Hideki Hirayama

List of Publications by Year
in descending order

83 papers	3,277 citations	236925 25 h-index	155660 55 g-index
84 all docs	84 docs citations	84 times ranked	2215 citing authors

#	Article	IF	Citations
1	Smart Wideâ€Bandgap Omnidirectional Reflector as an Effective Holeâ€Injection Electrode for Deepâ€UV Lightâ€Emitting Diodes. Advanced Optical Materials, 2020, 8, 1901430.	7.3	18
2	The 2020 UV emitter roadmap. Journal Physics D: Applied Physics, 2020, 53, 503001.	2.8	289
3	High internal quantum efficiency and optically pumped stimulated emission in AlGaN-based UV-C multiple quantum wells. Applied Physics Letters, 2020, 117, .	3.3	28
4	Correlation between excitons recombination dynamics and internal quantum efficiency of AlGaN-based UV-A multiple quantum wells. Journal of Applied Physics, 2020, 128, .	2.5	23
5	External Quantum Efficiency of 6.5% at 300 nm Emission and 4.7% at 310 nm Emission on Bare Wafer of AlGaN-Based UVB LEDs. ACS Applied Electronic Materials, 2020, 2, 1892-1907.	4.3	45
6	Influence of the Strain Relaxation on the Optical Property of AlGaN Quantum Wells. Physica Status Solidi (B): Basic Research, 2020, 257, 1900582.	1.5	5
7	Enhanced Strain Relaxation in AlGaN Layers Grown on Sputterâ€Based AlN Templates. Physica Status Solidi (B): Basic Research, 2020, 257, 1900590.	1.5	4
8	Temperature dependence of nonradiative recombination processes in UV-B AlGaN quantum well revealed by below-gap excitation light. Optical Materials, 2020, 105, 109878.	3.6	2
9	Beyond 53% internal quantum efficiency in a AlGaN quantum well at 326â€‰â€‰nm UVA emission and single-peak operation of UVA LED. Optics Letters, 2020, 45, 495.	3.3	26
10	Beyond 53% internal quantum efficiency in a AlGaN quantum well at 326â€‰â€‰nm UVA emission and single-peak operation of UVA LED: publisherâ€™s note. Optics Letters, 2020, 45, 2563.	3.3	7
11	Nonradiative recombination centers in deep UV-wavelength AlGaN quantum wells detected by below-gap excitation light. Japanese Journal of Applied Physics, 2019, 58, SCCB37.	1.5	4
12	Influence of the nucleation conditions on the quality of AlN layers with high-temperature annealing and regrowth processes. Japanese Journal of Applied Physics, 2019, 58, SC1056.	1.5	15
13	Controlled crystal orientations of semipolar AlN grown on an <i>m</i>-plane sapphire by MOCVD. Japanese Journal of Applied Physics, 2019, 58, SC1031.	1.5	15
14	Random electric field induced by interface roughness in GaN/Al_xGa_{1âˆ’x}N multiple quantum wells. Applied Physics Express, 2019, 12, 124005.	2.4	1
15	13 mW operation of a 295â€“310 nm AlGaN UV-B LED with a p-AlGaN transparent contact layer for real world applications. Journal of Materials Chemistry C, 2019, 7, 143-152.	5.5	84
16	Evolution of morphology and crystalline quality of DC-sputtered AlN films with high-temperature annealing. Japanese Journal of Applied Physics, 2019, 58, SC1029.	1.5	8
17	Research status and prospects of deep ultraviolet devices. Journal of Semiconductors, 2019, 40, 120301.	3.7	11
18	Evaluation of GaN/AlGaN THz quantum-cascade laser epi-layers grown on AlGaN/Si templates by MOCVD. Journal of Crystal Growth, 2019, 510, 47-49.	1.5	4

