

# Jong-In Shim

## List of Publications by Year in descending order

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74  
papers

1,415  
citations

331670

21  
h-index

345221

36  
g-index

75  
all docs

75  
docs citations

75  
times ranked

949  
citing authors

| #  | ARTICLE   | IF  | CITATIONS |
|----|---|-----|-----------|
| 1  | Effect of Defects on Strain Relaxation in InGaN/AlGaIn Multiple-Quantum-Well Near-Ultraviolet Light-Emitting Diodes. <i>Physica Status Solidi (A) Applications and Materials Science</i> , 2022, 219, 2100418.                                      | 1.8 | 3         |
| 2  | Understanding Microscopic Properties of Light-Emitting Diodes from Macroscopic Characterization: Ideality Factor, Sâ€parameter, and Internal Quantum Efficiency. <i>Physica Status Solidi (A) Applications and Materials Science</i> , 2022, 219, . | 1.8 | 4         |
| 3  | Generation of sidewall defects in InGaN/GaN blue micro-LEDs under forward-current stress. <i>Applied Physics Letters</i> , 2022, 121, 013501.   | 3.3 | 3         |
| 4  | Analysis of degradation mechanisms in GaN-based light-emitting diodes under reverse-bias stress: effects of defects and junction-temperature increase. <i>Japanese Journal of Applied Physics</i> , 2021, 60, 032006.                               | 1.5 | 0         |
| 5  | Measuring the surface temperature of light-emitting diodes by thermoreflectance. <i>Japanese Journal of Applied Physics</i> , 2021, 60, 052003.   | 1.5 | 2         |
| 6  | Analysis of Transient Degradation Behaviors of Organic Light-Emitting Diodes under Electrical Stress. <i>Applied Sciences (Switzerland)</i> , 2021, 11, 7627.   | 2.5 | 1         |
| 7  | Effects of Current, Temperature, and Chip Size on the Performance of AlGaInP-Based Red Micro-Light-Emitting Diodes with Different Contact Schemes. <i>ECS Journal of Solid State Science and Technology</i> , 2021, 10, 095001.                     | 1.8 | 12        |
| 8  | Reviewâ€”Active Efficiency as a Key Parameter for Understanding the Efficiency Droop in InGaIn-Based Light-Emitting Diodes. <i>ECS Journal of Solid State Science and Technology</i> , 2020, 9, 015013.   | 1.8 | 5         |
| 9  | Improvement of The Light Output of Blue InGaIn-Based Light Emitting Diodes by Using a Buried Stripe-Type-Contact and Reflective Bonding Pad. <i>ECS Journal of Solid State Science and Technology</i> , 2020, 9, 015021.                            | 1.8 | 0         |
| 10 | Thermodynamic analysis of GaInN-based light-emitting diodes operated by quasi-resonant optical excitation. <i>Journal of Applied Physics</i> , 2020, 128, .   | 2.5 | 10        |
| 11 | Identifying the cause of thermal droop in GaInN-based LEDs by carrier- and thermo-dynamics analysis. <i>Scientific Reports</i> , 2020, 10, 17433.   | 3.3 | 8         |
| 12 | Effect of Interface State Density of the AlGaIn Electron Blocking Layer/GaN Barrier Layer in InGaIn Blue Light-Emitting Diodes. <i>Journal of the Korean Physical Society</i> , 2020, 76, 522-526.  | 0.7 | 0         |
| 13 | Piezoelectric field in InGaIn-based quantum wells grown on <i>c</i> -plane sapphire substrates measured by electroreflectance spectroscopy: from near-ultraviolet to green spectra. <i>Japanese Journal of Applied Physics</i> , 2020, 59, 038001.  | 1.5 | 4         |
| 14 | Measurement of the Piezoelectric Field in InGaIn/AlGaIn Multiple-Quantum-Well Near-Ultraviolet Light-Emitting Diodes by Electroreflectance Spectroscopy. <i>IEEE Journal of Quantum Electronics</i> , 2019, 55, 1-7.                                | 1.9 | 6         |
| 15 | Interrelation Between the Internal Quantum Efficiency and Forward Voltage of Blue LEDs. <i>IEEE Photonics Technology Letters</i> , 2019, 31, 1441-1444.   | 2.5 | 5         |
| 16 | Modified Shockley Equation for GaInN-Based Light-Emitting Diodes: Origin of the Power- Efficiency Degradation Under High Current Injection. <i>IEEE Journal of Quantum Electronics</i> , 2019, 55, 1-11.  | 1.9 | 13        |
| 17 | Current- and temperature-dependent efficiency droops in InGaIn-based blue and AlGaInP-based red light-emitting diodes. <i>Japanese Journal of Applied Physics</i> , 2019, 58, SCCC08.   | 1.5 | 33        |
| 18 | Enhanced Radiative Recombination Rate by Local Potential Fluctuation in InGaIn/AlGaIn Near-Ultraviolet Light-Emitting Diodes. <i>Applied Sciences (Switzerland)</i> , 2019, 9, 871.   | 2.5 | 17        |

