

Bernd Witzigmann

List of Publications by Year in descending order

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154
papers

3,084
citations

279487

23
h-index

168136

53
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154
docs citations

154
times ranked

3772
citing authors

#	ARTICLE	IF	CITATIONS
1	Gain and bandwidth of InP nanowire array photodetectors with embedded photogated InAsP quantum discs. <i>Nanoscale</i> , 2021, 13, 6227-6233.	2.8	6
2	Three-Dimensional Interfacing of Cells with Hierarchical Silicon Nano/Microstructures for Midinfrared Interrogation of In Situ Captured Proteins. <i>ACS Applied Materials & Interfaces</i> , 2021, 13, 8049-8059.	4.0	3
3	Extended micromagnetic model for the detection of superparamagnetic labels using a GMR vortex sensor. <i>Journal of Physics Communications</i> , 2021, 5, 075017.	0.5	2
4	Quantum Information Interface on a Photonic Crystal Chip. , 2021, , .		0
5	Effect of Inhomogeneous Broadening in Deep Ultraviolet Light Emitting Diodes. , 2021, , .		0
6	Vertical 3D gallium nitride field-effect transistors based on fin structures with inverted p-doped channel. <i>Semiconductor Science and Technology</i> , 2021, 36, 014002.	1.0	13
7	Effect of Inhomogeneous Broadening in Ultraviolet III-Nitride Light-Emitting Diodes. <i>Materials</i> , 2021, 14, 7890.	1.3	10
8	The 2020 UV emitter roadmap. <i>Journal Physics D: Applied Physics</i> , 2020, 53, 503001.	1.3	289
9	Calculation of optical gain in AlGaIn quantum wells for ultraviolet emission. <i>AIP Advances</i> , 2020, 10, .	0.6	10
10	Luminescence and Internal Quantum Efficiency of Deep UV Light Emitting Diodes. , 2020, , .		0
11	Micromagnetic Simulations of Submicron Vortex Structures for the Detection of Superparamagnetic Labels. <i>Sensors</i> , 2020, 20, 5819.	2.1	1
12	Ge(Sn) nano-island/Si heterostructure photodetectors with plasmonic antennas. <i>Nanotechnology</i> , 2020, 31, 345203.	1.3	8
13	Numerical analysis of subwavelength field effects in photonic crystal slab cavities. <i>JPhys Photonics</i> , 2020, 2, 015001.	2.2	1
14	Carrier injection efficiency in III-nitride light emitting diodes: effective potential correction. , 2020, , .		0
15	Top-down GaN nanowire transistors with nearly zero gate hysteresis for parallel vertical electronics. <i>Scientific Reports</i> , 2019, 9, 10301.	1.6	32
16	Impedance Matching of THz Plasmonic Antennas. <i>Journal of Infrared, Millimeter, and Terahertz Waves</i> , 2019, 40, 929-942.	1.2	0
17	Surface-Emitting Superluminescent Diode Arrays. , 2019, , .		0
18	Electro-Optical Performance of Surface-Emitting Micromirror Superluminescent Diodes. <i>Physica Status Solidi - Rapid Research Letters</i> , 2019, 13, 1900221.	1.2	1

