	2007,	18
67	On the reliability of pulse power saturation models for broad-area GaAs-based lasers. <i>Optical and Quantum Electronics</i> , 2019 , 51, 1	2.4	17
66	Blue light emitting diode exceeding 100% quantum efficiency. <i>Physica Status Solidi - Rapid Research Letters</i> , 2014 , 8, 424-426	2.5	17

65	On the importance of non-thermal far-field blooming in broad-area high-power laser diodes. <i>Applied Physics Letters</i> , 2013 , 102, 221110	3.4	17
64	Internal efficiency analysis of 280-nm light emitting diodes 2004 , 5594, 177		16
63	Inverse Thermal Lens Effects on the Far-Field Blooming of Broad Area Laser Diodes. <i>IEEE Photonics Technology Letters</i> , 2013 , 25, 958-960	2.2	15
62	AlGaN/AlN distributed bragg reflectors for deep ultraviolet wavelengths. <i>Physica Status Solidi (A) Applications and Materials Science</i> , 2006 , 203, 1915-1919	1.6	15
61	3D simulation and analysis of AlGaN/GaN ultraviolet light-emittings diodes 2004 , 5366, 127		15
60	Electroluminescent cooling mechanism in InGaN/GaN light-emitting diodes. <i>Optical and Quantum Electronics</i> , 2016 , 48, 1	2.4	15
59	Energy Efficiency Analysis of GaN-Based Blue Light Emitters. <i>ECS Journal of Solid State Science and Technology</i> , 2020 , 9, 015008	2	13
58	GaN-based vertical-cavity laser performance improvements using tunnel-junction-cascaded active regions. <i>Applied Physics Letters</i> , 2014 , 105, 011116	3.4	11
57	Design and optimization of high-performance 1.3- μm VCSELs 2004 ,		11
56	Efficiency Models for GaN-Based Light-Emitting Diodes: Status and Challenges. <i>Materials</i> , 2020 , 13,	3.5	11
55	Analysis of efficiency limitations in high-power InGaN/GaN laser diodes. <i>Optical and Quantum Electronics</i> , 2016 , 48, 1	2.4	10
54	Self-consistent far-field blooming analysis for high-power Fabry-Perot laser diodes 2013 ,		9
53	High-temperature lasing of long-wavelength VCSELs: problems and prospects 1997 ,		9
52	Analog modulation of 1.55- μm vertical-cavity lasers 1999 ,		6
51	Self-consistent analysis of thermal far-field blooming of broad-area laser diodes. <i>Optical and Quantum Electronics</i> , 2013 , 45, 581-588	2.4	5
50	Unified model for the GaN LED efficiency droop 2011 ,		5
49	Simulations of laser diodes with nonpolar InGaN multi-quantum-wells. <i>Physica Status Solidi C: Current Topics in Solid State Physics</i> , 2010 , 7, 2259-2261		5
48	Electron Energy Bands 2003 , 13-48		5

47	Modeling of traveling-wave amplification photodetectors (TAP detectors) 2001 , 4283, 528		5
46	Index-Antiguinding in Narrow-Ridge GaN-Based Laser Diodes Investigated by Measurements of the Current-Dependent Gain and Index Spectra and by Self-Consistent Simulation. <i>IEEE Journal of Quantum Electronics</i> , 2015 , 51, 1-6	2	4
45	2013 ,		4
44	Internal power loss in GaN-based lasers: mechanisms and remedies. <i>Optical and Quantum Electronics</i> , 2017 , 49, 1	2.4	4
43	Carrier Transport 2003 , 49-82		4
42	Analog modulation of semiconductor lasers 2002 , 57-80		4
41	High-speed traveling-wave electro-absorption modulators 2001 ,		4
40	Optimization of the barrier height in 1.3- μm InGaAsP multiple-quantum-well active regions for high-temperature operation 2001 ,		4
39	What limits the power conversion efficiency of GaN-based lasers? 2017 ,		3
38	What limits the efficiency of GaN-based superluminescent light-emitting diodes (SLEDs)?. <i>Optical and Quantum Electronics</i> , 2019 , 51, 1	2.4	3
37	Auger recombination effects on the peak lasing power of InGaN/GaN laser diodes 2017 ,		3
36	Back Cover (Phys. Status Solidi A 10/2010). <i>Physica Status Solidi (A) Applications and Materials Science</i> , 2010 , 207, n/a-n/a	1.6	3
35	Electronic Properties of InGaN/GaN Vertical-Cavity Lasers 423-445		3
34	Physics of waveguide photodetectors with integrated amplification 2003 ,		3
33	Optical Waves 2003 , 83-120		3
32	Nitride Light Emitters 2003 , 187-211		3
31	What is the problem with GaN-based VCSELs? 2013 ,		2
30	GaN-based VCSELs: analysis of internal device physics and performance limitations 2010 ,		2