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|----|--|-----|-----------|
| 19 | Fabrication of Less Bowed Light-Emitting Diodes on Sapphire Substrates with a SiO <sub>2</sub> Thin Film on Their Back Sides. <i>Journal of the Korean Physical Society</i> , 2019, 75, 480-484. | 0.7 | 2         |
| 20 | Current-voltage characteristics of InGaN/GaN blue light-emitting diodes investigated by photovoltaic parameters. <i>Japanese Journal of Applied Physics</i> , 2019, 58, 012005.                  | 1.5 | 8         |
| 21 | Measuring the Internal Quantum Efficiency of Light-Emitting Diodes at an Arbitrary Temperature. <i>IEEE Journal of Quantum Electronics</i> , 2018, 54, 1-6.                                      | 1.9 | 25        |
| 22 | Factors Determining the Carrier Distribution in InGaN/GaN Multiple-Quantum-Well Light-Emitting Diodes. <i>IEEE Journal of Quantum Electronics</i> , 2018, 54, 1-7.                               | 1.9 | 9         |
| 23 | Measuring the internal quantum efficiency of light-emitting diodes: towards accurate and reliable room-temperature characterization. <i>Nanophotonics</i> , 2018, 7, 1601-1615.                  | 6.0 | 49        |
| 24 | Optoelectronic Performance Variations in InGaN/GaN Multiple-Quantum-Well Light-Emitting Diodes: Effects of Potential Fluctuation. <i>Materials</i> , 2018, 11, 743.                              | 2.9 | 21        |
| 25 | Investigation of Luminance Degradation in Organic Light-Emitting Diodes by Impedance Spectroscopy. <i>IEEE Photonics Technology Letters</i> , 2018, 30, 1183-1185.                               | 2.5 | 14        |
| 26 | Analysis of carrier recombination dynamics in InGaN-based light-emitting diodes by differential carrier lifetime measurement. <i>Applied Physics Express</i> , 2017, 10, 052101.                 | 2.4 | 20        |
| 27 | Investigation of optical processes in InGaN-based light-emitting diodes using electroreflectance and photocurrent spectroscopies. <i>Proceedings of SPIE</i> , 2017, , .                         | 0.8 | 1         |
| 28 | Carrier accumulation in the active region and its impact on the device performance of InGaN-based light-emitting diodes. <i>Applied Physics Express</i> , 2017, 10, 122101.                      | 2.4 | 14        |
| 29 | Interactive Study of Electroreflectance and Photocurrent Spectra in InGaN/GaN-Based Blue LEDs. <i>IEEE Journal of Quantum Electronics</i> , 2017, 53, 1-6.                                       | 1.9 | 6         |
| 30 | On the ideality factor of the radiative recombination current in semiconductor light-emitting diodes. <i>Applied Physics Letters</i> , 2016, 109, .  | 3.3 | 32        |
| 31 | Effects of unbalanced carrier injection on the performance characteristics of InGaN light-emitting diodes. <i>Applied Physics Express</i> , 2016, 9, 081002.                                     | 2.4 | 23        |
| 32 | Wafer-Level Electroluminescence Metrology for InGaN Light-Emitting Diodes. <i>IEEE Journal of Quantum Electronics</i> , 2016, 52, 1-6.   | 1.9 | 0         |
| 33 | Forward-Capacitance Measurement on Wide-Bandgap Light-Emitting Diodes. <i>IEEE Photonics Technology Letters</i> , 2016, 28, 2407-2410.   | 2.5 | 14        |
| 34 | Influences of the p-GaN Growth Temperature on the Optoelectronic Performances of GaN-Based Blue Light-Emitting Diodes. <i>IEEE Journal of Quantum Electronics</i> , 2016, 52, 1-8.               | 1.9 | 5         |
| 35 | Low-frequency noise characteristics of InGaN-based light-emitting diodes. , 2015, , .  |     | 0         |
| 36 | Techniques for optoelectronic performance evaluation in InGaN-based light-emitting diodes (LEDs). , 2015, , .  |     | 0         |