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19	Surface-Emitting Micro-Mirror Superluminescent Diodes: Investigation of Tilt Accuracy Via Far-Field Analysis. <i>Physica Status Solidi (B): Basic Research</i> , 2019, 256, 1800494.	0.7	2
20	Precise determination of polarization fields in c-plane GaN/Al _x Ga _{1-x} N/GaN heterostructures with capacitance-voltage-measurements. <i>Japanese Journal of Applied Physics</i> , 2019, 58, SCCB08.	0.8	3
21	Demonstration of UV-Induced Threshold Voltage Instabilities in Vertical GaN Nanowire Array-Based Transistors. <i>IEEE Transactions on Electron Devices</i> , 2019, 66, 2119-2124.	1.6	5
22	Sub-50 kHz Linewidth $1.55 \mu\text{m}$ Quantum Dot Distributed Feedback Lasers. , 2019, , .		0
23	High Responsivity of InP/InAsP Nanowire Array Broadband Photodetectors Enhanced by Optical Gating. <i>Nano Letters</i> , 2019, 19, 8424-8430.	4.5	13
24	Inhomogeneous spectral broadening in deep ultraviolet light emitting diodes. , 2019, , .		5
25	Large linewidth reduction in semiconductor lasers based on atom-like gain material. <i>Optica</i> , 2019, 6, 1071.	4.8	41
26	Analysis of surface-emitting thin-film superluminescent diodes with high efficiency. , 2019, , .		0
27	Non equilibrium Green's function quantum transport for green multi-quantum well nitride light emitting diodes. <i>Optical and Quantum Electronics</i> , 2018, 50, 1.	1.5	10
28	Germanium Plasmon Enhanced Resonators for Label-Free Terahertz Protein Sensing. <i>Frequenz</i> , 2018, 72, 113-122.	0.6	7
29	Performance analysis and simulation of vertical gallium nitride nanowire transistors. <i>Solid-State Electronics</i> , 2018, 144, 73-77.	0.8	13
30	Spectral Characteristics of Narrow Linewidth InAs/InP Quantum Dot Distributed Feedback Lasers. , 2018, , .		1
31	Accurate determination of polarization fields in (0001) c-plane InAlN/GaN heterostructures with capacitance-voltage-measurements. <i>Journal Physics D: Applied Physics</i> , 2018, 51, 485103.	1.3	5
32	Thermal performance analysis of GaN nanowire and fin-shaped power transistors based on self-consistent electrothermal simulations. <i>Microelectronics Reliability</i> , 2018, 91, 227-231.	0.9	2
33	Normally Off Vertical 3-D GaN Nanowire MOSFETs With Inverted $\text{p}^+\text{-GaN}$ Channel. <i>IEEE Transactions on Electron Devices</i> , 2018, 65, 2439-2445.	1.6	32
34	Planar Semiconductor THz Antennas Using Spoof Plasmons for Surface Sensing. , 2018, , .		0
35	Signature of the ideality factor in III-nitride multi quantum well light emitting diodes. <i>Optical and Quantum Electronics</i> , 2018, 50, 1.	1.5	111
36	GaN nanowire arrays with nonpolar sidewalls for vertically integrated field-effect transistors. <i>Nanotechnology</i> , 2017, 28, 095206.	1.3	58