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19	Improved crystal quality of semipolar AlN by employing a thermal annealing technique with MOVPE. Journal of Crystal Growth, 2019, 507, 307-309.	1.5	22
20	Milliwatt power UV-A LEDs developed by using n-AlGaN superlattice buffer layers grown on AlN templates. Journal Physics D: Applied Physics, 2019, 52, 115102.	2.8	21
21	Effects of Ga Supply on the Growth of (11â€22) AlN on <i>m</i>â€Plane (10â€10) Sapphire Substrates. Physica Status Solidi (B): Basic Research, 2018, 255, 1700418.	1.5	9
22	Reflectance of a reflective photonic crystal p-contact layer for improving the light-extraction efficiency of AlGaN-based deep-ultraviolet light-emitting diodes. AIP Advances, 2018, 8, 125126.	1.3	8
23	Optimization of terahertz quantum cascade lasers by suppressing carrier leakage channel via high-energy state. Applied Physics Express, 2018, 11, 112702.	2.4	11
24	Impact of thermal treatment on the growth of semipolar AlN on <i>m</i>-plane sapphire. AIP Advances, 2018, 8, .	1.3	12
25	High-quality AlN template grown on a patterned Si(111) substrate. Journal of Crystal Growth, 2017, 468, 225-229.	1.5	13
26	Growth of High-Quality AlN on Sapphire and Development of AlGaN-Based Deep-Ultraviolet Light-Emitting Diodes. Semiconductors and Semimetals, 2017, 96, 85-120.	0.7	7
27	Nonradiative centers in deepâ€UV AlGaNâ€based quantum wells revealed by twoâ€wavelength excited photoluminescence. Physica Status Solidi (B): Basic Research, 2015, 252, 936-939.	1.5	10
28	Recent progress and future prospects of AlGaN-based high-efficiency deep-ultraviolet light-emitting diodes. Japanese Journal of Applied Physics, 2014, 53, 100209.	1.5	464
29	Improvement of operation temperature in GaAs/AlGaAs THz-QCLs by utilizing high Al composition barrier. Physica Status Solidi C: Current Topics in Solid State Physics, 2013, 10, 1430-1433.	0.8	15
30	1.9 THz selective injection design quantum cascade laser operating at extreme higher temperature above the kB T line. Physica Status Solidi C: Current Topics in Solid State Physics, 2013, 10, 1448-1451.	0.8	9
31	Realization of highâ€efficiency deepâ€UV LEDs using transparent pâ€AlGaN contact layer. Physica Status Solidi C: Current Topics in Solid State Physics, 2013, 10, 1521-1524.	0.8	78
32	High hole carrier concentration realized by alternative co-doping technique in metal organic chemical vapor deposition. Applied Physics Letters, 2011, 99, .	3.3	33
33	The Utility of Droplet Elimination by Thermal Annealing Technique for Fabrication of GaN/AlGaN Terahertz Quantum Cascade Structure by Radio Frequency Molecular Beam Epitaxy. Applied Physics Express, 2010, 3, 125501.	2.4	12
34	Realization of 340-nm-Band High-Output-Power (>7 mW) InAlGaN Quantum Well Ultraviolet Light-Emitting Diode with p-Type InAlGaN. Japanese Journal of Applied Physics, 2008, 47, 2941-2944.	1.5	24
35	Agâ€"Metal Bonding Conditions for Low-Loss Double-Metal Waveguide for Terahertz Quantum Cascade Laser. Japanese Journal of Applied Physics, 2008, 47, 7926.	1.5	4
36	Liquid Phase Epitaxy Growth ofm-Plane GaN Substrate Using the Na Flux Method. Japanese Journal of Applied Physics, 2007, 46, L227-L229.	1.5	17