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|----|--|-----|-----------|
| 37 | Influence of current aging on the characteristics of Near-Ultraviolet LEDs. , 2015, , .  |     | 0         |
| 38 | Effect of the p-type GaN thickness on the near-ultraviolet light-emitting diodes. , 2015, , .  |     | 0         |
| 39 | Radiative and non-radiative carrier lifetimes in InGaN-based light-emitting diodes investigated by impedance analysis. , 2015, , .   |     | 0         |
| 40 | Carrier overflow in InGaN/GaN light-emitting diodes investigated by temperature-dependent short-circuit current characteristics. , 2015, , .   |     | 0         |
| 41 | V-pits as Barriers to Diffusion of Carriers in InGaN/GaN Quantum Wells. Journal of Electronic Materials, 2015, 44, 4134-4138.  | 2.2 | 21        |
| 42 | Analysis of the characteristics with increasing the number of QWs for near-ultraviolet LEDs. , 2015, , .   |     | 0         |
| 43 | Analysis of efficiency droop in 280-nm AlGaN multiple-quantum-well light-emitting diodes based on carrier rate equation. Applied Physics Express, 2015, 8, 022104.   | 2.4 | 62        |
| 44 | Conduction Mechanisms of Leakage Currents in InGaN/GaN-Based Light-Emitting Diodes. IEEE Transactions on Electron Devices, 2015, 62, 587-592.  | 3.0 | 42        |
| 45 | Effects of the number of quantum wells on the performance of near-ultraviolet light-emitting diodes. Journal of the Korean Physical Society, 2015, 66, 1554-1558.  | 0.7 | 6         |
| 46 | Analysis of nonradiative recombination mechanisms and their impacts on the device performance of InGaN/GaN light-emitting diodes. Japanese Journal of Applied Physics, 2015, 54, 02BA01.   | 1.5 | 27        |
| 47 | Influence of carrier overflow on the forward-voltage characteristics of InGaN-based light-emitting diodes. Applied Physics Letters, 2014, 105, .   | 3.3 | 26        |
| 48 | Analysis of dominant carrier recombination mechanisms depending on injection current in InGaN green light emitting diodes. Applied Physics Letters, 2014, 104, .   | 3.3 | 44        |
| 49 | Measurement of piezoelectric field in single- and double-quantum-well green LEDs using electroreflectance spectroscopy. Japanese Journal of Applied Physics, 2014, 53, 098002.   | 1.5 | 27        |
| 50 | Nonradiative recombination mechanisms in InGaN/GaN-based light-emitting diodes investigated by temperature-dependent measurements. Applied Physics Letters, 2014, 104, .   | 3.3 | 54        |
| 51 | Determination of the effect of a strain relaxation layer on the internal electric field measurement in an InGaN/GaN multiple-quantum-well structure by using electroreflectance spectroscopy. Journal of the Korean Physical Society, 2013, 62, 1291-1294. | 0.7 | 5         |
| 52 | Correlation between the efficiency droop and the blueshift of the electroluminescence in InGaN/GaN multiple-quantum-well blue light-emitting diodes. Journal of the Korean Physical Society, 2013, 63, 1218-1221.  | 0.7 | 5         |
| 53 | Systematic Analysis of the Photocurrent Spectroscopy on InGaN/GaN Blue Light-Emitting Diodes. IEEE Journal of Quantum Electronics, 2013, 49, 1062-1065.  | 1.9 | 8         |
| 54 | Droop studies for high-performance InGaN blue light-emitting diodes. , 2013, , .   |     | 0         |