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37	Luminescence distribution in the multi-quantum well region of III-nitride light emitting diodes. Proceedings of SPIE, 2017, , .	0.8	3
38	Effect of oxygen impurities in semipolar III-nitride light emitting diodes. Physica Status Solidi (A) Applications and Materials Science, 2017, 214, 1600297.	0.8	5
39	NEGF quantum transport for green MQW nitride LEDs. , 2017, , .		0
40	Carrier transport in the multi quantum well region of III-nitride light emitting diodes. , 2017, , .		0
41	Determination of polarization fields in group III-nitride heterostructures by capacitance-voltage-measurements. Journal of Applied Physics, 2016, 119, .	1.1	9
42	Simulation of an indium gallium nitride quantum well light-emitting diode with the non-equilibrium Green's function method. Physica Status Solidi (B): Basic Research, 2016, 253, 158-163.	0.7	16
43	Narrow-linewidth 1.5 μ m quantum dot distributed feedback lasers. Proceedings of SPIE, 2016, , .	0.8	4
44	Optimization of 1.55 μ m quantum dot edge-emitting lasers for narrow spectral linewidth. Optical and Quantum Electronics, 2016, 48, 1.	1.5	7
45	Effect of doping and impurities on the efficiency of III-nitride light emitting diodes. , 2015, , .		0
46	Acceptor impurity activation in III-nitride light emitting diodes. Applied Physics Letters, 2015, 106, .	1.5	5
47	CMOS-compatible optical switching concept based on strain-induced refractive-index tuning. Optics Express, 2015, 23, 5930.	1.7	6
48	Acceptor activation model for III-nitride LEDs. Journal of Computational Electronics, 2015, 14, 456-463.	1.3	14
49	On the uncertainty of the Auger recombination coefficient extracted from InGaN/GaN light-emitting diode efficiency droop measurements. Applied Physics Letters, 2015, 106, .	1.5	93
50	Temperature-dependent investigation of carrier transport, injection, and densities in AlGaAs-based multi-quantum-well active layers for vertical-cavity surface-emitting lasers. Optical Engineering, 2015, 54, 016107.	0.5	9
51	Efficiency optimization and analysis of 808nm VCSELs with a full electro-thermal-optical numerical model. Proceedings of SPIE, 2015, , .	0.8	1
52	Investigation of Relative Intensity Noise in Asymmetric External Cavity Semiconductor Laser Sensors: Influence of Dual-Line Spectral Separation and Linewidth Enhancement Factor. IEEE Sensors Journal, 2015, 15, 6619-6624.	2.4	1
53	Simulation and analysis of 1.5 μ m quantum dot lasers designed for ultra-narrow spectral linewidth. , 2015, , .		0
54	Effect of Auger recombination and leakage on the droop in InGaN/GaN quantum well LEDs. Optics Express, 2014, 22, A1440.	1.7	50

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55	Efficiency analysis of nano light emitting diodes. , 2014, , .		0
56	Auger recombination and leakage in InGaN/GaN quantum well LEDs. , 2014, , .		10
57	Optimized VCSELs for high-power arrays. Proceedings of SPIE, 2014, , .	0.8	1
58	Plasmonic Perfect Absorbers for Biosensing Applications. Plasmonics, 2014, 9, 1265-1270.	1.8	63
59	Study of photocurrent generation in InP nanowire-based p+i-n+ photodetectors. Nano Research, 2014, 7, 544-552.	5.8	37
60	Temperature dependent investigation of carrier transport, injection, and densities in 808 nm AlGaAs multi-quantum-well active layers for VCSELs. , 2014, , .		1
61	Simulation of water photo electrolysis with III-nitride semiconductor nano wires. , 2014, , .		0
62	Local near field assisted ablation of fused silica. Applied Physics A: Materials Science and Processing, 2013, 110, 743-749.	1.1	4
63	Computational modelling of surface effects in InGaN/GaN quantum disk nano wire LEDs. , 2013, , .		1
64	Full-band Monte Carlo simulation of single photon avalanche diodes. , 2013, , .		3
65	InP Nanowire Array Solar Cells Achieving 13.8% Efficiency by Exceeding the Ray Optics Limit. Science, 2013, 339, 1057-1060.	6.0	1,093
66	Auger recombination and carrier transport effects in III-nitride quantum well light emitting diodes. Proceedings of SPIE, 2013, , .	0.8	6
67	Introduction to the Issue on Numerical Simulation of Optoelectronic Devices. IEEE Journal of Selected Topics in Quantum Electronics, 2013, 19, 0200602-0200602.	1.9	0
68	A high efficiency dual-junction solar cell implemented as a nanowire array. Optics Express, 2013, 21, A167.	1.7	11
69	Electromagnetic study of magneto-optic surface plasmon resonance effects for biosensing applications. , 2013, , .		2
70	VCSEL design for high power, densely packed arrays. , 2013, , .		0
71	Analysis of surface recombination in nanowire array solar cells. Journal of Photonics for Energy, 2012, 2, 028002-1.	0.8	29
72	Impact ionization scattering model based on the random-k approximation for GaAs, InP, InAlAs, and InGaAs. Journal of Applied Physics, 2012, 111, 073714.	1.1	7