29	InP-based waveguide photodetector with integrated photon multiplication 2003 ,		2
28	Recent advances in photodetectors with distributed optical amplification 2003 ,		2
27	Heat Generation and Dissipation 2003 , 141-148		2
26	Multi-quantum-well electroabsorption modulators 2002 , 4646, 609		2
25	Efficiency Analysis of Quantum Well Lasers using PICS3D 1999 ,		2
24	Energy Efficiency Analysis of GaN-based Superluminescent Diodes 2019 ,		1
23	GaN-based bipolar cascade light-emitting diode with 250 % peak quantum efficiency. <i>Optical and Quantum Electronics</i> , 2015 , 47, 1305-1310	2.4	1
22	Comparative analysis of efficiency limitations in GaN-based blue laser diodes 2016 ,		1
21	Self-consistent electro-thermal-optical simulation of thermal blooming in broad-area lasers 2012 ,		1
20	Electron leakage effects on the efficiency droop in GaN-based light-emitting diodes 2010 ,		1
19	Blue Laser Diodes. <i>Optik & Photonik</i> , 2007 , 2, 52-55		1
18	Integrated-cavity surface-emitting lasers 2003 , 5248, 148		1
17	Photon Generation 2003 , 121-139		1
16	Edge-Emitting Laser 2003 , 151-169		1
15	Vertical-Cavity Laser 2003 , 171-186		1
14	Internal device physics of 1.3- μm vertical-cavity surface-emitting laser 2005 ,		1
13	Failure analysis of GaN-based current-injected vertical-cavity surface-emitting lasers 2005 ,		1
12	Modeling and optimization of vertical-cavity semiconductor laser amplifiers 2001 , 4283, 129		1

11	Origin of efficiency droop in GaN-based light-emitting diodes		1
10	Simulation-based machine learning for optoelectronic device design: perspectives, problems, and prospects. <i>Optical and Quantum Electronics</i> , 2021 , 53, 1	2.4	1
9	Evaluating Two-Photon Absorption Effects on Pulsed High-Power Laser Operation 2018 ,		1
8	GaN-based bipolar cascade lasers with 25 μ m wide quantum wells. <i>Optical and Quantum Electronics</i> , 2022 , 54, 1	2.4	0
7	Introduction to the Special Issue on Simulation of GaN-based Light-Emitting Diodes <i>Journal of Computational Electronics</i> , 2015 , 14, 381-381	1.8	
6	Introduction to the Issue on Numerical Simulation of Optoelectronic Devices. <i>IEEE Journal of Selected Topics in Quantum Electronics</i> , 2013 , 19, 0200602-0200602	3.8	
5	Introduction to the OQE Special Issue on Numerical Simulation of Optoelectronic Devices <i>Optical and Quantum Electronics</i> , 2007 , 38, 933-934	2.4	
4	Electroabsorption Modulator 2003 , 213-225		
3	Amplification Photodetector 2003 , 227-236		
2	Physics of Output Power Limitations in Long-Wavelength Laser Diodes 2002 , 4871, 70		
1	Simulation of GaN-based Light-Emitting Devices 2004 , 101-108		