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|----|---|-----|-----------|
| 55 | Carrier density dependence of polarization switching characteristics of light emission in deep-ultraviolet AlGaIn/AlN quantum well structures. Applied Physics Letters, 2013, 102, .  | 3.3 | 29        |
| 56 | Investigation of carrier spill-over in InGaN-based light-emitting diodes by temperature dependences of resonant photoluminescence and open-circuit voltage. Physica Status Solidi (A) Applications and Materials Science, 2013, 210, 2204-2208. | 1.8 | 17        |
| 57 | Investigation of Dominant Nonradiative Mechanisms as a Function of Current in InGaIn/GaN Light-Emitting Diodes. Applied Physics Express, 2013, 6, 052105.   | 2.4 | 19        |
| 58 | Efficiency droop in AlGaInP and GaInN light-emitting diodes. Applied Physics Letters, 2012, 100, .  | 3.3 | 63        |
| 59 | Effects of polarization field on vertical transport in GaN/AlGaIn resonant tunneling diodes. Journal of the Korean Physical Society, 2012, 60, 1957-1960.   | 0.7 | 2         |
| 60 | Analysis of efficiency droop in nitride light-emitting diodes by the reduced effective volume of InGaIn active material. Applied Physics Letters, 2012, 100, .  | 3.3 | 99        |
| 61 | Study of droop phenomena in InGaIn-based blue and green light-emitting diodes by temperature-dependent electroluminescence. Applied Physics Letters, 2012, 100, .   | 3.3 | 101       |
| 62 | Measurement of Internal Electric Field in GaInN-Based Light-Emitting Diodes. IEEE Journal of Quantum Electronics, 2012, 48, 500-506.  | 1.9 | 39        |
| 63 | Three-Dimensional Analysis of Temperature Distributions Based on Circuit Modeling of Light-Emitting Diodes. IEEE Transactions on Electron Devices, 2012, 59, 1799-1802.   | 3.0 | 5         |
| 64 | An Explanation of Efficiency Droop in InGaIn-based Light Emitting Diodes: Saturated Radiative Recombination Rate at Randomly Distributed In-Rich Active Areas. Journal of the Korean Physical Society, 2011, 58, 503-508.                       | 0.7 | 60        |
| 65 | Efficiency and Electron Leakage Characteristics in GaInN-Based Light-Emitting Diodes Without AlGaIn Electron-Blocking-Layer Structures. IEEE Photonics Technology Letters, 2011, 23, 1866-1868.   | 2.5 | 23        |
| 66 | Investigation of the Carrier Distribution Characteristics in InGaIn Multiple Quantum Wells by Using Dual-wavelength Light-emitting Diodes. Journal of the Korean Physical Society, 2011, 58, 311-315.   | 0.7 | 4         |
| 67 | Structural Parameter Dependence of Light Extraction Efficiency in Photonic Crystal InGaIn Vertical Light-Emitting Diode Structures. IEEE Journal of Quantum Electronics, 2010, 46, 714-720.   | 1.9 | 36        |
| 68 | Analysis of the stress distribution in the nonuniformly bent GaInN thin film grown on a sapphire substrate. Journal of Applied Physics, 2010, 107, .  | 2.5 | 13        |
| 69 | Strain relaxation effect on electronic properties of compressively strained InGaAs/InP vertically stacked multiple quantum wires. Journal of Applied Physics, 2010, 108, 023104.  | 2.5 | 4         |
| 70 | 3-dimensional current flow analysis in InGaIn light emitting diodes grown on sapphire substrate. , 2009, , .  |     | 0         |
| 71 | Rate equation analysis of efficiency droop in InGaIn light-emitting diodes. Applied Physics Letters, 2009, 95, .  | 3.3 | 189       |
| 72 | A computational method of determining reflectance at abrupt waveguide interfaces. Journal of Lightwave Technology, 1996, 14, 2436-2443.   | 4.6 | 12        |

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|----|--|-----|-----------|
| 73 | 1.5 $\mu$ m InGaAsP/InP multi-gain-levered-MQW-DFB-LD with high efficiency and large bandwidth FM response. , 0, , .   |     | 0         |
| 74 | Theoretical studies on in-plane polarization characteristics of (11 $\bar{1}$ ) nonpolar InGaN/GaN quantum-well structures grown on InGaN substrates. Journal of the Korean Physical Society, 0, , . | 0.7 | 0         |