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73	Current confinement in EP-VECSELs for high power single-mode operation suitable for passive mode-locking. Proceedings of SPIE, 2012, , .	0.8	2
74	Analysis of surface recombination in nanowire array solar cells. , 2012, , .		2
75	Auger carrier leakage in III-nitride quantum well light emitting diodes. Physica Status Solidi - Rapid Research Letters, 2012, 6, 418-420.	1.2	23
76	Modelling surface effects in nano wire optoelectronic devices. Journal of Computational Electronics, 2012, 11, 431-439.	1.3	11
77	InGaN nanorod LEDs: A performance assessment. , 2012, , .		0
78	Efficiency Analysis of III-V Axial and Core-Shell Nanowire Solar Cells. Journal of Computational and Theoretical Nanoscience, 2012, 9, 688-695.	0.4	5
79	Computational study of multi-color InGaN/GaN nanowire LEDs with continuously varied indium composition. Proceedings of SPIE, 2012, , .	0.8	1
80	Full-band Monte Carlo simulation of high-energy carrier transport in single photon avalanche diodes with multiplication layers made of InP, InAlAs, and GaAs. Journal of Applied Physics, 2012, 111, 104508.	1.1	10
81	Luminescence and efficiency optimization of InGaN/GaN core-shell nanowire LEDs by numerical modelling. Proceedings of SPIE, 2012, , .	0.8	12
82	All-InGaN Phosphorless White Light Emitting Diodes: An Efficiency Estimation. Journal of Lightwave Technology, 2012, 30, 2853-2862.	2.7	20
83	Simulation of InGaN quantum well LEDs with reduced internal polarization. Physica Status Solidi (A) Applications and Materials Science, 2012, 209, 487-490.	0.8	5
84	Core-shell InGaN nanorod light emitting diodes: Electronic and optical device properties. Physica Status Solidi (A) Applications and Materials Science, 2012, 209, 2304-2312.	0.8	46
85	Computational electromagnetics for nanowire solar cells. Journal of Computational Electronics, 2012, 11, 153-165.	1.3	20
86	Frequency domain analysis of modes in a photonic crystal micro-opto-electro-mechanical system with periodically arranged circular holes. Optical and Quantum Electronics, 2012, 44, 273-277.	1.5	0
87	Analysis of semiconductor nanowire arrays for photovoltaics. , 2011, , .		0
88	Computational study of carrier injection in III-nitride core-shell nanowire-LEDs. , 2011, , .		4
89	Frequency domain analysis of guided resonances and polarization selectivity in photonic crystal membranes. Journal of the Optical Society of America B: Optical Physics, 2011, 28, 69.	0.9	6
90	Design and simulation of electrically pumped mode-locked VECSELs. Proceedings of SPIE, 2011, , .	0.8	2