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37	Fabrication ofa-Plane GaN Substrate Using the Srâ€"Na Flux Liquid Phase Epitaxy Technique. Japanese Journal of Applied Physics, 2007, 46, L103-L106.	1.5	18
38	High-efficiency UV LEDs using quaternary InAlGaN. Electrical Engineering in Japan (English Translation) Tj ETQq0 0 0 rgBT /Overlock 10 Tf	0.4	4
39	Influence of residual oxygen impurity in quaternary InAlGaN multiple-quantum-well active layers on emission efficiency of ultraviolet light-emitting diodes on GaN substrates. Journal of Applied Physics, 2006, 99, 114509.	2.5	17
40	Significant improvements of quantum efficiency of quaternary InAlGaN UV-LEDs on GaN substrates. Physica Status Solidi C: Current Topics in Solid State Physics, 2005, 2, 2912-2915.	0.8	2
41	High-efficiency 350 nm-band quaternary InAlGaN-based UV-LED on GaN/sapphire template. Physica Status Solidi C: Current Topics in Solid State Physics, 2005, 2, 2899-2902.	0.8	11
42	Effects of In composition on ultraviolet emission efficiency in quaternary InAlGaN light-emitting diodes on freestanding GaN substrates and sapphire substrates. Journal of Applied Physics, 2005, 98, 113514.	2.5	23
43	High-Efficiency 352 nm Quaternary InAlGaN-Based Ultraviolet Light-Emitting Diodes Grown on GaN Substrates. Japanese Journal of Applied Physics, 2004, 43, L1241-L1243.	1.5	51
44	Advantages of GaN Substrates in InAlGaN Quaternary Ultraviolet-Light-Emitting Diodes. Japanese Journal of Applied Physics, 2004, 43, 8030-8031.	1.5	14
45	Surprisingly low built-in electric fields in quaternary AlInGaN heterostructures. Physica Status Solidi A, 2004, 201, 190-194.	1.7	3
46	Effects of GaN substrates on InAlGaN quaternary UV LEDs. Physica Status Solidi A, 2004, 201, 2624-2627.	1.7	7
47	Milliwatt Power 350 nm-band Quaternary InAlGaN UV-LEDs on GaN Substrates. Physica Status Solidi A, 2004, 201, 2639-2643.	1.7	7
48	Growth and annealing conditions of high Al-content p-type AlGaN for deep-UV LEDs. Physica Status Solidi A, 2004, 201, 2803-2807.	1.7	6
49	Microassembly of semiconductor three-dimensional photonic crystals. Nature Materials, 2003, 2, 117-121.	27.5	273
50	Determination of built-in electric fields in quaternary InAlGaN heterostructures. Applied Physics Letters, 2003, 82, 1541-1543.	3.3	22
51	Room-temperature intense 320 nm band ultraviolet emission from quaternary InAlGaN-based multiple-quantum wells. Applied Physics Letters, 2002, 80, 1589-1591.	3.3	76
52	Fabrication of a low-threading-dislocation-density AlxGa1â^'xN buffer on SiC using highly Si-doped AlxGa1â^'xN superlattices. Applied Physics Letters, 2002, 80, 2057-2059.	3.3	16
53	Three-dimensional photonic crystals for optical wavelengths assembled by micromanipulation. Applied Physics Letters, 2002, 81, 3122-3124.	3.3	57
54	Efficient 230â€"280 nm emission from high-Al-content AlGaN-based multiquantum wells. Applied Physics Letters, 2002, 80, 37-39.	3.3	67