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91	Toward Frequency-Domain Modeling of Mode Locking in Semiconductor Lasers. IEEE Journal of Selected Topics in Quantum Electronics, 2011, 17, 1280-1291.	1.9	4
92	Towards nanorod LEDs: Numerical predictions and controlled growth. Physica Status Solidi C: Current Topics in Solid State Physics, 2011, 8, 2305-2307.	0.8	8
93	Design and analysis of polarization selective tunable photonic crystal filters. , 2011, , .		2
94	Full-band Monte Carlo simulation of high-energy carrier transport in single photon avalanche diodes: Computation of breakdown probability, time to avalanche breakdown, and jitter. Journal of Applied Physics, 2011, 110, .	1.1	11
95	Zonal efficiency limit calculation for nanostructured solar cells. , 2010, , .		2
96	Polarization of eigenmodes in laser diode waveguides on semipolar and nonpolar GaN. Physica Status Solidi - Rapid Research Letters, 2010, 4, 1-3.	1.2	18
97	Computational study of an InGaN/GaN nanocolumn light-emitting diode. Physical Review B, 2010, 81, .	1.1	37
98	Computational optoelectronics as analysis and design tool. , 2010, , .		0
99	Light absorption and emission in nanowire array solar cells. Optics Express, 2010, 18, 27589.	1.7	143
100	Electro-optical modeling of InP nanowire solar cells: Core-shell vs. axial structure. , 2010, , .		2
101	Physics-based simulation of a core-multishell nanowire light emitting diode. , 2010, , .		1
102	Electromagnetic analysis of polarization and frequency selective tunable optical MEMS. , 2010, , .		4
103	The Ultra Weak Variational Formulation Applied to Radiation Problems With Macroscopic Sources in Inhomogeneous Domains. IEEE Journal of Selected Topics in Quantum Electronics, 2009, 15, 1144-1155.	1.9	3
104	Comprehensive modeling of optoelectronic nanostructures. Journal of Computational Electronics, 2009, 8, 389-397.	1.3	6
105	tdkp/AQUA: Unified modeling of electroluminescence in nanostructures. Optical and Quantum Electronics, 2009, 41, 551-557.	1.5	4
106	GaN-based nanocolumn LEDs: Impact of strain engineering on the electro-optical performance. Physica Status Solidi C: Current Topics in Solid State Physics, 2009, 6, S506-S509.	0.8	2
107	Vertically emitting microdisk lasers. Nature Photonics, 2009, 3, 46-49.	15.6	119
108	Electroluminescence from a Quantum-Well LED using NEGF. , 2009, , .		8

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109	tdkp/AQUA: Unified modelling of electroluminescence in nanostructures. , 2009, , .		1
110	Electroluminescence in nanostructures of different dimensionalities: a comparative simulation study. , 2009, , .		0
111	Large-signal simulation of semiconductor lasers on device level: numerical aspects of the harmonic balance method. Optical and Quantum Electronics, 2008, 40, 355-360.	1.5	1
112	Introduction to the OQE special issue on "Numeric Simulation of Optoelectronic Devices" Optical and Quantum Electronics, 2008, 40, 293-294.	1.5	0
113	Operator ordering, ellipticity and spurious solutions in $k \cdot p$ calculations of III-nitride nanostructures. Optical and Quantum Electronics, 2008, 40, 1169-1174.	1.5	10
114	Introduction to the OQE special issue on numerical simulation of optoelectronic devices (2008). Optical and Quantum Electronics, 2008, 40, 1075-1076.	1.5	0
115	Unified simulation of transport and luminescence in optoelectronic nanostructures. Journal of Computational Electronics, 2008, 7, 509-520.	1.3	43
116	Reliable $k \cdot p$ band structure calculation for nanostructures using finite elements. Journal of Computational Electronics, 2008, 7, 521-529.	1.3	28
117	Analysis of Gain and Luminescence in Violet and Blue GaInN/GaN Quantum Wells. IEEE Journal of Quantum Electronics, 2008, 44, 144-149.	1.0	6
118	Spectral and spatial properties of the spontaneous emission enhancement in photonic crystal cavities. Journal of the Optical Society of America B: Optical Physics, 2008, 25, 31.	0.9	26
119	Combined analytical-finite difference time-domain full wave simulation of mode-locked vertical-extended-cavity semiconductor lasers. Journal of the Optical Society of America B: Optical Physics, 2008, 25, 1118.	0.9	2
120	Multidimensional Electro-Opto-Thermal Modeling of Broad-Band Optical Devices. IEEE Journal of Quantum Electronics, 2008, 44, 505-514.	1.0	21
121	Ellipticity and spurious solutions in $k \cdot p$ calculations of III-nitride nanostructures. , 2008, , .		1
122	A novel finite-element formulation applied to wave propagation in optically large structures. , 2008, , .		0
123	Transverse optical mode analysis of long-wavelength VCSELs for high single-mode power operation. , 2008, , .		2
124	Investigation of bandwidth limitations in separate absorption, charge and multiplication (SACM) avalanche photodiodes (APD). , 2008, , .		2
125	Designing emission spectra of photonic crystal microcavities. Proceedings of SPIE, 2008, , .	0.8	0
126	Physics and simulation of photonic crystal Purcell light emitters. , 2008, , .		0

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127	Physics and Simulation of Vertical-Cavity Surface-Emitting Lasers. Journal of Computational and Theoretical Nanoscience, 2008, 5, 1058-1071.	0.4	5
128	Investigation of the optical farfield of photonic crystal microcavities. , 2007, , .		3
129	Luminescence and absorption analysis of undoped organic materials. Applied Physics Letters, 2007, 90, 221107.	1.5	3
130	A TCAD approach to robust ESD design in oxide-confined VCSELs. , 2007, , .		3
131	Analysis of substrate modes in GaN/InGaN lasers. , 2007, , .		0
132	Investigation of optical far-field stability in long-wavelength VCSELs: thermal and carrier-induced effects. , 2007, , .		3
133	Substrate Modes of (Al,In)GaN Semiconductor Laser Diodes on SiC and GaN Substrates. IEEE Journal of Quantum Electronics, 2007, 43, 16-24.	1.0	40
134	Large-Signal Modeling on Device Level: Intermodulation Distortion and Eye-Diagrams of Semiconductor Lasers. , 2007, , .		1
135	Ellipticity and the spurious solution problem of \hat{k}^{TM} envelope equations. Physical Review B, 2007, 76, .	1.1	71
136	Harmonic balance analysis for semiconductor lasers under large-signal modulation. Optical and Quantum Electronics, 2007, 38, 1039-1044.	1.5	7
137	Performance analysis of 1300Ånm SLEDs – impact of temperature and length scaling. Optical and Quantum Electronics, 2007, 38, 1069-1075.	1.5	2
138	Investigation of the Purcell effect in photonic crystal cavities with a 3D Finite Element Maxwell Solver. Optical and Quantum Electronics, 2007, 39, 341-352.	1.5	27
139	Single-mode performance analysis for vertical-cavity surface-emitting lasers. Journal of Computational Electronics, 2007, 6, 263-266.	1.3	0
140	Analysis of the static and dynamic characteristics of 1310 nm vertical-cavity surface-emitting lasers. , 2006, , .		1
141	Simulation and design of optical gain in In(AI)GaN/GaN short wavelength lasers. , 2006, , .		5
142	A TCAD-based yield and reliability analysis for VCSELs. , 2006, , .		3
143	Accurate modeling of gain and amplified spontaneous emission in super-luminescent LEDs. , 2006, 6115, 360.		3
144	Super-Luminescent LEDs – Modeling of Emission Spectra and LI-Characteristics. , 2006, , .		0

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145	Harmonic Balance Analysis for Semiconductor Lasers under Large-Signal Modulation. , 2006, , .		0
146	Multidimensional noise model and simulation of VCSEL devices. , 2005, 5722, 211.		2
147	Device simulation and statistical analysis in industrial laser design (Invited Paper). , 2005, , .		4
148	Internal device physics of 1.3- μ m vertical-cavity surface-emitting laser. , 2005, , .		1
149	Technology CAD based design of semiconductor optical microcavities for single photon emitters. , 2005, , .		0
150	A TCAD methodology for high-speed photodetectors. Solid-State Electronics, 2005, 49, 1002-1008.	0.8	11
151	Comprehensive Simulation of Vertical Cavity Surface Emitting Lasers: Inclusion of a Many-Body Gain Model. Journal of Computational Electronics, 2005, 4, 7-10.	1.3	10
152	Bandstructure calculation using the $k \cdot p$ method for arbitrary potentials with open boundary conditions. Journal of Applied Physics, 2005, 97, 046104.	1.1	15
153	Simulation of temperature-dependent modulation response in multi-quantum-well lasers. , 2002, 4646, 313.		1
154	Optical Properties of Edge-Emitting Lasers: Measurement and Simulation. , 0, , 405-422.		2