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55	Effect of Thermal Annealing on the Pd/Au Contact toP-Type Al0.15Ga0.85N. Japanese Journal of Applied Physics, 2002, 41, 581-582.	1.5	16
56	Marked enhancement of 320â€“360 nm ultraviolet emission in quaternary InxAlyGa1â^'xâ^'yN with In-segregation effect. Applied Physics Letters, 2002, 80, 207-209.	3.3	141
57	Small Built-in Electric Fields in Quaternary InAlGaN Heterostructures. Physica Status Solidi (B): Basic Research, 2002, 234, 764-768.	1.5	1
58	Formation of GaN nanopillars by selective area growth using ammonia gas source molecular beam epitaxy. Journal of Crystal Growth, 2002, 243, 129-133.	1.5	19
59	Growth of AlNâ€“SiC solid solutions by sequential supply epitaxy. Journal of Crystal Growth, 2002, 234, 435-439.	1.5	9
60	GaN quantum-dot formation by self-assembling droplet epitaxy and application to single-electron transistors. Applied Physics Letters, 2001, 79, 2243-2245.	3.3	61
61	Quantum dot formation and crystal growth using an atomic nano-mask. Physica E: Low-Dimensional Systems and Nanostructures, 2001, 11, 89-93.	2.7	3
62	Growth and Optical Properties of Quaternary InAlGaN for 300 nm Band UV-Emitting Devices. Physica Status Solidi A, 2001, 188, 83-89.	1.7	27
63	230 to 250 nm Intense Emission from AlN/AlGaN Quantum Wells. Physica Status Solidi A, 2000, 180, 157-161.	1.7	13
64	Room-temperature operation at 333 nm of Al0.03Ga0.97N/Al0.25Ga0.75N quantum-well light-emitting diodes with Mg-doped superlattice layers. Applied Physics Letters, 2000, 77, 175-177.	3.3	136
65	Determination of photoluminescence mechanism in InGaN quantum wells. Applied Physics Letters, 1999, 75, 2241-2243.	3.3	104
66	Comparison of Optical Properties between GaN and InGaN Quantum Wells. Physica Status Solidi (B): Basic Research, 1999, 216, 287-290.	1.5	2
67	Growth mechanisms of GaN quantum dots and their optical properties. Electronics and Communications in Japan, 1998, 81, 20-26.	0.2	3
68	Novel spontaneous emission control using 3-dimensional photonic bandgap crystal cavity. Materials Science and Engineering B: Solid-State Materials for Advanced Technology, 1998, 51, 99-102.	3.5	12
69	Intense photoluminescence from self-assembling InGaN quantum dots artificially fabricated on AlGaN surfaces. Applied Physics Letters, 1998, 72, 1736-1738.	3.3	128
70	New Technique for Fabrication of Two-Dimensional Photonic Bandgap Crystals by Selective Epitaxy. Japanese Journal of Applied Physics, 1997, 36, L286-L288.	1.5	48
71	Stimulated emission from optically pumped GaN quantum dots. Applied Physics Letters, 1997, 71, 1299-1301.	3.3	84
72	Calculating the linear response functions of noninteracting electrons with a time-dependent SchrÃ¶dinger equation. Physical Review E, 1997, 56, 1222-1229.	2.1	68

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73	Novel surface emitting laser diode using photonic bandâ€gap crystal cavity. Applied Physics Letters, 1996, 69, 791-793.	3.3	73
74	Emission Energy Shift in GaInAs/GaInAsP Strained Quantum-Box Structures Due to 0-Dimensional Quantum-Box Effect. Japanese Journal of Applied Physics, 1994, 33, 3571-3577.	1.5	1
75	Lasing action of Ga0.67In0.33As/GaInAsP/InP tensile-strained quantum-box laser. Electronics Letters, 1994, 30, 142-143.	1.0	67
76	Hole capture rate of GaInAs/InP strained quantum-well lasers. Optical and Quantum Electronics, 1994, 26, S719-S729.	3.3	3
77	Carrier capture time and its effect on the efficiency of quantum-well lasers. IEEE Journal of Quantum Electronics, 1994, 30, 54-62.	1.9	51
78	Room-temperature operation of GaInAs/GaInAsP/InP SCH lasers with quantum-wire size active region. IEEE Journal of Quantum Electronics, 1993, 29, 2123-2133.	1.9	30
79	Analysis of current injection efficiency of separate-confinement-heterostructure quantum-film lasers. IEEE Journal of Quantum Electronics, 1992, 28, 68-74.	1.9	64
80	Estimation of carrier capture time of quantumâ€well lasers by spontaneous emission spectra. Applied Physics Letters, 1992, 61, 2398-2400.	3.3	43
81	Threshold current reduction of GaInAs/GaInAsP/InP SCH quantum-well lasers with wire-like active region by using p-type substrates. IEEE Photonics Technology Letters, 1992, 4, 964-966.	2.5	6
82	Room temperature operation of GaInAs-GaInAsP-InP SCH multiquantum-film laser with narrow wire-like active region. IEEE Photonics Technology Letters, 1991, 3, 191-192.	2.5	12
83	Improvement of Regrown Interface in InP Organo-Metallic Vapor Phase Epitaxy. Japanese Journal of Applied Physics, 1991, 30, L672-L674.	1.5	13